

2024-25

ENGLISH MEDIUM
RRB-ALP
ASSISTANT LOCO PILOT/TECHNICIAN
PRACTICE BOOK

*Youth
Competition
Times*

RRB-ALP



ASSISTANT LOCO PILOT/TECHNICIAN

15

SETS

PRACTICE BOOK

STAGE-I

TCS
PATTERN

RRB-ALP Pattern & Syllabus of CBT-I Stage

SUBJECT	No. of Questions	Max. Marks	Duration
Mathematics	75	75	60 Mints
Mental Ability			
General Science			
General Awareness			

Note : There shall be negative marking @ $1/3^{\text{rd}}$ marks of each wrong answer.

DETAILED ANALYTICAL EXPLANATION

Railway Recruitment Board

RRB ALP

Assistant Loco Pilot/Technician

Stage-Ist

PRACTICE BOOK

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In the event of any dispute, the judicial area will be Prayagraj.

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ALP/Technician Online Exam Syllabus

Recruitment Process:

- A candidate can apply to only one RRB, and only one online application has to be submitted
- The recruitment process shall comprise of the following stages:
 - First stage CBT (CBT-1)
 - Second stage CBT (CBT-2)
 - Computer Based Aptitude Test (CBAT)
 - Document Verification (DV) and
 - Medical Examination (ME)
- Information on examination schedule and venues will be given in due course through official RRB websites, SMS and email.
- Request for postponement of any of the stages or for change of venue, date and shift will not be entertained under any circumstances.

First Stage CBT (CBT-1):

- CBT-1 will only be a screening exam for shortlisting eligible candidates for CBT-2 based on their normalized marks and merit.
- The marks of CBT-1 shall not be counted while preparing the final panel.
- Candidates belonging to OBC/SC/ST who are shortlisted for CBT-2 by availing relaxed standards of age shall continue to be treated as candidates of their respective reserved communities only for all subsequent stages of this recruitment process.

-
- (d) **Pattern and Syllabus of CBT-1:**
- (i) Duration: 60 minutes
 - (ii) Number of questions: 75, Maximum marks: 75 (@ 1 mark per question)
 - (iii) There shall be negative marking @ 1/3rd marks for each wrong answer.
 - (iv) Normalization of marks will be done for CBTs held in multiple shifts.
 - (v) Minimum pass percentage for eligibility: UR & EWS-40%, OBC (NCL) - 30%, SC - 30%, ST - 25%
 - (vi) The standard of questions for CBT-1 will generally be in conformity with the educational standards and/or minimum technical qualifications prescribed for the post. Questions will be of objective type with multiple choice answers and are likely to cover topics pertaining to the following syllabus:
- (A) **Mathematics**
Number system, BODMAS, Decimals, Fractions, LCM, HCF, Ratio and Proportion, Percentages, Mensuration, Time and Work; Time and Distance, Simple and Compound Interest, Profit and Loss, Algebra, Geometry and Trigonometry, Elementary Statistics, Square Root, Age Calculations, Calendar & Clock, Pipes & Cistern etc.
- (B) **Mental Ability**
Analogies, Alphabetical and Number Series, Coding and Decoding, Mathematical operations, Relationships, Syllogism, Jumbling, Venn Diagram, Data Interpretation and Sufficiency, Conclusions and Decision Making, Similarities and Differences, Analytical reasoning, Classification, Directions, Statement– Arguments and Assumptions etc.
- (C) **General Science**
The syllabus under this shall cover Physics, Chemistry and Life Sciences of 10th standard level.
- (D) **General awareness**
Current affairs, Science & Technology, Sports, Culture, Personalities, Economics, Politics and other subjects of importance.

Second Stage CBT (CBT-2)

- (a) Shortlisting of candidates for CBT-2 shall be done on RRB-wise and community-wise as per their normalized marks and merit in CBT-1.
- (b) Total number of candidates to be shortlisted for CBT-2 shall be limited to 15 (fifteen) times the number of vacancies notified against each RRB.
- (c) However, Railways reserve the right to increase/decrease the above limit as required, to ensure availability of adequate number of candidates for the notified post.
- (d) The final panels for ALP will be prepared only on the basis of marks and merit of candidates in CBT-2 and CBAT.
- (e) **Pattern and syllabus of CBT-2:**
- (i) CBT-2 shall comprise of two parts viz., Part-A and Part-B as detailed below.
 - (ii) Total duration: 2 hours and 30 minutes & total questions: 175
 - Part-A: 90 minutes & 100 questions
 - Part-B: 60 minutes & 75 questions
 - (iii) There shall be negative marking @ 1/3rd marks for each wrong answer.
 - (iv) Normalization of marks will be done for CBTs held in multiple shifts.
 - (v) In Part-A, Minimum pass percentage for eligibility: UR & EWS-40%, OBC (NCL) - 30%, SC - 30%, ST-25%.
 - (vi) Only the marks scored in Part-A shall be counted for shortlisting of candidates for further stages of this recruitment process provided the candidate irrespective of community is able to secure qualifying marks (35%) in Part-B.
 - (vii) Syllabus for Part-A:
- (A) **Mathematics**
Number system, BODMAS, Decimals, Fractions, LCM, HCF, Ratio and Proportion, Percentages, Mensuration, Time and Work; Time and Distance, Simple and Compound Interest, Profit and Loss, Algebra, Geometry and Trigonometry, Elementary Statistics, Square Root, Age Calculations, Calendar & Clock, Pipes & Cistern etc.
- (B) **General Intelligence and Reasoning**
Analogies, Alphabetical and Number Series, Coding and Decoding, Mathematical operations, Relationships, Syllogism, Jumbling, Venn Diagram, Data Interpretation and Sufficiency, Conclusions and decision making, similarities and differences, Analytical reasoning, Classification, Directions, Statement– Arguments and Assumptions etc.
- (C) **Basic Science and Engineering**
The broad topics that are covered under this shall be Engineering Drawing (Projections, Views, Drawing Instruments, Lines, Geometric figures, Symbolic Representation), Units, Measurements, Mass Weight and Density, Work Power and Energy, Speed and Velocity, Heat and Temperature, Basic Electricity, Levers and

Simple Machines, Occupational Safety and Health, Environment Education, IT Literacy etc.

(viii) Syllabus for Part-B:

- (A) Part-B is only a qualifying test in nature and shall have questions from the various trade syllabi as prescribed by Directorate General of Training (DGT).
- (B) **Note:** Qualifying Percentage - 35% for all candidates irrespective of category/community.
- (C) **Syllabus of various trades:** Please check the website (<https://dgt.gov.in>) of Directorate General of Training (GOI) for syllabi of different technical trades.
- (D) Candidates with ITI/Trade Apprenticeship qualification will be required to appear in the section having questions from their trade.
- (E) Degree, Diploma candidates have to select one trade from the list of trades listed below against their engineering discipline.

Part-B (Qualifying Test) of CBT-2		
Qualification-Wise Grouping of Trades/Subject		
Sl. No.	Qualification of candidate	Trade/Subject of Choice for Part-B
1.	Electrical Engineering and combination of various streams of Electrical Engineering	Electrician/Instrument Mechanic, Wiremen, Armature and Coil Winder, Refrigeration and Air-conditioning Mechanic
2.	Electronics Engineering and combination of various streams of Electronics Engineering	Electronics Mechanic, Mechanic (Radio & TV)
3.	Mechanical Engineering and combination of various Engineering	Fitter, Mechanic (Motor Vehicle), Tractor Mechanic, Mechanic (Diesel) Turner, Machinist, Refrigeration and Air-conditioning Mechanic, Heat Engine, Millwright/Maintenance Mechanic
4.	Automobile Engineering and combination of various streams of Automobile Engineering	Mechanic (Motor Vehicle), Tractor Mechanic, Mechanic (Diesel), Heat Engine, Refrigeration and Air-conditioning Mechanic

Computer Based Aptitude Test (CBAT):

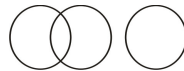
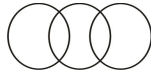


- (a) Candidates equal to 8 (eight) times the number of ALP vacancies for each notified community/ category viz., UR, OBC (NCL), SC, ST and EWS (including ExSM), shall be shortlisted for CBAT on the basis of their marks in Part-A of CBT-2 and application of reservation rules, provided they qualify in Part-B of CBT-2.
- (b) Such shortlisted candidates should produce their Vision Certificate in the prescribed format (as per Annexure-VI) in original, during the CBAT, failing which they will not be permitted to appear.
- (c) It is mandatory to clear each test battery / section of CBAT separately, to qualify.
- (d) The CBAT shall be only in English and Hindi and there shall be no negative marking.
- (e) For information on CBAT, candidates are advised to check the following website links of RDSO–
(i) rdso.indianrailways.gov.in → Verticals → Traffic and Psychology → Psychology-Candidate's Corner, and
(ii) https://rdso.indianrailways.gov.in/view_section.jsp?lang=0&id=0,2,456,5821,6119.
- (f) **Qualifying Marks:** All candidates (irrespective of community) must secure a minimum T-score of 42 marks in each test battery separately to qualify in the CBAT.
- (g) The merit list will be prepared only from amongst candidates qualifying in the CBAT, 70% weightage will be given for marks obtained in Part-A of CBT-2 and 30% weightage for score obtained in the CBAT.

Document Verification (DV):

- (a) Based on the marks and merit of candidates in Part-A of CBT-2, qualifying in Part-B of CBT-2 and scores in CBAT, candidates equal to the number of vacancies, will be shortlisted for Document Verification.
- (b) In case two or more candidates secure equal marks, their merit position shall be determined by age criteria i.e., the older candidate shall be given higher merit than the younger candidate.
- (c) Appointment of selected candidates is subject to their passing the requisite Medical Fitness Test to be conducted by the Railway Administration and final verification of all essential documents and verification of antecedents/character of the candidates.
- (d) Candidates may please note that RRBs only recommend names of empanelled candidates to the Railway Zone concerned. The offer of appointment is issued only by the respective Railway Zones.
- (e) In case of any shortfall in empanelment or other exigencies, RRBs reserve the right to utilize the candidates down in the merit list if required, as per merit and options to such candidates. This however, will not confer any vested right on such candidates to be considered for appointment.

PRACTICE SET-1

1. Which of the following was the first antibiotic discovered by Alexander Fleming in 1928?
(a) Penicillin (b) Prontosil
(c) Streptomycin (d) Tetracycline
2. Pteridophyta do not possess.....
(a) Leaves (b) Flowers
(c) Roots (d) Stem
3. Which of the following is a protein-splitting enzyme?
(a) Ptyalin (b) Amylase
(c) Lipase (d) Pepsin
4. Which of the following circulates around the body and plugs the leaks by helping to clot the blood at the points of injury?
(a) Platelets (b) Plasma
(c) WBC (d) RBC
5. Who suggested that life evolved from simple inorganic (abiotic) molecules?
(a) Murray (b) Darwin
(c) Haldane (d) Mendel
6. The study of hematology is related to
(a) Plant reproductive system
(b) Blood
(c) Food habits of animals
(d) Bones
7. Which of the following elements can form both a double bond and a single bond with a carbon atom?
(a) F (b) Br (c) Cl (d) O
8. The pH scale measures the hydrogen ion concentration in a solution. What does P mean in this?
(a) Power
(b) Potenz, which means power in German.
(c) Potential, which means comfort in German.
(d) Potency, which means power in German.
9. Who is considered as the 'Father of Nuclear Physics'?
(a) Neils Bohr (b) E. Rutherford
(c) J.J. Thomson (d) J. Chadwick
10. Diffusion occurs in extreme intensity in the _____.
(a) Solids (b) Liquids
(c) Gases (d) Plasma
11. The outer space looks black because of:
(a) no scattering of light takes place
(b) no refraction of light takes place
(c) scattering of light by large particles
(d) scattering of light by smaller particle
12. Which of the following is not a chemical reaction?
(a) Decomposition (b) Oxidation
(c) Gravity (d) Hydrolysis
13. The energy contained in an object due to the change in position and shape is called.
(a) Kinetic energy (b) Chemical energy
(c) Nuclear energy (d) Potential energy
14. 1 atmosphere = ?
(a) $1.01 \times 10^5 \text{ Pa}$ (b) $10.1 \times 10^5 \text{ Pa}$
(c) $1.01 \times 10^6 \text{ Pa}$ (d) $10.1 \times 10^6 \text{ Pa}$
15. The SI unit of sound wave frequency was named in honour of which physicist?
(a) Werner Karl Heisenberg
(b) Heinrich Rudolf Hertz
(c) Albert Einstein
(d) J C Maxwell
16. Select the option that is related to the third term in the same way as the second term is related to the first term.
Pediatrics : Children :: Neurology : ?
(a) Veins (b) Eyes
(c) Brain (d) Heart
17. Select the set in which the numbers are related in the same way as are the numbers of the following sets.
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13– Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)
(17, 238, 7)
(23, 414, 9)
(a) (27, 270, 5) (b) (15, 225, 15)
(c) (13, 273, 7) (d) (19, 360, 9)
18. In a certain alpha-numeric code, 'PLATE' is written as 45 and 'BLEAK' is written as 13. How will 'PASTE' be written in the same code?
(a) 12 (b) 21 (c) 54 (d) 16
19. BYTEW is related to YWTEB following a certain logic. Following the same logic, AMFQC is related to QMFCA. Which of the following is TILDW related to following the same logic?
(a) LTIWD (b) WILDT
(c) WLITD (d) WTLID
20. Four abbreviations have been given out of which three are alike in same manner and one is different. Select the odd one.
(a) NTPC (b) CRPF
(c) BHEL (d) SAIL
21. Four animals have been given out of which three are alike in some manner and one is different. Select the odd one.
(a) Goat (b) Dog
(c) Sheep (d) Cow
22. Which of the following number will replace the question mark (?) in the given series?
48, 52, 26, 30, 15, ?
(a) 19 (b) 18 (c) 20 (d) 17
23. Select the option that represents the letters that, when placed from left to right in the blanks below, will complete the letter series.
KP_LZ_P_MZK_B_Z_PB_Z
(a) BKBPNO (b) BKBPNO
(c) BKBPNK (d) BKPPOKP

24. If Q means '+', J means '×', T means '-' and K means '÷', then $52 K 4 Q 6 J 12 T 8 = ?$
 (a) 45 (b) 83 (c) 68 (d) 77
25. Pointing at a picture, Yuvika said that the boy in the picture is the son of her father's mother's daughter. How is that boy related to Yuvika?
 (a) Mother's brother's son (b) Father's brother
 (c) Father's sister's son (d) Brother
26. Three statements are given followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.
Statements:
 All books are papers.
 All trees are papers.
 All papers are recyclable.
Conclusions:
 I. Some books are trees.
 II. All trees are recyclable.
 (a) Neither conclusion I nor II follows
 (b) Only conclusion II follows
 (c) Both conclusions I and II follow
 (d) Only conclusion I follows
27. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.
Statements:
 Some pens are staplers.
 Some staplers are erasers.
 Some erasers are notebooks.
Conclusions:
 (I) Some notebooks are pens.
 (II) Some erasers are pens.
 (a) Both conclusions I and II follow
 (b) Neither conclusion I nor II follows
 (c) Only conclusion I follows
 (d) Only conclusion II follows
28. Q started from a point and walked towards the south for 42 m, then from there he turned right and walked 2 m, then he turned right again and walked 30 m and then turned left and walked 10 m. In which direction is Q facing now? (All turns are 90 degree turns only)
 (a) North (b) East
 (c) South (d) West
29. Select the Venn diagram that best represents the relationship between the given set of classes.
 Apple, Mango, Fruits
 (a)  (b) 
 (c)  (d) 
30. Six students Madhu, Anshul, Avani, Aarav, Priti and Shikha, gave their presentation on different days in the month of March. The presentation was from 11th March to 16th March.
 Anshul presented on 14th March and Shikha presented immediately before Anshul. Only one person presented between Shikha and Priti. Shikha presented after Priti but before Avani. Avani presented immediately before Madhu. Who presented on 15th March?
 (a) Madhu (b) Aarav
 (c) Priti (d) Avani
31. Four awards have been listed, out of which three are alike in some manner and one is different. Select the odd one.
 (a) Padma Vibhushan (b) Padma Bhushan
 (c) Param Vir Chakra (d) Padma Shri
32. Q, W, E, R, T and Y live on seven different floors of the same building with one floor being vacant. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 7. T lives on the 7th floor, and W lives on the 1st floor. Q lives between E and R. One floor immediately above E is vacant. Only Y lives between R and W. The 5th floor is occupied by E. On which floor does Q live?
 (a) 2nd (b) 3rd
 (c) 4th (d) 5th
33. Given below is a statement followed by two possible conclusions I and II. Read the information carefully and select the correct option.
Statement:
 Country B has been importing 80% of its crude oil and petroleum from country Y for a few decades now to fulfil their fuel needs. However, owing to the current financial crisis in country Y, it exports the crude oil and petroleum to other countries at 30% higher prices now.
 Which of the following can be concluded from the given information?
 I. The car resale industry in country B will be on verge of a total shut down in the coming months.
 II. Country B will increase fuel tax by 30%
 (a) Neither I nor II can be concluded from the given information.
 (b) Both I and II can be concluded from the given information.
 (c) Only II can be concluded from the given information.
 (d) Only I can be concluded from the given information.
34. A question and three statements labelled (I), (II) and (III) are given. You have to decide which statement(s) is/are sufficient to answer the question.
Question: Who is the shortest among A, B, C, D and E?
Statement :
 I. A is taller than E but shorter than D.
 II. B is shorter than C but taller than E.
 III. D is taller than C and A is taller than B.

- (a) Statements I, II and III are insufficient
 (b) Statements I and II together are sufficient.
 (c) Statements I and III together are sufficient
 (d) Statements I, II and III together are sufficient
35. A statement is given followed by two assumptions numbered I and II. You have to assume everything in the statement to be true and decide which of the assumptions is/are implicit in the statement.
Statement:
 Children below the age of 5 years should not be allowed too much of screen time a day.
Assumptions:
 I. Too much screen time for growing children will affect them adversely.
 II. Limited screen time is not detrimental to children below 5 years of age.
 (a) Neither assumption I nor II is implicit
 (b) Only assumption I is implicit
 (c) Only assumption II is implicit
 (d) Both assumption I and II are implicit
36. If the 7 digit number $504x5y3$ is divisible by 11, then one of the values of the sum of x and y is:
 (a) 11 (b) 5
 (c) 17 (d) 7
37. If 11-digit number $88p554085k6$, $k \neq p$, is divisible by 72, then what is the value of $(3k + 2p)$?
 (a) 12 (b) 7
 (c) 13 (d) 23
38. Simplify the following expression :
 $(15 \div 3) - \{[(19 - 1) \div 2] - \{5 \times 20 - (7 \times 9 - (-2))\}\}$
 (a) 21 (b) 31
 (c) -21 (d) 35
39. Which of the following fractions is the smallest?
 (a) $\frac{9}{11}$ (b) $\frac{11}{12}$
 (c) $\frac{8}{13}$ (d) $\frac{10}{14}$
40. The LCM of two prime numbers x and y ($x > y$) is 119. The value of $3y - x$ is:
 (a) 2 (b) 4
 (c) 8 (d) 6
41. An amount of ₹ 1,470 is shared between Anant and Mohan in the ratio 3:4. What is the amount received by Mohan?
 (a) ₹ 1,050 (b) ₹ 630
 (c) ₹ 1,650 (d) ₹ 840
42. The population of a town is 10,000. If the male population increases by 5% and the female population by 10%, the population will become 10,800. How much of the town's present population is female?
 (a) 7000 (b) 6000
 (c) 8000 (d) 5000
43. In ΔABC , $DE \parallel BC$ which intersects AB to D and AC to E . $AD : BD = 2 : 3$ and the area of trapezium $BDEC$ is 63 cm^2 . What is the area of ΔADE ?
 (a) 14 cm^2 (b) 28 cm^2
 (c) 42 cm^2 (d) 12 cm^2
44. A and B can complete a piece of work in 10 days and 12 days respectively. If they work on alternate days beginning with A, then in how many days will the work be completed?
 (a) 10 (b) $10\frac{1}{2}$
 (c) $10\frac{1}{4}$ (d) $10\frac{5}{6}$
45. A student reaches school on his bicycle in $\frac{3}{2}$ hours at a speed of 8 km/h. On the return journey he rests for half an hour and takes a route which is 1 km shorter. What should be the percentage increase in the speed of the bicycle so that he reaches home in the same time?
 (a) 37% (b) 37.5%
 (c) 30.5% (d) 35%
46. The simple interest on ₹1280 at 5% p.a. for 3 years is:
 (a) ₹195 (b) ₹180
 (c) ₹192 (d) ₹480
47. Rahul invested a certain sum for two years at 60% p.a. compound interest compounded annually. If at the end of two years he received interest of ₹ 11,700, then how much did he initially invest?
 (a) ₹ 8,000 (b) ₹ 7,250
 (c) ₹ 7,750 (d) ₹ 7,500
48. A person bought an item for ₹ 96 and sold it at a profit of 25%, then what was the selling price of the item?
 (a) ₹120 (b) ₹125
 (c) ₹114 (d) ₹115
49. On selling a jute bag for ₹48, Ashmit incurs a loss of 20%. In order to make a profit of 20% what should be the selling price of the jute bag?
 (a) ₹ 72 (b) ₹ 52
 (c) ₹ 56 (d) ₹ 68
50. How many numbers are there between 1000 and 3000 that are completely divisible by 7 ?
 (a) 281 (b) 284
 (c) 286 (d) 283
51. If $\cot 3\theta \cot 6\theta = 1$ then the value of $\tan 15\theta$:
 (a) $-\frac{1}{\sqrt{3}}$ (b) $-\sqrt{3}$
 (c) 0 (d) $3\sqrt{3}$
52. If the mean of numbers 33, x , 47, 83 and 109 is 67, what is the mean of 50, 64, 100, 126 and x ?
 (a) 84 (b) 81.8
 (c) 80.6 (d) 80
53. Find the value of $\sqrt{2025}$.
 (a) 65 (b) 25
 (c) 55 (d) 45
54. The age of a father six years ago was six times the age of his daughter. Three years later the father will be thrice as old as his daughter. What is the present age of the daughter?
 (a) 15 years (b) 12 years
 (c) 17 years (d) 20 years

55. Pipe A can fill a tank in 80 minutes and pipe B can fill the tank in 40 minutes. If A and B are opened together, then in how many minutes will the tank be filled?
 (a) $26\frac{1}{3}$ (b) $26\frac{2}{3}$
 (c) 27 (d) 26
56. In which of the following places did the English open their 'factory' in 1611 on east coast of India?
 (a) Madras (b) Masulipatnam
 (c) Tuticorin (d) Yanam
57. What is the correct chronological order of the rulers given below?
 (1) Taimur (2) Mahmud Ghazni
 (3) Genghis Khan (4) Muhammad Ghori
 (a) 2, 4, 1, 3 (b) 2, 3, 3, 1
 (c) 2, 4, 3, 1 (d) 4, 2, 3, 1
58. Which of the following is the correct chronological sequence of pre-historic period of human activities and civilization?
 (a) Palaeolithic Period, Mesolithic Period, Neolithic Period
 (b) Metal Age Period, Mesolithic Period, Palaeolithic Period
 (c) Neolithic Period, Mesolithic Period, Palaeolithic Period
 (d) Mesolithic Period, Neolithic Period, Palaeolithic Period
59. Which of the following Articles discusses the veto power of the President of India?
 (a) Article 145 (b) Article 114
 (c) Article 111 (d) Article 122
60. The Constitution of India is republican, because-
 (a) It provided provision for elected parliament.
 (b) A Rights Bill has been incorporated in it.
 (c) Provision of adult suffrage is provided in it.
 (d) It has no hereditary component.
61. Who can be appointed as adhoc Judge of Supreme Court for temporary period?
 (a) Supreme Court Judges
 (b) High Court Judges
 (c) Chief Justice of High Court
 (d) No one is appointed and the space remains vacant
62. is a well known constellation that can be seen in the evening. This constellation is also known as 'the Hunter'.
 (a) Cassiopeia (b) Draco
 (c) Orion (d) Ursa Major
63. Which of the following is the border between India and Pakistan?
 (a) Durand Line (b) Mannerheim Line
 (c) Radcliffe Line (d) Hindenburg Line
64. When a proportional increase in all input results in an increase in output by a larger proportion, the production function is said to display _____.
 (a) Increasing returns to scale
 (b) Constant returns to scale
 (c) Decreasing returns to scale
 (d) Doubling returns to scale
65. Open Market Operation refers to the sale and purchase ofby RBI.
 (a) Immovable Property
 (b) Foreign Currency
 (c) Burities
 (d) Government Securities
66. The Nobel prize awarding institute, Swedish Academy, is associated with:
 (a) Peace (b) Medicine
 (c) Literature (d) Physiology
67. In India, _____ is observed as Rashtriya Ekta Diwas or National Unity Day every year.
 (a) 2 October (b) 15 December
 (c) 30 January (d) 31 October
68. Books that contain the records of Christ's life are known as _____.
 (a) Gospels (b) Sermons
 (c) Torahs (d) Psalms
69. Which one of the following bodies are not Bretton Woods Institutions?
 (a) World Bank
 (b) International Monetary Fund
 (c) World Trade Organisation
 (d) United Nations
70. The famous Haji Ali Dargah is located in which of the following cities?
 (a) Delhi (b) Ajmer
 (c) Mumbai (d) Hyderabad
71. Which of the following is a multi-barrel rocket system developed by DRDO?
 (a) Trishul (b) Dhanush
 (c) Pinaka (d) Prithvi
72. Who became the first Indian female athlete to win two individual Olympic medals?
 (a) Ankita Raina (b) PV Sindhu
 (c) Dutee Chand (d) Mirabai Chanu
73. Who is the first batsman to smash 500 sixes in international cricket?
 (a) Chris Gayle (b) Virat Kohli
 (c) M.S. Dhoni (d) Rohit Sharma
74. Solung celebrated on September 1 every year is the most popular festival of Adis Tribe of which state?
 (a) Sikkim (b) Meghalaya
 (c) Arunachal Pradesh (d) Tripura
75. In which part of India is the festival 'Moatsu' celebrated?
 (a) Maharashtra (b) Rajasthan
 (c) Goa (d) Nagaland

SOLUTION : PRACTICE SET- 1

ANSWER KEY

1. (a)	7. (b)	13. (d)	19. (d)	25. (c)	31. (c)	37. (c)	43. (d)	49. (a)	55. (b)	61. (b)	67. (d)	73. (a)
2. (b)	8. (b)	14. (a)	20. (b)	26. (b)	32. (c)	38. (b)	44. (d)	50. (c)	56. (b)	62. (c)	68. (a)	74. (c)
3. (d)	9. (b)	15. (b)	21. (b)	27. (b)	33. (a)	39. (c)	45. (b)	51. (a)	57. (c)	63. (c)	69. (d)	75. (d)
4. (a)	10. (c)	16. (c)	22. (a)	28. (d)	34. (d)	40. (b)	46. (c)	52. (c)	58. (a)	64. (a)	70. (c)	
5. (c)	11. (a)	17. (a)	23. (b)	29. (d)	35. (d)	41. (d)	47. (d)	53. (d)	59. (c)	65. (d)	71. (c)	
6. (b)	12. (c)	18. (d)	24. (d)	30. (d)	36. (c)	42. (b)	48. (a)	54. (b)	60. (d)	66. (c)	72. (b)	

SOLUTION

1.

Ans. (a) Sir Alexander Fleming, a Scottish researcher, is credited with the discovery of Penicillin in 1928. Stephen William Hawking was an English theoretical physicist, cosmologist, and author and Alexander Graham Bell invented the telephone.

2.

Ans : (b) Pteridophyta do not possess flowers, but they have true roots. Most plants also have well-defined leaves. Their tissues develop more than the tissue of moss. The Pteridophytes include horsetails and ferns.

3.

Ans. (d) : Pepsin is a protein-splitting enzyme. Pepsin is an endopeptidase that breaks down proteins. It preferentially hydrolyzes peptide linkages where one of the amino acids aromatic. Pepsin is a gastric enzyme which was discovered in 1936 by Theodore Schwann.

4.

Ans. (a) : Platelets are tiny blood cells that help your body from clots to stop bleeding. If one of your blood vessels gets damaged, it sends out signals to the platelets. The platelets then rush to the site damage and form a plug (clot) to fix the damage.

5.

Ans. (c) Haldane suggested that life consists of simple inorganic (abiotic) molecules.

6.

Ans. (b) The study of hematology is related to blood. The study of bones is called Osteology.

7.

Ans. (b) : Bromine can form both a double and single bond with a carbon atom

8.

Ans. (b) pH is a measure of the acidity or basicity of a solution. In this, p = potenz which means power in German. Full form of pH is potential of hydrogen. Find it S.C Sarenson.

9.

Ans. (b) : Ernest Rutherford was a New Zealand physicist who came to be known as the Father of Nuclear Physics. He is famous for his work on radioactivity and the discovery of the nucleus of an atom with the gold foiled experiment.

10.

Ans. (c) Diffusion in gases occurs in extreme intensity because there is negligible attractive force between the molecules of gases. Molecules in other two states, i.e. in solid and liquids attract each with much greater force therefore molecules are not free enough to diffuse intensively in these two other states of matter.

11.

Ans. (a) : The outer space looks black because of beyond the atmosphere no scattering of light takes place.

12.

Ans : (c) Gravity is not a chemical reaction. Gravity is a physical reaction. Physical change is the change in which the colour, form, shape, and dimensions of the substance changes. No new substance is formed in it. Such as dissolving of sugar in water, breaking of glass. The change in which a new substance is obtained (which is completely different in chemical and physical properties from the original substance) is called a chemical change such as rusting of iron, curdling of milk, etc.

13.

Ans : (d) Potential energy is the energy in a body due to change in its position and shape.

The formula for potential energy depends on the force acting on that objects. For the gravitational force the formula is P.E. = mgh, where m is the mass in kilograms, g is the acceleration due to gravity (9.8 m/s^2 at the surface of the earth) and h is the height in meters.

14.

Ans : (a) 1 Atmosphere = 101325 Pa
= $1.01325 \times 10^5 \text{ Pa}$

$\therefore 1 \text{ Bar} = 1 \times 10^5 \text{ Pa}$

1 Atmosphere = 1.01325 bar
= 1 atmosphere = 101.325 kPa
1 atmosphere = 760 Torr

1 Atmosphere = 760 mm Hg column.

15.

Ans : (b) The term 'Hertz' was proposed in the early 1920s by German scientists to honour the 19th century German physicist Heinrich Hertz. Hertz is a part of International System of Units or SI System which is based on the Metric System.

16.

Ans. (c) : Just as, pediatrics is related to children. Similarly, neurology is related to brain.

17.

Ans. (a) : Just as -

$(17, 238, 7) \Rightarrow 17 \times (7 \times 2) = 238$

$17 \times 14 = 238$

and,

$(23, 414, 9) \Rightarrow 23 \times (9 \times 2) = 414$

$23 \times 18 = 414$

From option (a)

Same as -

$(27, 270, 5) \Rightarrow 27 \times (5 \times 2) = 270$

$27 \times 10 = 270$

18.

Ans. (d) : Just as,

P L A T E
↓ ↓ ↓ ↓ ↓

$$16 + 12 + 1 + 20 + 5 = 54 \xrightarrow{\text{Reverse}} 45$$

and,

B L E A K
↓ ↓ ↓ ↓ ↓

$$2 + 12 + 5 + 1 + 11 = 31 \xrightarrow{\text{Reverse}} 13$$

Same as,

P A S T E
↓ ↓ ↓ ↓ ↓

$$16 + 1 + 19 + 20 + 5 = 61 \xrightarrow{\text{Reverse}} 16$$

19.

Ans. (d) : Just as,

BYTEW → YWTEB

And,

AMFQC → QMFCA

Similarly,

TILDW → WTLID

Note:- Alphabets are arranged in descending order.

20.

Ans. (b) : CRPF is a police force where as NTPC, BHEL and SAIL are Maharatna companies. Therefore, option (b) is odd one out.

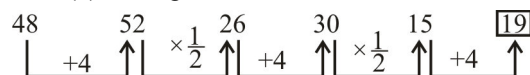
21.

Ans. (b) : Goat, Sheep and Cow are herbivorous animals whereas dog is omnivorous animal.

Hence, option (b) is odd one.

22.

Ans. (a) : The given series is as follows :-



23.

Ans. (b) : The given series is as follows:



Hence, B K B P N K O will complete the letter series.

24.

Ans. (d) : Given,

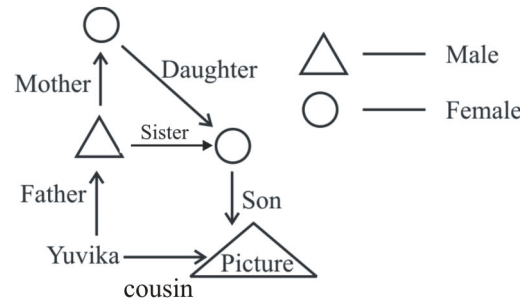
Q → +, J → ×, T → -, K → ÷

Then, 52 K 4 Q 6 J 12 T 8

$$\begin{aligned} &= 52 \div 4 + 6 \times 12 - 8 \\ &= 13 + 6 \times 12 - 8 \\ &= 13 + 72 - 8 \\ &= 85 - 8 \\ &= 77 \end{aligned}$$

25.

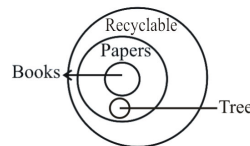
Ans. (c) : According to the question,



Hence, the boy is the cousin of Yuvika or the son of the father's sister.

26.

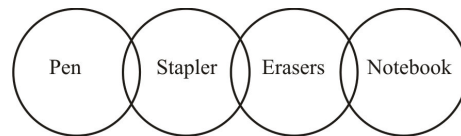
Ans. (b) : On making Venn diagram,



It is clear that only conclusion II follows.

27.

Ans. (b) : According to the question, Venn diagram is as follows:-

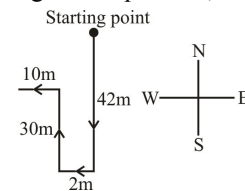


Conclusion :- (I) (×)
(II) (×)

Hence, neither conclusion I nor II follows.

28.

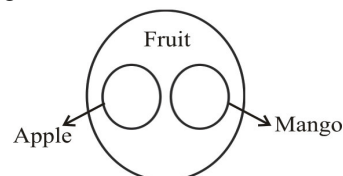
Ans. (d) : According to the question,



Hence, it is clear from diagram that Q is facing west direction now.

29.

Ans. (d) : On drawing the Venn diagram between Apple, Mango and Fruit.



Hence, option (d) is correct.

30.

Ans. (d)

Presentation on different day in month of March	Students
11	Priti
12	Arav
13	Shikha
14	Anshul
15	Avani
16	Madhu

Hence it is clear from above explanation that Avani presented on 15th march.

31.

Ans. (c) : Param Vir Chakra is the honour given for the extraordinary valor and sacrifice of the soldiers. It was also given to the soldiers posthumously.

While, the Padma Vibhushan, Padma Bhushan and Padma Shri awards are given for exceptional and outstanding work in any field.

32.

Ans. (c) : According to the question,



Hence, it is clear from diagram that Q lives on 4th floor.

33.

Ans. (a) : As per the given information of the statement it can be clear that the car resale in country B will be shut down is not concluded in the given information, while country B will increase fuel tax by 30% is also not concluded in the given statement.

Hence, option (a) will be correct.

34.

Ans. (d) : From statement-I,

$$D > A > E$$

From statement-II,

$$C > B > E$$

From statement-III,

$$D > C$$

$$A > B$$

From statement (I), (II) and (III),

$$D > C / A > B > E$$

It is clear that E is the shortest.

Hence, the statement I, II and III together are sufficient to answer the given question.

35.

Ans. (d) : According to the statement, both assumption I and II implicit. Hence, option (d) is correct.

36.

Ans. (c) : Given, $504 \times 5y3$

Divisibility rule of 11:- If the difference of the sum of digits at even place and at odd place is zero or divisible by 11 then the given number will be divisible by 11.

$$504 \times 5y3$$

$$(0 + x + y) - (5 + 4 + 5 + 3)$$

$$x + y - 17 = 0$$

$$x + y = 17$$

Hence, Sum of $x + y = 17$

37.

Ans. (c) : Given,

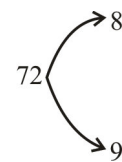
$$88p554085k6$$

Where, $k \neq p$

Note- The number which is divisible by 72 is also divisible by 8 and 9.

Divisibility rule of 8- If the last three digit of the number are divisible by 8, then the number will be divisible by 8.

Divisibility rule of 9- If the sum of the all digits of a given number is divisible by 9, then the number will be divisible by 9.



$$88p554085k6$$

On putting, $k = 3$

$$\frac{536}{8} = 67 \text{ (Completely divisible by 8)}$$

and

On putting $p = 2$

$$\frac{8+8+2+5+5+4+0+8+5+3+6}{9}$$

$$= \frac{54}{9} = 6 \text{ (Completely divisible)}$$

Then,

$$(3k + 2p)$$

$$= 3 \times 3 + 2 \times 2$$

$$= 13$$

38.

Ans. (b) :

$$(15 \div 3) - [\{(19 - 1) \div 2\} - \{5 \times 20 - (7 \times 9 - (-2))\}]$$

$$= 5 - [\{(19 - 1) \div 2\} - \{5 \times 20 - (7 \times 9 - (-2))\}]$$

$$= 5 - [\{18 \div 2\} - \{100 - (63 + 2)\}]$$

$$= 5 - [9 - \{100 - 65\}]$$

$$= 5 - [9 - 35]$$

$$= 5 + 26$$

$$= 31$$

39.

Ans. (c) : From option,

$$\frac{9}{11} = 0.8181$$

$$\frac{11}{12} = 0.916$$

$$\frac{8}{13} = 0.615$$

$$\frac{10}{14} = 0.714$$

Hence, it is clear that smallest fraction is $\frac{8}{13}$.

40.

Ans. (b) : LCM = 119

∴ Numbers x and y = 17 × 7

∴ x = 17, y = 7

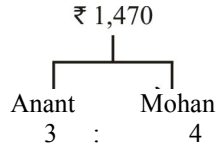
3y - x

= 3 × 7 - 17

= 21 - 17 = 4

41.

Ans. (d) : Given, Amount



Mohan's Share = $\frac{4}{7} \times 1470 = ₹ 840$

42.

Ans. (b) : Let, the number of males = x

And the number of females = (10000 - x)

According to the question-

105% of x + 110% of (10,000 - x) = 10800

$$x \times \frac{105}{100} + (10,000 - x) \times \frac{110}{100} = 10800$$

$$\frac{21}{20}x + (10,000 - x) \times \frac{22}{20} = 10800$$

$$21x + 220000 - 22x = 10800 \times 20$$

$$22x - 21x = 220000 - 216000$$

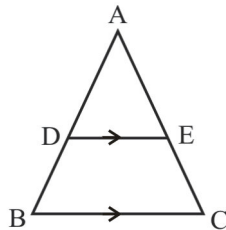
$$x = 4000$$

Hence, the present number of females

$$= (10,000 - 4000) \\ = 6000$$

43.

Ans. (d) :



Given,

AD : BD = 2 : 3

Area of trapezium BDEC = 63 cm²

Let area of Δ ADE = P cm²

According to the question,

$$\frac{AD^2}{AB^2 - AD^2} = \frac{P}{63}$$

$$\frac{2^2}{(2+3)^2 - (2)^2} = \frac{P}{63}$$

$$\frac{4}{25 - 4} = \frac{P}{63}$$

$$\frac{4}{21} = \frac{P}{63}$$

$$P = 4 \times 3$$

$$\therefore \boxed{P = 12 \text{ cm}^2}$$

44.

Ans. (d) : According to the question -

LCM of 10 and 12 = 60

Total work = 60 unit

1 day's work of A = 6 unit

1 day's work of B = 5 unit

2 day's work of (A + B) = 11 unit

$$\times 5 = \times 5$$

By A+B → 10 days = 55 unit

Remaining work = 60 - 55

$$= 5 \text{ unit}$$

Time taken by A to complete 5 unit work = $\frac{5}{6}$ day

Hence required time = $\left(10 + \frac{5}{6}\right)$ days

$$= 10\frac{5}{6} \text{ days}$$

45.

Ans. (b) : Initial speed of student = 8 km/h

$$\text{Time} = \frac{3}{2} \text{ hours}$$

Distance = Speed × Time

$$= 8 \times \frac{3}{2} = 12 \text{ km}$$

According to the question-

Let, the speed has increased by x km/h.

$$12 - 1 = (x + 8) \times \left(\frac{3}{2} - \frac{1}{2}\right)$$

$$11 = (x + 8) \times \frac{2}{2}$$

$$x = 3 \text{ km/h}$$

Percentage increase in speed = $\frac{3}{8} \times 100 = 37.5\%$

46.

Ans. (c) : Given,

P = ₹ 1280

R = 5%

T = 3 years

$$\text{Simple Interest} = \frac{P \times R \times T}{100}$$

$$= \frac{1280 \times 5 \times 3}{100}$$

$$= ₹ 192$$

47.

Ans. (d) : Let Principal = ₹ P

$$\text{Compound Interest} = \left[P \left(1 + \frac{R}{100} \right)^t \right] - P$$

$$11700 = \left[P \left(1 + \frac{60}{100} \right)^2 \right] - P$$

$$11700 = \left[P \left(\frac{8}{5} \right)^2 \right] - P$$

$$11700 = \frac{64P}{25} - P$$

$$11700 = \frac{64P - 25P}{25}$$

$$P = \frac{11700 \times 25}{39}$$

$$\therefore P = ₹ 7500$$

48.

Ans. (a) :

$$SP = CP \times \frac{(100 + \text{Profit}\%)}{100}$$

$$= \frac{96 \times (100 + 25)}{100}$$

$$= \frac{96 \times 125}{100} = ₹120$$

49.

Ans. (a) : Let cost price (C.P.) = x
Selling price (S.P.) = 48, Loss = 20%

$$\therefore x \times \frac{80}{100} = 48$$

$$x = ₹ 60$$

If the profit is 20%, then

$$SP = x \times \frac{120}{100}$$

$$SP = \frac{60 \times 120}{100}$$

$$SP = ₹ 72$$

50.

Ans. (c) :

Numbers divisible by 7 between 1000 and 3000
1001, 1008 2996.

$$\therefore l = a + (n - 1)d$$

Where, l = Last term

a = First term

d = Common difference

n = Number of terms

$$\therefore 2996 = 1001 + (n - 1) \times d$$

$$1995 = (n - 1) \times 7$$

$$(n - 1) = 285$$

$$n = 286$$

51.

Ans. (a) : $\cot 3\theta \cdot \cot 6\theta = 1$

$$\cot 3\theta = \frac{1}{\cot 6\theta}$$

$$\cot 3\theta = \tan 6\theta \quad \left[\because \frac{1}{\cot \theta} = \tan \theta \right]$$

$$\cot 3\theta = \cot (90^\circ - 6\theta)$$

$$3\theta = 90^\circ - 6\theta$$

$$9\theta = 90^\circ$$

$$\theta = 10^\circ$$

$$\text{Then, } \tan 15\theta = \tan 15 \times 10^\circ = \tan 150^\circ = -\frac{1}{\sqrt{3}}$$

52.

Ans. (c) : According to the question,

$$67 = \frac{33 + x + 47 + 83 + 109}{5}$$

$$335 = x + 272$$

$$x = 63$$

Now,

$$\frac{50 + 64 + 100 + 126 + 63}{5}$$

$$= 80.6$$

53.

Ans. (d) : Given,

$$\sqrt{2025}$$

$$= \sqrt{45 \times 45}$$

$$= 45$$

54.

Ans. (b) : Let the present age of father and daughter be x and y respectively.

According to first condition,

$$x - 6 = 6(y - 6)$$

$$x - 6 = 6y - 36$$

$$x - 6y = -30 \text{ -----(i)}$$

According to second condition,

$$x + 3 = 3(y + 3)$$

$$x + 3 = 3y + 9$$

$$x - 3y = 6 \text{ -----(ii)}$$

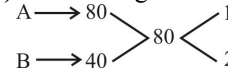
On solving equation (i) and (ii)

$$x = 42, y = 12$$

Hence the present age of daughter (y) = 12 years.

55.

Ans. (b) : According to the question,



$$\text{Time taken by A \& B to fulfill the tank.} = \frac{80}{3}$$

$$= 26\frac{2}{3} \text{ minutes}$$

56.

Ans. (b) : The East-India Company's ships docked at Surat in 1608 AD but the company was first established in Masulipatnam or Machilipatnam in Andhra Pradesh in 1611 and later in Surat in 1612 Captain Hawkins granted permission with the Permission of Mughal Emperor Jahangir.

57.

Ans. (c) : The correct chronological order of the rulers–

- Mahmud Ghazni – (998–1030 AD)
- Muhammad Ghori – (1173–1206 AD)
- Genghis Khan – (1206–1227 AD)
- Taimur – (1370–1405 AD)

58.

Ans. (a) : The Pre Historic Period (Stone Age) of human activities and Civilization is divided into three periods: Paleolithic (or Old Stone Age), Mesolithic (or Middle Stone Age), and Neolithic (or New Stone Age), this era is marked by the use of tools by our early human ancestors (who evolved around 250,000 B.C.) and eventually transformed from a culture of hunting and gathering to farm and food production. During this era, early humans shared the planet with a number of now-extinct hominin relatives, including Neanderthals and Denisovans. So the correct option is (a).

59.

Ans. (c): The power of Veto of the President falls under Articles-111 of the constitution. The Articles-111 provides provisions related to assent to bills by the President. It means that, when a Bill has been passed by the houses of parliament, it shall be presented before the President and President shall decide either to give assents to the Bill or that to withhold the Bill.

60.

Ans. (d): The Constitution of India is republican, as it has no hereditary component. The heads of state of India are elected. "The people and their elected representatives hold Supreme power, rather than a Monarch." Since India became a free nation on August 15, 1947, it declared itself a Sovereign, Democratic and Republic state with the adoption of the Constitution on January 26, 1950. The Constitution gave the citizens of India the power to choose their own government and paved the way for democracy.

61.

Ans. (b): According to Article 127 the Chief Justice may appoint a High Court Judge having the qualification to be appointed as Adhoc Judge in the Supreme Court with prior consent of the President and consultation with the Chief Justice of the Affiliate High Court.

62.

Ans. (c) : Orion is a well known constellation that can be seen in the evening. This constellation is also known as the 'Hunter or Mriga'. Orion constellation is located on the celestial equator. It is the brightest and most beautiful of the winter constellation. Some of its stars including Betelgeuse and Rigel are the brightest stars.

63.

Ans. (c) :	
Boundry	Country
Durand Line	Afghanistan-Pakistan
Radcliffe Line	India- Pakistan
Mannerheim Line	Russia-Finland
Hindenburg Line	Germany-Poland

64.

Ans. (a): Increasing returns to scale: If increase in outputs are proportionately more than an increase in quantity of all inputs, returns to scale are said to be increasing. If a firm doubles its inputs and the output increases by $2\frac{1}{2}$ times then the production function exhibits increasing returns to scale.

65.

Ans. (d): 'Open Market Operation (OMOs)' are market operation conducted by RBI by way of the sale/purchase of Government Securities from the market with the objective to adjust the rupee liquidity condition in the market on a durable basis.

66.

Ans. (c) : The Swedish Academy of Nobel prize awarding body, belongs to the field of 'Literature' because the Nobel Laureates in Literature is selected by the committee of the Academy.

67.

Ans. (d) : The birth anniversary of Sardar Vallabhbhai Patel on 31 October is observed as Rashtriya Ekta Diwas or National Unity Day every year.

68.

Ans. (a) : Books that contain the records of Christ's life are known as Gospels.

This is the story of the life of lord Jesus Christ the Messiah, as recorded in the Holy Bible.

69.

Ans. (d) : In July 1944, the Bretton Woods Conference was organized in Bretton Woods, New Hampshire United States under the guidance of Harry Dexter of the USA and John Maynard Keynes of England in which 44 countries participated. The purpose of this conference was to regulate the International monetary system financial disorder. After conference, global institutions such as International Monetary Fund (IMF), World Bank, World Trade Organization (WTO) were established.

70.

Ans. (c) : The famous Haji Ali Dargah is located in the city of Mumbai, in India. Haji Ali Dargah houses the mortal remains of a 15th-century Sufi Saint, Pir Haji Ali Shah Bukhari.

71.

Ans. (c) : Pinaka is a multi-barrel rocket launcher developed by Defence Research and Development Organisation (DRDO). Through this, 12 rockets of 100 kg weight can be launched in 40 seconds.

Trishul is a short range surface to air missile.

Prithvi is a surface to surface ballistic missile.

Dhanush is a naval variant of the Prithvi missile having 500 kg payload.

72.

Ans. (b) : PV Sindhu is an Indian badminton player. She became first Indian woman who won two consecutive medals in Olympics games, Silver medal in 2016 and Bronze Medal in 2020 Olympics.

73.

Ans. (a) : West Indies opener Chris Gayle has become the first ever player to smash 500 sixes in international cricket. He achieved this feat in the One Day International (ODI) series against England.

74.





Ans. (c) : 'Solung' is the most popular festival of the Adi Tribe of Arunachal Pradesh which is celebrated on September 1 every year. It is a harvest festival performed after sowing of seeds and transplantation, to seek prosperity and a good harvest.

75.

Ans. (d) : Moatsu is celebrated in the state of Nagaland, India. Other festivals of Nagaland are Hornbill, Sekrenyi, Aoleang, Naknyulem, Mimkut, Tokhu Emong etc. Moatsu is celebrated annually by Ao tribes during the first week of May. The festival of Moatsu is an annual festival celebrated after the sowing season.

PRACTICE SET-2

1. **Who invented the Smallpox vaccine?**
(a) D Rutherford (b) Louis Pasteur
(c) Edward Jenner (d) James Chadwick
2. **Ephedra plant is classified under _____.**
(a) Bryophytes (b) Angiosperm
(c) Gymnosperm (d) Pteridophytes
3. **What is the common name of E300?**
(a) Vitamin B (b) Vitamin C
(c) Vitamin D (d) Vitamin A
4. **What is the function of RBC in the human body?**
(a) To provide oxygen to the body cells
(b) To extract carbon dioxide from the body cells
(c) To remove nitrogenous wastes in dissolved form
(d) To provide digested food to the body cells
5. **The father of modern botany is.**
(a) G.J. Mendel (b) Louis Pasteur
(c) Carolus Linnaeus (d) Edward Jenner
6. **Which cell organelle detoxifies toxins and drugs?**
(a) Ribosomes (b) Mitochondria
(c) Golgi bodies (d) Endoplasmic reticulum
7. **Which of the following is diatomic?**
(a) argon (b) helium
(c) fluorine (d) methane
8. **Which of the following indicators cannot be used to differentiate between acidic and neutral solutions?**
(a) methyl orange (b) phenolphthalein
(c) Eosin (d) Universal Indicator
9. **In the first period, both elements have valence electrons in**
(a) K shell (b) M shell
(c) N shell (d) L shell
10. **During fermentation in yeast, pyruvate is converted into which of the following products?**
(a) Water and carbon dioxide
(b) Glucose and carbon dioxide
(c) Ethanol and carbon dioxide
(d) Lactic acid and carbon dioxide
11. **The image of a star is obtained at F of a concave mirror when the incident ray is:**
(a) along the focal plane
(b) perpendicular to principal axis
(c) inclined to principal axis
(d) parallel to principal axis
12. **An object was thrown upwards at a speed of 14m/s and find 10m height. Calculate the time taken by the object to reach the highest point.**
(a) 1.63 s (b) 1.33 s
(c) 1.53 s (d) 1.43 s
13. **When an object of 11 kg is at a height of 6 m from the ground, then find the energy contained in it? ($g=9.8\text{ms}^{-2}$)**
(a) 539J (b) 646.8J
(c) 528J (d) 520J
14. **1 Diopter is equal to –**
(a) 1 mm^{-1} (b) 1 m^{-1}
(c) 1 dm^{-1} (d) 1 cm^{-1}
15. **The SI unit of 'Magnetic Flux' is:**
(a) Farad (b) Henry
(c) Pascal (d) Weber
16. **Select the option that is related to the third word in the same way as the second word is related to the first word.**
Shirt : Apparel :: Necklace : ?
(a) Chain (b) Gold
(c) Jewellery (d) Neck
17. **Select the set in which the numbers are related in the same way as are the numbers of the following sets.**
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)
(11, 117, 2)
(9, 56, 5)
(a) (12, 108, 6) (b) (13, 169, 2)
(c) (7, 46, 1) (d) (10, 98, 2)
18. **In a certain code language, MUTINY is written as 25149202113 and MAGIC is written as 397113. How will NECTAR be written in the same language?**
(a) 182103513 (b) 181203514
(c) 182203614 (d) 191253014
19. **'BELATED' is related to 'TLEEDBA' and 'STOREY' is related to 'YTSROE' in the same way as 'DOUBLE' is related to '_____'.
(a) OULEDBC (b) OULEDBB
(c) UOLEDBC (d) UOLEDBB**
20. **Four instruments have been listed, out of which three are alike in some manner and one is different. Select the odd one :**
(a) Tabla (b) Mridangam
(c) Sitar (d) Drums
21. **Four options have been given, out of which three are alike in some manner and one is different. Select the odd one.**
(a) Dream (b) Snore
(c) Meditate (d) Sleep
22. **Which of the following numbers will replace the question mark (?) in the given series?
12, 60, 65, 325, 330, ?**
(a) 1600 (b) 1670
(c) 1650 (d) 1680
23. **Select the combination of letters that when sequentially placed in blanks of the given series will complete the series.**
_ h _ _ c d _ p _ c _ h _ k _ d h _ k _
(a) dphkchdpck (b) phcdkpchdk
(c) dpkhkdpce (d) phdkpchkpc

24. If P denotes '×', T denotes '-', M denotes '+' and B denotes '÷', what will come in place of the question mark (?) in the following equation?
 $54 \text{ B } 9 \text{ P } 11 \text{ T } 13 \text{ M } 17 = ?$
 (a) 78 (b) 70 (c) 74 (d) 73
25. Rahul is the brother of Raj. Radha is the sister of Raman. Raj is the son of Radha. Then how is Rahul related to Radha?
 (a) Nephew (b) Son
 (c) Uncle (d) Brother
26. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be variance with commonly known facts, decide which of the given conclusion logically follow(s) from the statements.
 Statements :
 1. All yellow are pinks.
 2. All pinks are whites
 Conclusions :
 I. Some pinks are yellows.
 II. Some whites are yellows
 III. Some yellow are not whites
 IV. All whites are pinks.
 (a) Only conclusions I and II follow.
 (b) Only conclusions II and IV follow.
 (c) Only conclusions I and IV follow.
 (d) Only conclusions I and III follow.
27. Read the given statements and conclusions carefully. Assuming that the information given in the statement is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.
 Statements :
 Some sisters are brothers.
 Very few balloons are sisters.
 Conclusions :
 I. Some brothers are balloons.
 II. Some brothers are not balloons.
 (a) Both the conclusions I and II follow.
 (b) Either conclusions I or II follow.
 (c) Only conclusions II follow.
 (d) Only conclusions I follow.
28. Ajay is driving in the east direction and covers a distance of 2.5 km and then takes a turn in the left direction and travels a distance of 3 km. Further, he turns to the right and travels a distance of 4.5 km. Finally, he turns to his right and travels a distance of 3 km. How far is from the starting point? (All turns are 90 degree turns only)
 (a) 8 km (b) 7 km (c) 6 km (d) 5 km
29. Select the Venn diagram that best represents the relationship between the given set of classes.
 Short women, White-haired people, Indians
- (a)  (b) 
- (c)  (d) 
30. Six persons, A, B, C, D, E and F have birthdays in different months of the same year viz. February, April, June, August, September and December but not necessarily in the same order. Only one person has a birthday between B and A, in the same order. Only two people have birthdays between C and E, in the same order. F has a birthday in a month immediately before September. D has a birthday in December. Who among them has a birthday in February?
 (a) B (b) E (c) C (d) F
31. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.
 (a) Plough (b) Loom
 (c) Tractor (d) Seed Drill
32. A certain number of persons are standing in a straight row facing North. X is standing to the immediate left of W but immediate right of R. Z is standing to the immediate left of R. There is only one person to the left of P. Q is standing to the immediate left of Y. The person standing at the extreme right end is the only one person to the right of Y. Only four persons are standing between P and Q. If no other person is standing in the row, what is the total number of persons standing?
 (a) Ten (b) Eight (c) Seven (d) Nine
33. Two statements are given followed by two conclusions. Considering the two statements to be true irrespective of the commonly known facts, decide which of the two conclusions follow logically from these two statements.
 Statements:
 1. All hill stations have an echo-point.
 2. P is a hill station.
 Conclusions:
 1. P has an echo-point.
 2. Places other than hill stations do not have echo-points.
 (a) Only conclusion 2 follows
 (b) Both conclusion 1 and conclusion 2 follow
 (c) Neither conclusion 1 nor conclusion 2 follows
 (d) Only conclusion 1 follows
 A question followed by two/three statement. Identify which statement is sufficient/necessary to answer the question.
34. You are given a question and four statements, decide which statement is sufficient to answer the question.
 There are 10 balls of different sizes and colors, green, yellow, blue, red and pink. Balls of same color are same in size. Can you find the sequence of largest to smallest Balls.
 Statement :
 1) 3 red balls are larger than 2 green balls.
 2) There are 2 pink balls which are smallest.
 3) Two blue balls are largest.
 4) Green is larger than yellow.
 (a) All statements together are sufficient.
 (b) Statements 1, 3 and 4 are sufficient to find the answer.
 (c) Statement 1, 2 and 4 are sufficient to find the answer.
 (d) Statement 1, 4 and 2 are sufficient to find the answer.

35. Given below is a statement followed by two possible underlying assumptions I and II. Read the information carefully and select the correct option.
Statement :
Extracts of plant C have been found useful in treating an earlier fatal disease. Although plant C, once imported, can be grown on any moist soil, most pharma companies in country Y are still choosing synthetic substitutes over using natural extracts.
- I. Unlike the case in all other countries, in Country Y, production of this synthetic substitute is substantially cheaper than growing Plant C.
II. The effect of a synthetic substitute is not drastically different from the plant extract.
- (a) Only I can be assumed
(b) Only II can be assumed
(c) Neither I nor II can be assumed
(d) Both I and II can be assumed
36. Which of the following number is NOT divisible by 8?
(a) 35792 (b) 35112
(c) 35412 (d) 35552
37. What is the smallest four digit number formed by using the digits 3, 5, 0, 6?
(a) 3056 (b) 0356
(c) 0536 (d) 3506
38. Find the value of $72 \div 4 \times \{8 \times 4 - (14 - 19)\}$
(a) 666 (b) 444
(c) 222 (d) 1296
39. Which of the following fractions is the greatest?
(a) $\frac{8}{19}$ (b) $\frac{9}{22}$
(c) $\frac{10}{23}$ (d) $\frac{11}{24}$
40. If the product of two co-primes is 104, then their LCM is?
(a) can't be determined (b) is 104
(c) is 1 (d) is equal to their HCF
41. In a college, if 15% of the boys are the same in number as one-third of the girls, then find the ratio of the number of boys to that of girls in the college.
(a) 20 : 9 (b) 20 : 7
(c) 9 : 20 (d) 7 : 20
42. The population of Ludhiana city increases by 20% annually. If its present population is 8,47,000. What will be population in 2 years?
(a) 12,14,682 (b) 12,10,681
(c) 12,12,068 (d) 12,19,680
43. The sides of a triangle are 15 cm, 28 cm, and 41 cm. What is the length of its altitude corresponding to the side with a length of 28 cm?
(a) 14 cm (b) 10 cm
(c) 12 cm (d) 9 cm
44. Raju is thrice as good as a workmen as Vinod and together they can finish a task in 21 days. In how many days can Vinod alone complete the work?
(a) 84 (b) 28
(c) 78 (d) 76
45. Two vehicles from a house moved at a speed of 25 km/h. At an interval of 20 minutes. How much more speed a woman coming from the opposite direction of the house will have to walk so that she gets a vehicle at an interval of 18 minutes.
(a) 2 (b) $2\frac{5}{9}$
(c) $2\frac{7}{9}$ (d) $2\frac{8}{9}$
46. What will be the simple interest on ₹ 10,000 at 12% per annum for 5 years ?
(a) ₹1,700 (b) ₹6,000
(c) ₹5,000 (d) ₹500
47. A sum of money, when invested at 10% compound interest per annum, amounts to ₹1,815 after 2 years. What is the original sum that was invested in the beginning?
(a) ₹1512.50 (b) ₹1,475.00
(c) ₹1,500.00 (d) ₹1,550.00
48. Arvind bought 120 m cloth for ₹ 15000. He sold 45% of it at a gain of 40%, 25% of it at a loss of 10% and the remaining cloth at the cost price. His profit (in ₹) in the entire transaction is—
(a) ₹ 4075 (b) ₹ 2325
(c) ₹ 4180 (d) ₹ 2035
49. The set of 2 pants and 4 shirts or 1 pant and 6 shirts costs ₹ 5,600. A shopkeeper decides to sell them separately. He sold 10 shirts for ₹ 6,000. Find the loss or profit on each shirt.
(a) Profit ₹1000 (b) Loss ₹1000
(c) Profit ₹100 (d) Loss ₹100
50. What is the sum of the following two series?
 $(8 + 27 + 64 + \dots + 1000) + (2 + 4 + 6 + \dots + 20)$
(a) 3136 (b) 3134
(c) 3135 (d) 3133
51. If $\sin\theta - \operatorname{cosec}\theta = \sqrt{2}$, then the value of $\sin^3\theta - \operatorname{cosec}^3\theta$ is
(a) $2\sqrt{3}$ (b) $5\sqrt{2}$
(c) $\frac{1}{\sqrt{2}}$ (d) 0
52. The mean of the values 1, 2, 3, 4,, n with respective frequencies 1, 2, 3,, n is:
(a) $\frac{2n-1}{3}$ (b) $\frac{2n+1}{3}$
(c) $\frac{n+1}{2}$ (d) $\frac{n-1}{2}$
53. What is the square root of 34596 ?
(a) 174 (b) 176
(c) 204 (d) 186
54. 17 years later from Chetna's age will be twice as Mahim's age. Before 5 years from today Mahim's age was one year less than $\frac{1}{3}$ part of Chetna's age. What is the present age of Chetna?
(a) 65 years (b) 63 years
(c) 67 years (d) 61 years

55. Pipe A can fill an empty pool in 14 hours. Together with pipe B it can fill the empty pool in 12 hours. So pipe B can fill the empty pool in _____ hours ?
 (a) 84 (b) 75
 (c) 78 (d) 77
56. Before the rule of East India company, India used to export soft clothes made of which fabric?
 (a) Only cotton (b) Only silk
 (c) Only Nylon (d) Silk & cotton
57. Which of the following is the correct sequence of Delhi sultanate?
 (a) Slave → Tughlaq → Khalji → Lodi
 (b) Slave → Khalji → Tughlaq → Lodi
 (c) Slave → Lodi → Khalji → Tughlaq
 (d) Tughlaq → Khalji → Slave → Lodi
58. Which city from the Harappan Civilization was almost exclusively devoted to craft production including bead making, shell cutting, metal working, seal making and weight making?
 (a) Mohenjodaro (b) Nageshwar
 (c) Harappa (d) Chanhudaro
59. Which of the following is the feature of the Constitution of the United Kingdom?
 (a) Single citizenship
 (b) Fundamental duties
 (c) Concurrent list
 (d) Directive principles of state policy
60. Why are such remarks made in the context of the President's Pocket veto power that the Indian President's Pocket is larger than that of the American President?
 (a) Power of the Indian President not to take any action either positive or negative on the Bill for an indefinite period.
 (b) The President of the United States has to send the Bill back for reconsideration within 10 days whereas the Indian President has 30 days.
 (c) The President of the United States has to send the Bill back for reconsideration within 10 days whereas the Indian President has 20 days.
 (d) The President of the United States, after having a bill for more than 10 days, cannot send it back for reconsideration, which is not the case with the Indian President.
61. By whom the Legislative Redundancy of state assembly and parliament is examined?
 (a) Economic Review (b) Supreme Court
 (c) Judicial Review (d) State Council
62. Hubble's law is related to
 (a) Heat (b) Sound
 (c) Astronomy (d) Pressure of wind
63. The Kumaun Himalayas (according to the east-west division of the Himalayas) lie between which of the following two rivers?
 (a) Teesta and Dihang (b) Satluj and Kali
 (c) Indus and Satluj (d) Kali and Teesta
64. In macroeconomic analysis, a consumption function describes the relation between total consumptions and
 (a) quality of the consumption good
 (b) price of the consumption good
 (c) gross national income
 (d) behaviour of the consumer
65. The situation in an economy when inflation and unemployment both are at higher levels is known as _____.
 (a) reflation (b) stagflation
 (c) inflation gap (d) inflation premium
66. Who was awarded the Nobel Prize for the discovery of insulin?
 (a) Frederick Banting (b) James Collip
 (c) E. Abraham (d) William Osler
67. Every year, 'Parakram Divas' is celebrated on the birth anniversary of which Indian Nationalist?
 (a) Rani Lakshmi Bai
 (b) Bhagat Singh
 (c) Lala Lajpat Rai
 (d) Netaji Subhash Chandra Bose
68. The first ever detailed commentary of the Bhagwad Gita in Marathi was done by _____.
 (a) Ramdas (b) Tukaram
 (c) Eknath (d) Dnyaneshwar
69. Which of the following is NOT a correct pair of a UN organ and its headquarters?
 (a) The International Court of Justice (ICJ) - The Hague
 (b) World Health Organization (WHO) - New York
 (c) United Nations Educational, Scientific and Cultural Organization (UNESCO) - Paris
 (d) International Atomic Energy Agency (IAEA) - Vienna
70. Which state in India will you find the The Cathedral of Mary Help of Christians?
 (a) Bihar (b) Meghalaya
 (c) Karnataka (d) West Bengal
71. Which of the following is a supersonic cruise missile?
 (a) Trishul (b) Brahmos
 (c) Akash (d) Prithvi
72. Who among the following was the first Indian woman to be nominated to the International Olympic Committee?
 (a) Chanda Kocchar (b) Anjum Chopra
 (c) Nita Ambani (d) Mithali Raj
73. With which sport is the Rovers Cup associated?
 (a) Hockey (b) Cricket
 (c) Football (d) Rowing
74. Hornbill and Moatsu Festivals are predominantly celebrated in which of the following states?
 (a) Nagaland (b) Uttar Pradesh
 (c) Himachal Pradesh (d) West Bengal
75. Which festival is celebrated to mark the beginning of harvesting season in Assam?
 (a) Tsu Paru (b) Bohag Bihu
 (c) Pongal (d) Makar Sankranti

SOLUTION : PRACTICE SET- 2

ANSWER KEY

1. (c)	7. (c)	13. (b)	19. (d)	25. (b)	31. (b)	37. (a)	43. (d)	49. (d)	55. (a)	61. (c)	67. (d)	73. (c)
2. (c)	8. (c)	14. (b)	20. (c)	26. (a)	32. (d)	38. (a)	44. (a)	50. (b)	56. (d)	62. (c)	68. (d)	74. (a)
3. (b)	9. (a)	15. (d)	21. (c)	27. (b)	33. (d)	39. (d)	45. (c)	51. (b)	57. (b)	63. (b)	69. (b)	75. (b)
4. (a)	10. (c)	16. (c)	22. (c)	28. (b)	34. (a)	40. (b)	46. (b)	52. (b)	58. (d)	64. (c)	70. (b)	
5. (c)	11. (d)	17. (a)	23. (c)	29. (b)	35. (b)	41. (a)	47. (c)	53. (d)	59. (a)	65. (b)	71. (b)	
6. (d)	12. (d)	18. (b)	24. (b)	30. (a)	36. (c)	42. (d)	48. (b)	54. (a)	60. (a)	66. (a)	72. (c)	

SOLUTION

1.

Ans. (c) Smallpox vaccine introduced by Edward Jenner in 1796 was the first successful vaccine to be developed. Edward Jenner was a British Physician and scientist who pioneered the concept of Vaccines, which are derived from Variola vaccine (Smallpox of cow).

2.

Ans. (c) Ephedra is a genus of gymnosperm shrubs. The various species of Ephedra are widespread in many arid regions of the world. The genus Ephedra was first described in 1753 by Carolus Linnaeus.

3.

Ans. (b) E300 is the common name for vitamin C. Its chemical name is ascorbic acid. Ascorbic acid is commonly found in citrus fruit such as oranges, tomatoes, brussels sprouts, cauliflower, broccoli etc. Deficiency of vitamin C causes scurvy disease.

4.

Ans. (a) Red blood cells are responsible for transporting oxygen from lungs to body's tissues. Our tissues produce energy with the oxygen and release a waste, identified as carbon dioxide. Our red blood cells take the carbon dioxide (CO₂) waste to lungs for being exhaled.

5.

Ans. (c) Carolus Linnaeus is known as the Father of Modern Botany. He was a Swedish botanist, zoologist taxonomist and physician who formalized binomial nomenclature. Louis Pasteur, a French chemist, known for invention of Rabies vaccine and pasteurization of milk and Edward Jenner is renowned for creating small pox vaccine.

6.

Ans. (d) : Endoplasmic reticulum (ER) is the cell organelle which detoxifies toxins and drugs. ER serves many role in the cell including calcium storage, protein synthesis and lipid metabolism.

7.

Ans. (c) In the above, Argon (Ar) and Helium (He) are monoatomic while fluorine (F₂) is diatomic and methane (CH₄) is polyatomic.

8.

Ans : (c) A natural or synthetic indicator such as phenolphthalein, universal indicator methyl oranges, detects the acid or alkali properties of a compound while cytoplasm, tissue is studied by eosin.

9.

Ans. (a) : Elements present in the first period = H and He

Number of electrons present in Hydrogen atom = 1

Number of electrons present in Helium atom = 2

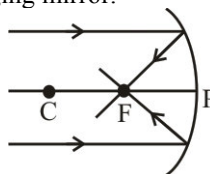
An atom can have a maximum of 2 electrons in its K shell. Hence, atoms of both elements of the first period have K shell electrons.

10.

Ans. (c) : During fermentation in yeast, pyruvate is converted into Ethanol and carbon dioxide.

11.

Ans. (d) : The image of a star is obtained at F of a concave mirror when the incident ray is parallel to principal axis. The concave mirror is also called as converging mirror.



12.

Ans : (d) From the equation of motion,

$$v = u - gt,$$

$$u = 14\text{m/s} \quad v = 0$$

$$t = ? \quad g = 9.8\text{m/s}^2$$

$$0 = 14 - 9.8t$$

$$t = \frac{14}{9.8} = 1.43 \text{ s}$$

13.

Ans : (b) Given,
 $m = 11 \text{ kg}, \quad h = 6 \text{ m}, \quad g = 9.8 \text{ m/s}^2$
 P.E. = mgh
 $= 11 \times 9.8 \times 6 = 646.8 \text{ J}$

14.

Ans : (b) • 1 diopter of power of a lens is described as the unit of measurement of the optical power of a lens which is equal to reciprocal of the focal length (f), measured in meter.

• The SI unit of power of lens is diopter whose focal length is one meter, which is denoted by the letter 'D'.

$$1 \text{ diopter (d)} = \frac{1}{f(\text{meter})} = \frac{1}{(\text{meter})}$$

$$= 1\text{m}^{-1}$$

where, (f) = focal length

15.

Ans : (d) The measurement of the total magnetic field which passes through a given area is known as magnetic flux. It is useful in describing the effects of the magnetic force acting on something occupying a given area. The SI unit of magnetic flux is Weber and is represented by wb.

16.

Ans. (c) : Just as, a Shirt is an Apparel. Similarly, a necklace is a 'Jewellery'.

17.

Ans. (a) : Just as -

$$(11, 117, 2) \Rightarrow (11+2) \times (11-2) \\ = 13 \times 9 = 117 \text{ (Mid Number)}$$

and,

$$(9, 56, 5) \Rightarrow (9+5) \times (9-5) \\ = 14 \times 4 = 56 \text{ (Mid Number)}$$

From option (a),

Same as,

$$(12, 108, 6) \Rightarrow (12+6) \times (12-6) \\ = 18 \times 6 = 108 \text{ (Mid Number)}$$

18.

Ans. (b) : Just as,

$$\text{MUTINY} \rightarrow (13 \ 21 \ 20 \ 9 \ 14 \ 25) \\ \downarrow \text{(Reverse order)} \\ (25 \ 14 \ 9 \ 20 \ 21 \ 13)$$

And,

$$\text{MAGIC} \rightarrow (13 \ 1 \ 7 \ 9 \ 3) \\ \downarrow \text{(Reverse order)} \\ (3 \ 9 \ 7 \ 1 \ 13)$$

Similarly,

$$\text{NECTAR} \rightarrow (14 \ 5 \ 3 \ 20 \ 1 \ 18) \\ \downarrow \text{(Reverse order)} \\ (18 \ 1 \ 20 \ 3 \ 5 \ 14)$$

Hence, NECTAR is coded as 181203514.

19.

Ans. (d) :

Just as, (in decreasing order)

$$\text{B E L A T E D} \Rightarrow \text{T L E E D B A} \\ 2 \ 5 \ 12 \ 1 \ 20 \ 5 \ 4 \Rightarrow 20 \ 12 \ 5 \ 5 \ 4 \ 2 \ 1$$

And, (in decreasing order)

$$\text{S T O R E Y} \Rightarrow \text{Y T S R O E} \\ 19 \ 20 \ 15 \ 18 \ 5 \ 25 \Rightarrow 25 \ 20 \ 19 \ 18 \ 15 \ 5$$

Same as, (in decreasing order)

$$\text{D O U B B L E U O L E D B B} \\ 4 \ 15 \ 21 \ 2 \ 2 \ 12 \ 5 \Rightarrow 21 \ 15 \ 12 \ 5 \ 4 \ 2 \ 2$$

Note - In the given questions, words have been arranged in descending order of their alphabetical order.

20.

Ans. (c) : Sitar is a stringed instrument whereas all others are percussion instrument.

Hence option (c) is different from all other options.

21.

Ans. (c) : Dream, Snoring and Sleep are all involuntary actions, whereas Meditation is a voluntary action. Hence, option (c) will be required answer.

22.

Ans. (c) : The given series is as follows :-

$$12 \xrightarrow{\times 5} 60 \xrightarrow{+5} 65 \xrightarrow{\times 5} 325 \xrightarrow{+5} 330 \xrightarrow{\times 5} 1650$$

23.

Ans. (c) : The given series is as follows-

d h p k c / d h p k c / d h p k c / d h p k c

Hence, dpkhkdpcpc will complete the letter series.

24.

Ans. (b) : Given,

$$P \rightarrow \times, M \rightarrow + \\ T \rightarrow -, B \rightarrow \div$$

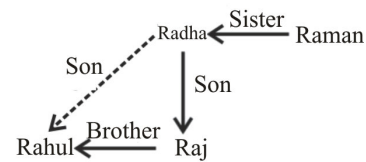
54 B 9 P 11 T 13 M 17

On putting the mathematical signs-

$$= 54 \div 9 \times 11 - 13 + 17 \\ = 6 \times 11 - 13 + 17 \\ = 83 - 13 = 70$$

25.

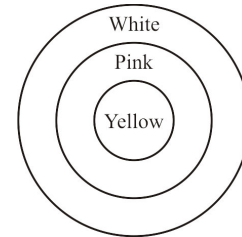
Ans. (b) : According to the question, blood relation diagram is as follows.



From the given blood relation diagram it is clear that Rahul is the son of Radha.

26.

Ans. (a) : According to the question, On making Venn diagram,



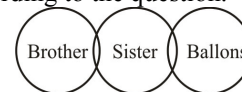
Conclusion :

- (I) ✓
- (II) ✓
- (III) ✗
- (IV) ✗

Hence, only conclusion I and II follow.

27.

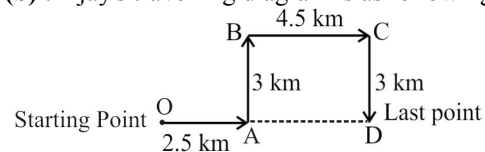
Ans. (b) : According to the question.



According to question it is clear from the Venn diagram that either conclusion I or conclusion II follows.

28.

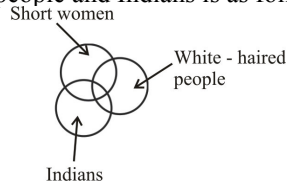
Ans. (b) : Ajay's travelling diagram is as following:



$$\text{OD} = \text{OA} + \text{AD} \\ = 2.5 + 4.5 \\ = 7 \text{ km}$$

29.

Ans. (b) : Suitable Venn diagram for Short women, White-haired people and Indians is as follows,



Hence, options (b) will be required answer.

30.

Ans. (a) : According to the question—

Birth day month	People
February	B
April	E/C
June	A
August	F
September	C/E
December	D

Hence, it is clear that B's birthday in February.

31.

Ans. (b) : Plough, Tractor and Seed Drill are agricultural instrument while, Loom is used for cloth knitting. Hence Loom is different amongst all.

32.

Ans. (d) : The standing arrangement of the persons is as follows :



Hence, it is clear from above that total number of person in the row is nine.

33.

Ans. (d) : It is clear from the statement that all hill stations have an echo-point. If P is a hill station then there must be a echo-point. Hence, conclusion 1 logically follows from the statement whereas there is not mention about other places in the statement. Hence, conclusion 2 does not follow.

34.

Ans. (a) : According to question, total number of balls = 10
According to the statement-
(1) 3 red balls > 2 green balls
(2) 2 pink balls are the smallest (> 2 pink)
(3) 2 blue balls are the largest (< 2 blue)
(4) green > yellow
which means 2 blue > 3 red > 2 green > yellow > 2 pink. Total balls = 2 blue + 3 red + 2 green + 1 yellow + 2 pink and the combination = blue > red > green > yellow > pink
So it is clear that all the statements together are sufficient to answer the question.

35.

Ans.(b) : There is no information about statement (I) that country Y is producing this synthetic drug is much cheaper than growing plant C. So assumption (I) is not implicit. According to assumption (II) the effect of the synthetic drug is much different from the plant extract. So it can be clear that assumption (II) can be implicit.

36.

Ans. (c) : Divisibility rule of 8- If the last three digits of a number are divisible by 8, then the number is completely divisible by 8.
from the given options -

(a) 35 792

$$\frac{792}{8} = 99 \text{ (Completely divisible)}$$

(b) 35 112

$$\frac{112}{8} = 14 \text{ (Completely divisible)}$$

(c) 35 412

$$\frac{412}{8} = 51.5 \text{ (Not completely divisible)}$$

(d) 35 552

$$\frac{552}{8} = 69 \text{ (Completely divisible)}$$

Hence, option (c) is not divisible by 8.

37.

Ans. (a) : The smallest four-digit number formed by 3,5,0,6 = 3056 (\because 0356 is three digit number)

38.

Ans. (a) : $72 \div 4 \times \{ 8 \times 4 - (14 - 19) \}$
 $= 72 \div 4 \{ 8 \times 4 - (-5) \}$
 $= 72 \div 4 \{ 8 \times 4 + 5 \}$
 $= 72 \div 4 \{ 32 + 5 \}$
 $= 72 \div 4 \times 37$
 $= 18 \times 37 = 666$

39.

Ans : (d) From options

$$\frac{8}{19} = 0.421, \frac{9}{22} = 0.409, \frac{10}{23} = 0.43, \frac{11}{24} = 0.458$$

Hence, the required greatest fraction is $\frac{11}{24}$.

40.

Ans. (b) : Factor of 104, we have

$$104 = 13 \times 8$$

HCF of co-prime numbers is always 1.

Now,

$$\text{HCF} \times \text{LCM} = \text{Product of two numbers.}$$

$$1 \times \text{LCM} = 104$$

$$\text{LCM} = 104$$

41.

Ans. (a) : If the number of boys in a college = x
No. of girls = y

$$\frac{x \times 15}{100} = \frac{1}{3} y$$

$$\frac{x}{y} = \frac{20}{9}$$

\therefore Ratio of number of boys and girls = 20 : 9

42.

Ans. (d) : Present population = 8,47,000
According to the question,

$$\begin{aligned} \text{Population of city after 2 years} &= 847000 \left(1 + \frac{20}{100} \right)^2 \\ &= 847000 \times \frac{36}{25} \\ &= 12,19,680 \end{aligned}$$

43.

Ans. (d) : Sides of triangle = 15 cm, 28 cm and 41 cm

$$S = \frac{a+b+c}{2}$$

$$S = \frac{15+28+41}{2} = \frac{84}{2} = 42 \text{ cm}$$

$$\begin{aligned} \text{Area of triangle} &= \sqrt{42(42-15)(42-28)(42-41)} \\ &= \sqrt{42 \times 27 \times 14 \times 1} = 126 \text{ cm}^2 \end{aligned}$$

length of altitude will be 28 cm then

$$\text{Area} = \frac{1}{2} \times \text{Base} \times \text{Height}$$

$$126 = \frac{1}{2} \times 28 \times \text{altitude}$$

Thus, altitude = 9 cm

44.

Ans. (a) : Let time taken by Raju to complete the work = x days

Time taken by Vinod to complete the work = 3x days

$$1 \text{ day work of Raju and Vinod} = \frac{1}{21} \text{ unit}$$

$$\text{Raju's 1 day work} + \text{Vinod's 1 day work} = \frac{1}{21} \text{ unit}$$

$$\frac{1}{x} + \frac{1}{3x} = \frac{1}{21}$$

$$\frac{3+1}{3x} = \frac{1}{21}$$

$$\Rightarrow x = 28 \text{ days}$$

∴ Time taken by Raju to complete the work = 28 days.

∴ Time taken by Vinod to complete the work = 3 × 28 = 84 days

45.

Ans : (c) Distance covered by vehicle in 20 minutes

$$\text{Distance} = \text{Speed} \times \text{Time}$$

$$= 25 \times \frac{20}{60} \text{ km.}$$

$$= 25 \times \frac{1}{3} = \frac{25}{3} \text{ km.}$$

Let the speed of woman = x Km./hr.

∴ From question,

$$\frac{25}{3} = \frac{18}{25+x}$$

$$\frac{25}{25+x} = \frac{18}{60}$$

$$\Rightarrow \frac{25}{3(25+x)} = \frac{18}{60}$$

$$\Rightarrow \frac{25}{75+3x} = \frac{18}{60}$$

$$\Rightarrow \frac{25}{75+3x} = \frac{3}{10}$$

$$\Rightarrow 250 - 225 = 9x$$

$$\Rightarrow 25 = 9x$$

$$\Rightarrow x = \frac{25}{9}$$

Hence speed of woman = $2\frac{7}{9}$ Km./hr.

46.

Ans. (b) : Given,

$$P = 10000, R = 12\%, T = 5$$

$$S.I. = \frac{P \times R \times T}{100}$$

$$S.I. = \frac{10000 \times 12 \times 5}{100}$$

$$S.I = 100 \times 60 = ₹6000$$

47.

Ans. (c) : Given,

$$r = 10\%$$

$$t = 2 \text{ years}$$

$$P = ?$$

From formula-

$$A = P \left(1 + \frac{r}{100} \right)^n$$

$$1815 = P \left(1 + \frac{10}{100} \right)^2$$

$$P = \frac{1815 \times 100}{121}$$

$$P = ₹1,500$$

48.

Ans. (b) : Cost price of cloth = ₹15000

$$\begin{aligned} \text{Selling price of 45\% part of cloth} &= 15000 \times \frac{45}{100} \times \frac{140}{100} \\ &= ₹9450 \end{aligned}$$

$$\begin{aligned} \text{Selling price of 25\% part} &= 15000 \times \frac{25}{100} \times \frac{90}{100} \\ &= ₹3375 \end{aligned}$$

$$\begin{aligned} \text{Selling price of remaining 30\% part of cloth} \\ &= 15000 \times \frac{30}{100} \times \frac{100}{100} \\ &= ₹4500 \end{aligned}$$

$$\begin{aligned} \text{Profit} &= \text{Selling price} - \text{Cost price} \\ &= (9450 + 3375 + 4500) - 15000 \\ &= 17325 - 15000 \\ &= ₹2325 \end{aligned}$$

49.

$$\begin{aligned} \text{Ans : (d) } 2P + 4S &= 5600 \dots\dots(i) & \text{Where } S = \text{Shirt} \\ 1P + 6S &= 5600 \dots\dots(ii) & P = \text{Pant} \end{aligned}$$

On multiplying by 2 in equation (ii)

$$2P + 4S = 5600$$

$$\underline{2P + 12S = 11200} \quad \text{and}$$

$$8S = 5600$$

$$1S = 700$$

∴ So, the cost price of 1 shirt = ₹700

And the selling price of 10 shirt = 6000

$$\therefore \text{So, the selling price of 1 shirt} = \frac{6000}{10} = ₹600$$

$$\therefore \text{Loss} = 700 - 600 = ₹100$$

50.

Ans. (b) :

$$\begin{aligned} &(8 + 27 + 64 + \dots + 1000) + (2 + 4 + 6 + \dots + 20) \\ &= [(2^3 + 3^3 + 4^3 + \dots + (10)^3) + 2(1+2+3+ \dots + 10)] \\ &= [\{(1)^3 + (2)^3 + (3)^3 + (4)^3 + \dots + (10)^3\} - (1)^3] + 2 \\ &\quad (1+2+3+ \dots + 10) \end{aligned}$$

∴ The sum of cubes of the first 'n' natural numbers

$$= \left[\frac{n(n+1)}{2} \right]^2$$

And, sum of the first 'n' natural numbers = $\frac{n(n+1)}{2}$

$$\begin{aligned} &= \left[\frac{10(10+1)}{2} \right]^2 - 1 + 10(10+1) \\ &= (5 \times 11)^2 - 1 + 10 \times 11 \\ &= (55)^2 - 1 + 110 \\ &= 3025 - 1 + 110 \\ &= 3024 + 110 \\ &= 3134 \end{aligned}$$

51.

Ans. (b) : Given,

$$\sin\theta - \operatorname{cosec}\theta = \sqrt{2}$$

by cubing both sides

$$\Rightarrow (\sin\theta - \operatorname{cosec}\theta)^3 = (\sqrt{2})^3$$

$$\sin^3\theta - \operatorname{cosec}^3\theta - 3\sin\theta \cdot \operatorname{cosec}\theta (\sin\theta - \operatorname{cosec}\theta) = 2\sqrt{2}$$

$$\sin^3\theta - \operatorname{cosec}^3\theta - 3\sin\theta \cdot \frac{1}{\sin\theta} (\sin\theta - \operatorname{cosec}\theta) = 2\sqrt{2}$$

$$\Rightarrow \sin^3\theta - \operatorname{cosec}^3\theta - 3\sqrt{2} = 2\sqrt{2}$$

$$\sin^3\theta - \operatorname{cosec}^3\theta = 5\sqrt{2}$$

52.

Ans. (b) : $\sum f_1 x_1 = (1 \times 1) + (2 \times 2) + (3 \times 3) + \dots + n \times n$

Where, f_1 = Frequency, x_1 = Observation

$$= 1^2 + 2^2 + 3^2 + \dots + n^2$$

$$= \frac{n(n+1)(2n+1)}{6}$$

and $\sum f_1 = 1 + 2 + 3 + \dots + n$

$$= \frac{n(n+1)}{2}$$

$$\text{Mean} = \frac{\sum f_1 x_1}{\sum f_1} = \frac{\frac{n(n+1)(2n+1)}{6}}{\frac{n(n+1)}{2}} = \frac{2n+1}{3}$$

53.

Ans. (d) Square root of 34596

	186
1	34596
+1	1
28	245
+8	224
366	2196
6	2196
	××××

So, the required square root of the given number is 186.

54.

Ans : (a) Before 5 years,

Age of Chetna = x years

$$\text{Age of Mahim} = \frac{x}{3} - 1 = \left(\frac{x-3}{3} \right) \text{ years}$$

After 17 years,

$$x + 5 + 17 = \left(\frac{x-3}{3} + 5 + 17 \right) \times 2$$

$$x + 22 = \left(\frac{x-3}{3} + 22 \right) \times 2$$

$$x + 22 = \frac{2x-6}{3} + 44$$

$$x - \frac{2x-6}{3} = 22$$

$$3x - 2x - 6 = 66$$

$$x = 60$$

Hence, the present age of Chetna = 60 + 5 = 65 years

55.

Ans : (a) Time taken to fill the pool by A = 14 hours

$$\text{Filled part by A in 1 hour} = \frac{1}{14} \text{ part}$$

Time taken to fill the pool by A and B together = 12 hours

$$\text{Filled part by A and B in 1 hour} = \frac{1}{12} \text{ part}$$

Suppose B can fill pool in n hours then filled part by B

$$\text{in 1 hour} = \frac{1}{n} \text{ part}$$

So,

$$\frac{1}{14} + \frac{1}{n} = \frac{1}{12}$$

$$\frac{1}{n} = \frac{1}{12} - \frac{1}{14}$$

$$\frac{1}{n} = \frac{7-6}{84} \Rightarrow \frac{1}{n} = \frac{1}{84} \Rightarrow \boxed{n=84}$$

Hence time taken to fill the pool by B = 84 hours

56.

Ans. (d): Before the rule of East India company, India used to export soft clothes made of silk & cotton, spices & pearls, salt, indigo dye, saltpeter and opium.

57.

Ans. (b): The period between 1206 A.D. and 1526 A.D. in Indian history is known as the Delhi sultanate period. The Delhi Sultanate is said to be the reign of the Sultans of the five dynasties that ruled India. In Delhi Sultanate, four dynasties were originally Turks while the last Lodhi dynasty was Afghan. The rule of Sultans of Delhi Sultanate sequentially, is as under-
The Slave Dynasty (1206–1290 AD)
The Khalji Dynasty (1290–1320 AD)
The Tughlaq Dynasty (1320–1414 AD)
The Sayyid Dynasty (1414–1451 AD)
The Lodi Dynasty (1451–1526 AD)

58.

Ans. (d) : Chanhudaro is an archaeological site belonging to the Indus Valley Civilization. This site is located 130 km south of Mohenjodaro in Sindh, Pakistan. It was first excavated by N.G. Majumdar in March 1931. It was a settlement exclusively devoted to craft production including bead making, shell cutting, metal working etc. It is the only site of Indus valley Civilization from where curved bricks have been found.

59.

Ans. (a):

Feature of the Constitution	Source Country
Single citizenship	– United Kingdom
Fundamental Duties	– USSR
Concurrent list	– Australia
Directive principle of state policy	– Ireland

60.

Ans. (a): The power of the President not to act upon the bill is termed as pocket veto. The pocket veto of the Indian President is larger than that of the American President. This is said because the President of India has the power not to take any action either positive or negative on a bill for an indefinite period other than the money bill. The first use of pocket veto power was made in 1986 on the Indian Post Office Bill passed by Parliament, on which no decision was taken by the then President Giani Zail Singh.

61.

Ans. (c): The Legislative Redundancy of state assembly and parliament is examined by Judicial Review. Judicial Review provides power to the court of a country to examine the actions of the legislative, executive, and administrative whether such actions are consistent with Constitution. Judicial Review has been borrowed from the USA.

62.

Ans. (c): Hubble's law is related to astronomy. Hubble showed that galaxies are receding away from Earth with a velocity that is proportional to their distance from Earth. More distant galaxies recede faster than nearby galaxies. Hubble's law is used for understanding the motion of the astronomical objects due to the expansion of the universe.

63.

Ans. (b) : Kumaun Himalayas, is a west-central section of the Himalayas in northern India, extending around (320 km) from the Satluj and Kali rivers.

Rivers	Himalayan ranges (lying between rivers)
Kali and Teesta	Nepal Himalayas
Indus and Satluj	Punjab Himalayas
Teesta and Dihang	Assam Himalayas

64.

Ans. (c): The term consumption function refers to an economic formula that represents the functional relationship between total consumption and gross national income. It is a valuable tool that can be used by economists and other leaders to understand the economic cycle and help them make key decisions about investments as well as monetary and fiscal policy.

65.

Ans. (b): Stagflation is an economic situation where the economy experiences the combination of high rate of inflation and Unemployment and economic growth going slow.

66.

Ans. (a): The Nobel Prize in Physiology or Medicine 1923 was awarded jointly to Frederick Grant Banting and John James Rickard Macleod "for the discovery of insulin." Insulin was discovered in 1921 by Banting and West. It is secreted by the β -cell of the

pancreatic 'Islets of Langerhans'. Diabetes is caused by low secretion of insulin. The over secretion of insulin leads to a disease called hypoglycemia, which reduces fertility and vision.

67.

Ans. (d) : Every year, Parakram Divas is celebrated on the birth anniversary of Netaji Subhash Chandra Bose. The Government of India decided to celebrate the birth anniversary of Netaji as Parakram Divas. Subhash Chandra Bose was born in cuttack (Odisha). Indian National Army (Azad Hind Fauj) was founded by him to overthrow British Empire from India.

68.

Ans. (d) : Dnyaneshwari also referred to as Jnaneshwari, Jnaneshwari or Bhavartha Deepika is a commentary on the Bhagavad Gita written by the Marathi saint and poet Sant Dnyaneshwar in 1290 CE.

69.

Ans. (b) : United Nations organs and their headquarters:

- * International Court of Justice (ICJ)- The Hague, Netherlands
- * The World Health Organization (WHO)- Geneva, Switzerland
- * The United Nations Educational, Scientific and Cultural Organization (UNESCO) - Paris, France.
- * The International Atomic Energy Agency (IAEA) - Vienna, Austria.

70.

Ans. (b) : The Cathedral of Mary Help of Christians is located in the Indian State of Meghalaya.

71.

Ans. (b) : The BrahMos is a medium - range ramjet supersonic cruise missile that can be launched from submarine, ships, aircraft or land. It is the fastest supersonic cruise missile in the world. BrahMos is a two stage missile with a solid propellant booster engine as its first stage which brings it to supersonic speed and then gets separated. The liquid ramjet or the second stage then takes the missile closer to speed in cruise phase. The name BrahMos is a portmanteau formed from the names of two rivers, the Brahmaputra of India and the Moskva of Russia

72.

Ans. (c) Nita Ambani has become the first Indian woman member of International Olympic Committee to be nominated in 2016 by the IOC Executive Board.

NOTE : The International Olympic Committee is a non-profit, non-governmental organization. The IOC is responsible for the promotion of Olympic values and is regarded as the supreme authority of the Olympic movement.

73.

Ans. (c) : Rovers Cup is associated with football. It is an annual football tournament and second oldest tournament in India. It is organized by Western India Football Association.

74.

Ans. (a) : Hornbill and Moatsu both festivals are predominantly celebrated in the state of Nagaland.


75.

Ans. (b) Bohag Bihu is famous festival celebrated in Assam and North eastern state of India. It is celebrated on 13 April on the new year festival of Assam. It is also known as Xaat Bihu.

PRACTICE SET-3

1. **What did Edward Jenner pioneer?**
 (a) Vaccination (b) Electrocutation
 (c) Dialysis (d) Open heart surgery
2. **Pollination is characteristic of plants of group:**

 (a) Pteridophyte (b) Cross fertilization
 (c) Angiosperm (d) Bryophyte
3. **Cobalmin is also called as:**
 (a) Vitamin-D (b) Vitamin-B₁₂
 (d) Vitamin-A (d) Vitamin-C
4. **Which of the following circulates impure blood?**
 (a) Pulmonary vein (b) Alveoli
 (c) Pulmonary artery (d) Aorta
5. **Cavalier-Smith classified organisms into**
 (a) 4 (b) 5
 (c) 3 (d) 6
6. **Where are waste products stored within a plant cell?**
 (a) Golgi bodies (b) Lysosomes
 (c) Vacuoles (d) Mitochondria
7. **Which of the following property is NOT Shown by carbon?**
 (a) Metallic Properties (b) Concatenation
 (c) Covalency (d) Allomorphism
8. **Which of the following is a natural source of lactic acid?**
 (a) Tomato (b) Ant sting
 (c) Sour milk (d) Tamarind
9. **The outermost shell of contains 1 to 3 electrons.**
 (a) Non-metal (b) Metal
 (c) Halogen (d) Metalloid
10. **During a chemical reaction, the sum of the masses of the reactants and products remains unchanged. What is this called?**
 (a) Law of Constant Proportion
 (b) Principle of Energy Conservation
 (c) Chemical Combination Law
 (d) Mass Conservation Principle
11. **For a person with hypermetropia or far-sightedness, the near point, is _____ farther away from the normal near point.**
 (a) 27 cm (b) 26 cm
 (c) 25 cm (d) 24 cm
12. **The friction in liquids is called :**
 (a) Rigidity (b) Viscosity
 (c) Morbidity (d) Rancidity
13. **The rate of change of momentum of an object is proportional to the applied unbalanced force in the direction of the force. This rule is known as :**
 (a) Newton's First Law of Motion
 (b) Newton's Fourth Law of Motion
 (c) Newton's Second Law of Motion
 (d) Newton's Third Law of Motion
14. **Sound pollution is measured in-**
 (a) Decibel (b) Joule
 (c) Ampere (d) Ohm
15. **Henry per meter is the unit of _____.**
 (a) Watt per steradian
 (b) Electronegativity
 (c) Magnetic permeability
 (d) electrical conductivity
16. **Select the option that is related to the third term in the same way as the second term is related to the first term?**
Gravity : Discovery : : Telephone : ?
 (a) Experiment (b) Explore
 (c) Construct (d) Invention
17. **Select the set in which the numbers are related in the same way as are the numbers of the following sets.**
Note:- Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13- Operations on 13 such as adding / subtracting/multiplying etc. to 13 can be performed breaking down 13 into 1 and 3 then performing mathematical operations on 1 and 3 is not allowed)
(12, 112, 9)
(6, 28, 4)
 (a) (12, 149, 12) (b) (18, 94, 5)
 (c) (13, 55, 4) (d) (11, 99, 9)
18. **In a certain code language, TOUGH is written as 20152178 and PLEAD is written as 1612514. How will CLOVE be written in the same language?**
 (a) 31115215 (b) 31215225
 (c) 31215324 (d) 31315235
19. **In a certain code language, if 'NEWTON' is written as 'LUCFKL' and 'PASCAL' is written as 'JYGWYN', how will 'TESLA' be written in that language?**
 (a) FUGMY (b) FUGNY
 (c) ETFMX (d) FUFMY
20. **Choose the word that is different from the other three.**
 (a) Treacherous (b) Devoted
 (c) Loyal (d) Faithful
21. **Select the option that is different from the rest.**
 (a) Missile - Trajectory (b) Scalpel - Surgery
 (c) Chisel - Carpentry (d) Needle-Embroidery
22. **Which of the following numbers will replace the question mark (?) in the given series?**
4 12 76 292 804 ?
 (a) 2000 (b) 1804
 (c) 1000 (d) 2804
23. **Select the combination of letters that when placed from left to right in the same sequence in the blanks of the given series will complete the series.**
MN __ LMM __ PLM __ NP __ MMNN __ M
 (a) NPNNMNLPP (b) NNNNMNLPL
 (c) NPNNMNLPL (d) MPNNMNLPL

24. If J denotes addition, G denotes subtraction, M denotes multiplication and B denotes division, then which of the following equations will not be correct?
 (a) $6M5J4B2G10 = 22$ (b) $4G16B2J6M5 = 26$
 (c) $6B2M8G10J4 = 20$ (d) $8M2G6B3J7 = 21$
25. Rohan is Sumit's brother. Sumit wants to marry Sujata. Sujata is the daughter of Hari Chand. Rohan wants to divorce Sunita. Sujata and Sunita are sisters. How is Harish Chandra related to Rohan?
 (a) Wife's paternal uncle
 (b) Father
 (c) Brother's father-in-law
 (d) Father-in-law
26. Three statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.
Statements :
 All trees are plants.
 All leaves are trees.
 All greens are leaves.
Conclusions :
 I. All plants are greens.
 II. All trees are leaves.
 III. Some plants are leaves.
 (a) Only conclusions I and II follow.
 (b) Only conclusions II and III follow.
 (c) Only conclusion III follows.
 (d) Only conclusion I follows.
27. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.
Statements:
 1. Some boys are cricketers.
 2. Some girls are cricketers.
Conclusions:
 1. All girls are cricketers.
 2. Some cricketers are girls.
 (a) Neither conclusions 1 nor 2 follows
 (b) Only conclusion 1 follows
 (c) Both conclusions 1 and 2 follow
 (d) Only conclusion 2 follows
28. Vishal is standing in a park facing the south direction. He then turns 90° clockwise on the same point. After that, he turns 45° clockwise. In which direction is he facing now?
 (a) North-west (b) South-west
 (c) North-east (d) South-east
29. Select the Venn diagram that best represents the relationship between the given set of classes.
Citizens, Moon, Grains

 (a) A (b) D
 (c) B (d) C
30. Each of the six graduate students, Anudeep, Yamuna, Chinmayi, Divija, Esha and Guna, has an online PG entrance exam on a different day of a week, starting from Monday and ending on Saturday of the same week, but not necessarily in the same order. None of them have the exam before Chinmayi and after Yamuna. Guna has the exam immediately after Anudeep and immediately before Divija. Esha has the exam on Tuesday and immediately before Anudeep. Who among the following has the exam on Friday?
 (a) Yamuna (b) Guna
 (c) Divija (d) Anudeep
31. Select the option in which the words do not share the same relationship as that shared by the rest.
 (a) Cut : Scratch (b) Punch : Tap
 (c) Run : Walk (d) Touch : Push
32. R, S, T, U, V and W live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor is numbered 6. V lives on floor number 5. S does not live on an even numbered floor. U lives immediately below T. Neither R nor S lives on the topmost floor. Only two people live between V and T. Who lives immediately below R?
 (a) T (b) V
 (c) U (d) S
33. Choose the conclusion(s) which logically follows from the given statements.
Statements:
 1. MS Dhoni is a popular cricketer.
 2. All cricketers are fit and healthy.
 3. MS Dhoni earns a good money every year through advertisements of various products.
Conclusions:
 A. All popular cricketers earn a good money through advertisement.
 B. MS Dhoni is fit and healthy.
 C. MS Dhoni, being famous, only advertises famous products.
 (a) Only Conclusion C follows
 (b) Conclusion A and C follow
 (c) Conclusion A and B follow
 (d) Only conclusion B follows
34. **Question:**
 What is the average wage of X, Y and Z?
Statements:
 1. Salary of Y is half of $(X + Z)$
 2. X and Y together earn Rs. 40 more than Z and Z earns Rs. 500
 (a) Both 1 and 2 are sufficient
 (b) Neither 1 nor 2 is sufficient
 (c) Only 1 is sufficient while only 2 is insufficient
 (d) Only 2 is sufficient while only 1 is insufficient

35. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.
Statement :
On his second visit, the doctor changed the prescription
Assumptions
I. The patient did not show improvement with the earlier prescription
II. The patient did not take the earlier prescription seriously
(a) Both assumptions I and II are implicit
(b) Only assumption I is implicit
(c) Only assumption II is implicit
(d) None of the assumptions is implicit
36. Find the remainder, when $171 \times 172 \times 173$ is divided by 17.
(a) 9 (b) 8
(c) 6 (d) 7
37. The number of pairs of twin primes between 1 and 100 are:
(a) 7 (b) 8
(c) 10 (d) 9
38. The value of $3 + [3 \times \{3 - (3 + 3) \div 6\}]$ is:
(a) 3 (b) 9
(c) 6 (d) -3
39. Which of the following is the smallest fraction?
 $\frac{6}{11}, \frac{13}{18}, \frac{15}{22}, \frac{19}{36}, \frac{5}{6}$
(a) $\frac{19}{36}$ (b) $\frac{13}{18}$
(c) $\frac{6}{11}$ (d) $\frac{5}{6}$
40. LCM of $2^4 \times 3^4 \times 5^3$ and $2^2 \times 3^6 \times 5^5 \times 7^2$ is
(a) $2^3 \times 3^5 \times 5^4 \times 7$ (b) $2^2 \times 3^2 \times 5^2 \times 7^2$
(c) $2^6 \times 3^{10} \times 5^8 \times 7^2$ (d) $2^4 \times 3^6 \times 5^5 \times 7^2$
41. Two friend received a bonus of ₹2000 each in their bank accounts. They already have ₹47000 and ₹54000 in their respective bank account. Ratio of the amounts in their respective accounts will be:
(a) 47 : 54 (b) 47 : 56
(c) 7 : 8 (d) 49 : 54
42. Vimal secured 46% marks in the exam and failed to qualify in the exam by 10 marks. If he secured 52% marks, he would have secured 8 marks more than what was the minimum qualifying marks. What were the minimum marks one had to score to qualify in the exam?
(a) 148 (b) 146
(c) 156 (d) 138
43. ABC is an equilateral triangle. P, Q and R are the midpoints of sides AB, BC and AC respectively. The length of the side of the triangle is 4 cm. The area of triangle PQR is:
(a) $\frac{1}{4}\sqrt{3}\text{cm}^2$ (b) $\frac{\sqrt{3}}{2}\text{cm}^2$
(c) $\sqrt{3}\text{cm}^2$ (d) $\frac{\sqrt{3}}{9}\text{cm}^2$
44. If A can do a piece of work in 8 days, B can do it in 10 days and C can do it in 20 days, then in how many days can A, B and C together do the same work?
(a) $3\frac{7}{11}$ (b) 3
(c) 4 (d) $2\frac{7}{11}$
45. At the same time A and B start moving toward each other from two different places. 240 km apart. The ratio of the speeds of A and B is 5 : 7 and the speed of B is 84 km/h. After how minutes will A and B meet each other?
(a) 90 minutes (b) 100 minutes
(c) 80 minutes (d) 120 minutes
46. What will be the amount received in 6 years on ₹1,640 at the rate of 7.5% simple interest per annum.
(a) ₹750 (b) ₹748
(c) ₹742 (d) ₹738
47. If ₹ 2,000 is invested at the rate of 20% per annum, compounded half-yearly, then the amount after 18 months will be:
(a) ₹2,628 (b) ₹2,662
(c) ₹3,200 (d) ₹2,600
48. Jiva bought an item for ₹ 2500 and sold it at 25% above the cost price and paid ₹ 125 on it. Find the profit is in ₹?
(a) ₹500 (b) ₹550
(c) ₹475 (d) ₹625
49. When the cost price of x articles is equal to selling price of y articles, the profit is 25% then find the ratio of x : y.
(a) 4 : 5 (b) 5 : 4
(c) 5 : 3 (d) 3 : 3
50. How many terms in the series 7, 14, 21, 28, the sum of is 952?
(a) 16 (b) 17
(c) 18 (d) 19
51. If A is an acute angle then find the value of $\frac{1 + \tan^2 A}{1 + \cot^2 A}$:
(a) $\cos^2 A$ (b) $\tan^2 A$
(c) $\sin^2 A$ (d) $\sec^2 A$
52. Find out the mean of the given below data—
 $1, \frac{1}{2}, \frac{1}{2}, \frac{1}{4}, \frac{1}{4}, 2, \frac{1}{2}, \frac{1}{4}, \frac{3}{4}$
(a) $\frac{15}{18}$ (b) $\frac{13}{18}$
(c) $\frac{7}{9}$ (d) $\frac{8}{9}$
53. Solve the following equation.
 $\sqrt{54} \times \sqrt{6} = ?$
(a) 18 (b) 19
(c) 20 (d) 16
54. John is 15 years younger than Jill. 12 years ago, Jill's age was 1.5 times that of John. Jill is nowyears old.
(a) 57 (b) 45
(c) 30 (d) 42

55. A container has two holes. The first hole can empty the container individually in 15 minutes and the second hole can empty the container individually in 10 minutes. If the leakage occurs at a fixed rate in the container, then by the both holes opening together, the container will be emptied in how many minutes ?
- (a) 6 (b) $\frac{1}{6}$
(c) $\frac{1}{7}$ (d) 7
56. In 1662 Portugal had gifted which Indian city to the British King Charles II as a part of the dowry of sister of the king of Portugal?
- (a) Bombay (b) Daman
(c) Goa (d) Cochin
57. Which of the following was not a type of tax imposed by the state during the reign of Alauddin Khilji?
- (a) Tax on small scale industries
(b) Tax on cultivation
(c) Tax on housing
(d) Tax on cattle
58. Which Vedic God falls under the category of 'Prithvithana' (Terrestrial God)?
- (a) Vishnu (b) Brihaspati
(c) Varuna (d) Indra
59. Provision of 'First past the post' in Indian constitution has been adopted from the constitution of
- (a) Ireland (b) France
(c) Britain (d) USA
60. Who has the right to take the final decision in a dispute related to the election of the President of India?
- (a) Lok Sabha (b) Election Commission
(c) Prime Minister (d) Supreme Court
61. Which institution governs the area that is in transition from rural to urban?
- (a) Gram Panchayat (b) City Councils
(c) Panchayat Samitis (d) Gram Sabha
62. The Outermost region of the Sun is known as :
- (a) Corona (b) Chromosphere
(c) Convection zone (d) Radiation field
63. Match the mountain ranges in column-A with their states in column-B.
- | Column-A
(Mountain range) | Column-B
(State) |
|------------------------------|-------------------------------------|
| A. Aravali mountain | 1. Himachal Pradesh and Uttarakhand |
| B. Vindhya range | 2. Kerala and Karnataka |
| C. Western ghat | 3. Rajasthan |
| D. Himalaya range | 4. Madhya Pradesh |
- (a) A-1, B-2, C-3, D-4 (b) A-4, B-3, C-1, D-2
(c) A-3, B-4, C-2, D-1 (d) A-4, B-3, C-2, D-1
64. The measure of responsiveness of the demand for Tea towards the change in the price of Coffee in the market is an example of _____ .
- (a) Direct Demand
(b) Cross Elasticity of Demand
(c) Composite Demand
(d) Indirect Demand
65. Which of the following index is used for measurement of headline inflation in India?
- (a) CPI (Consumer price Index)
(b) WPI (Wholesale price index)
(c) GDP (Deflation)
(d) Industrial Production Index
66. When was the provision of Bharat Ratna introduced?
- (a) 1952 (b) 1954
(c) 1955 (d) 1950
67. Goa Liberation Day is celebrated on which of the following dates?
- (a) 22 December (b) 19 December
(c) 21 December (d) 20 December
68. Which one of the following books is authored by Maulana Abul Kalam Azad?
- (a) India Wins Freedom
(b) Wings of Fire
(c) We the people
(d) God of Small Things
69. Irish diplomat and former Director General of General Agreement on Tariff and Trade (Now WTO) is _____ who is called father of globalization.
- (a) Peter Sutherland (b) Ken Rutherford
(c) Peter Gilmore (d) Kiefer Sutherland
70. Surajkund Mela, also known as the international crafts fair, is held in _____.
- (a) Haryana (b) Gujarat
(c) Odisha (d) Uttarakhand
71. Who has produced the indigenous LCA fighter jets Tejas?
- (a) India Aeronautics Limited
(b) Hindustan Dynamics Limited
(c) Hindustan Aeronautics Limited
(d) Bharat Dynamics Limited
72. In which year did India first participate in the Olympic Games?
- (a) 1900 (b) 1914
(c) 1925 (d) 1923
73. The Santosh Trophy is related to which of the following sports in India?
- (a) Badminton (b) Chess
(c) Football (d) Cricket
74. During which of the following festivals is the Puli Kali (Tiger dance) event the main attraction?
- (a) Onam (b) Baisakhi
(c) Bihu (d) Pongal
75. Losoong festival popular in:
- (a) Himachal Pradesh (b) Sikkim
(c) Arunachal Pradesh (d) Tripura

SOLUTION : PRACTICE SET- 3

ANSWER KEY

1. (a)	7. (a)	13. (c)	19. (b)	25. (d)	31. (d)	37. (b)	43. (c)	49. (b)	55. (a)	61. (b)	67. (b)	73. (c)
2. (c)	8. (c)	14. (a)	20. (a)	26. (c)	32. (d)	38. (b)	44. (a)	50. (a)	56. (a)	62. (a)	68. (a)	74. (a)
3. (b)	9. (b)	15. (c)	21. (a)	27. (d)	33. (d)	39. (a)	45. (b)	51. (b)	57. (a)	63. (c)	69. (a)	75. (b)
4. (c)	10. (d)	16. (d)	22. (b)	28. (a)	34. (d)	40. (d)	46. (d)	52. (b)	58. (b)	64. (b)	70. (a)	
5. (d)	11. (c)	17. (b)	23. (c)	29. (c)	35. (b)	41. (c)	47. (b)	53. (a)	59. (c)	65. (b)	71. (c)	
6. (c)	12. (b)	18. (b)	24. (c)	30. (c)	36. (c)	42. (a)	48. (a)	54. (a)	60. (d)	66. (b)	72. (a)	

SOLUTION

1.

Ans : (a) Edward Jenner pioneered vaccination. The smallpox vaccine, introduced by Edward Jenner in 1796, was the first successful vaccine to be developed while polio vaccine was developed by Jonas Salk and Albert Bruce Sabin.

2.

Ans. (c) : Pollination is characteristic of plants of group Angiosperm. Angiosperm plants are known as flowering plants. Enclosed seed means such a group of plants in which the spore or seed is enclosed by ovary wall. The Australian Eucalyptus is the longest angiospermic plant in the world. The plant is sporophyte, which is divided into roots, stems and leaves, and pollination occurs through various means. The tissue system in plants is well-developed in angiosperms.

3.

Ans. (b) Cobalamin is also called as vitamin B₁₂.

4.

Ans : (c) The pulmonary artery carries deoxygenated blood from the right ventricle into the lungs for oxygenation. It contains impure blood. The left half of the heart collects and pumps pure (oxygenated) blood from the lungs to all parts of the body. The right half of the heart carries impure (CO₂ containing) blood. The pH value of blood is 7.4.

5.

Ans : (d) The biological classification system of life introduced by British zoologist Thomas Cavalier-Smith involves systematic arrangements of all life forms on earth. In 1998, Cavalier-Smith classified the organisms into 6 parts –

(1) Animalia (2) Protozoa, (3) Fungus (4) Plantae (5) Chromista (6) Bacteria.

6.

Ans. (c) : Waste products stored in vacuoles within a plant cell. A vacuole is a membrane bound cell organelle. In plant cells, vacuoles help maintain water balance.

7.

Ans. (a) : Carbon is a solid non metal having atomic no.6 and atomic mass 12.

Properties of Non metal -

- Non metals are non lustrous in nature.
- Non metals are non malleable.
- Non metals are non ductile.
- Non metals are bad conductor of heat and electricity.

8.

Ans. (c) : Lactic acid is a naturally occurring substance that bacteria produce during fermentation, sour milk is a natural source of lactic acid.

9.

Ans : (b) Metals are the elements that make cation easily and form metallic bonds with the atoms of metals. Metals are good conductors of heat and electricity. The outer orbit of the metal has 1 to 3 electrons.

10.

Ans. (d) During a chemical reaction, the sum of the masses of the reactants and products remains unchanged. This is called the principle of conservation of mass.

Mass can neither be created nor be destroyed, it can be transferred from one body to another.

11.

Ans. (c) : For a person with hypermetropia or far-sightedness, the near point, is 25 cm farther away from the normal near point. Far-sighted individuals are unable to focus on near objects. A normal near point is 25 cm, and if an individual's near point is beyond that, a converging (convex) lens must be used to modify light from an object at the normal near point to form an image at the individual's near point.

12.

Ans. (b) : The property of liquids due to which they oppose the relative motion between their different layers, is called viscosity and the force between the two layers opposing the relative motion, is called viscous force. Thus, viscosity is the internal friction of the fluid in motion

13.

Ans : (c) Newton's second law is a quantitative description of the changes that a force can produce on the motion of a body. It states that the rate of change of the momentum of a body is equal to both magnitude and direction of the force imposed on it. The momentum of a body is equal to the product of its mass and its velocity. Momentum, like velocity, is a vector quantity, having both magnitude and direction. Example: Pulling the hands gradually in the direction of the ball while catching helps in reducing the impact of force applied by the ball on the hands of the cricketer as the relative velocity of the ball with respect to hands of the player is decreased and hence reduces the momentum of the ball gradually.

14.

Ans : (a) Sound pollution is measured in 'Decibel'.

15.

Ans. (c) "Henry per Metre" is the SI unit of magnetic permeability.

16.

Ans. (d) : Just as, Newton discovered Gravity. Similarly, Telephone was invented by Graham Bell.

17.

Ans. (b) : Just as,
 $(12 \times 9) + 4 = 112$

And,
 $(6 \times 4) + 4 = 28$

Same as from option (b),
 $(18 \times 5) + 4 = 94$

Hence, option (b) is correct.

18.

Ans. (b) : The place value of each alphabet letter has been written in the sequence:

TOUGH = value of T = 20 \Rightarrow 20152178

O = 15

U = 21

G = 7

H = 8

PLEAD = Value of P = 16 \Rightarrow 1612514

L = 12

E = 5

A = 1

D = 4

CLOVE = value of C = 3 \Rightarrow 31215225

L = 12

O = 15

V = 22

E = 5

19.

Ans. (b) : Just as,
 N E W T O N (Opposite letter -1)
 $\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$
 L U C F K L

And,

P A S C A L (Opposite letter -1)
 $\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$
 J Y G W Y N

Same as,

T E S L A (Opposite letter -1)
 $\downarrow \downarrow \downarrow \downarrow \downarrow$
 F U G N Y

20.

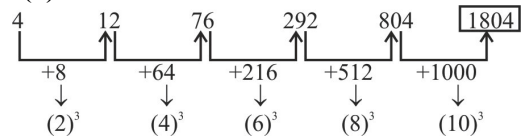
Ans. (a) : Treacherous is a negative emotion word where as other words are showing positive emotion. Hence, option (a) is different from all other options.

21.

Ans. (a) : Just as Scalpel is related to the surgery, Chisel is related to the Carpentry and Needle is related to the Embroidery but Missile is not related to trajectory. Hence, option (a) is different, from others.

22.

Ans. (b) : Given series is as follows-



23.

Ans. (c) : The given series is as follows :-

M N N P L M / M N N P L M / M N N P L M / M N N P L M

Hence, NPNNMNLPL will complete the letter series.

24.

Ans. (c) : Given,

J \rightarrow (+) , G \rightarrow (-)

M \rightarrow (\times) , B \rightarrow (\div)

From option (a)

$$6M5J4B2G10 = 22$$

$$6 \times 5 + 4 \div 2 - 10 = 22 \Rightarrow 6 \times 5 + \frac{4}{2} - 10 = 22$$

$$32 - 10 = 22$$

22 = 22 This is equal

From option (b)

$$4G16B2J6M5 = 26$$

$$4 - 16 \div 2 + 6 \times 5 = 26$$

$$4 - \frac{16}{2} + 30 = 26$$

$$-4 + 30 = 26$$

26 = 26 This is equal too

From option (c)

$$6B2M8G10J4 = 20$$

$$6 \div 2 \times 8 - 10 + 4 = 20$$

$$\frac{6}{2} \times 8 - 10 + 4 = 20$$

$$24 - 10 + 4 = 20$$

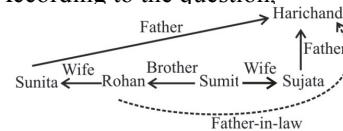
$$14 + 4 = 20$$

18 = 20 This is not equal

So option (c) will not be correct.

25.

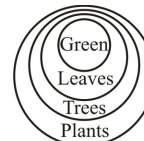
Ans. (d) : According to the question,



It is clear from the above diagram that Harichand is the father-in-law of Rohan.

26.

Ans. (c) : According to the statement, Venn diagram is as follows,



Conclusion:-

(i) \times

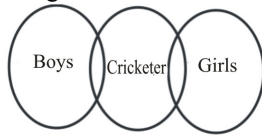
(ii) \times

(iii) \checkmark

Hence, it is clear from figure that only conclusion III follows.

27.

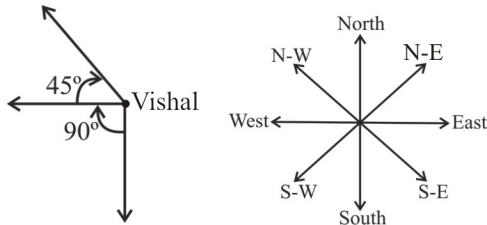
Ans. (d) : According to the statement-



It is clear from the Venn diagram that only conclusion 2 logically follows the statement.

28.

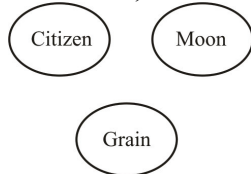
Ans. (a) : According to the question,



Hence, it is clear that Vishal is facing now in North-west direction.

29.

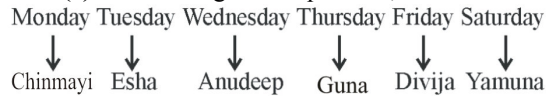
Ans. (c) The Venn diagram that represents the best relationship between Citizen, Moon and Grain.



Hence, option (c) is correct.

30.

Ans. (c) : According to the question,



Hence, it is clear from above order that Divija has the exam on Friday.

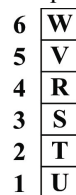
31.

Ans. (d) : Cutting, punching and running are faster activities than scratching, tapping and walking respectively where as touching is slower activity than pushing.

Hence, option (d) is different from others.

32.

Ans. (d) : According to the question,



Hence, it is clear that 'S' lives immediately below R.

33.

Ans. (d) : It is clear from the statement that all cricketers are fit and healthy. So, being cricketer MS Dhoni is also fit and healthy. Therefore, only conclusion B logically follows the statement.

34.

Ans. (d) : From statement 1,

$$1- y = \frac{x+z}{2} \Rightarrow 2y = x+z$$

Average wages cannot be known because of any value of X, Y and Z are not given.

From statement 2 $x + y = z + 40$

and $z = 500$

$$x + y = 540$$

$$\therefore \text{required average} = \frac{x+y+z}{3}$$

$$= \frac{540+500}{3} = 346.66$$

Hence, it is clear that to answer the question statement 2 is sufficient where as statement 1 is insufficient.

35.

Ans. (b) : The patient did not show improvement in the earlier prescription. So the doctor changed the prescription. Hence, only assumption I is implicit in the statement.

36.

Ans. (c) : According to the question,

$$\frac{171 \times 172 \times 173}{17}$$

$$\Rightarrow \frac{(170+1) \times (170+2) \times (170+3)}{17}$$

$$\Rightarrow \frac{1 \times 2 \times 3}{17}$$

$$\Rightarrow \frac{6}{17}$$

$$\Rightarrow 6 \text{ (Remainder)}$$

Hence option (c) is correct.

37.

Ans. (b) : The number of pairs of twin primes between 1 and 100 are 8.

The numbers are -

$$\{(3,5), (5,7), (11,13), (17,19), (29,31), (41,43), (59,61), (71,73)\}$$

Note- Twins prime numbers are that numbers whose difference is 2.

38.

$$\text{Ans. (b) : The value of } 3 + [3 \times \{3 - (3 + 3) \div 6\}]$$

$$= 3 + [3 \times \{3 - 6 \div 6\}]$$

$$= 3 + [3 \times \{3 - 1\}]$$

$$= 3 + [3 \times 2]$$

$$= 3 + 6 = 9$$

39.

$$\text{Ans. (a) : } \frac{6}{11}, \frac{13}{18}, \frac{15}{22}, \frac{19}{36}, \frac{5}{6}$$

$$\frac{6}{11} = 0.54, \quad \frac{13}{18} = 0.72$$

$$\frac{15}{22} = 0.68, \quad \frac{19}{36} = 0.52$$

$$\frac{5}{6} = 0.83$$

Hence, it is clear that the smallest fraction is $\frac{19}{36}$.

40.

Ans. (d) : Given,

$$2^4 \times 3^4 \times 5^3 = 2^2 \times 2^2 \times 3^2 \times 3^2 \times 5^3$$

$$2^2 \times 3^6 \times 5^5 \times 7^2 = 2^2 \times 3^2 \times 3^2 \times 3^2 \times 5^5 \times 7^2$$

$$\text{LCM} = 2^4 \times 3^6 \times 5^5 \times 7^2$$

41.

Ans. (c) : According to the question,
Required ratio = $(47000+2000):(54000+2000)$
= 49000:56000
= 7:8

42.

Ans. (a) : Let total marks be x.

According to the question,
 $x \times 46\% + 10 = x \times 52\% - 8$
 $(x \times 52\%) - (x \times 46\%) = 10 + 8$

$$\frac{x \times 52}{100} - \frac{x \times 46}{100} = 18$$

$$\frac{52x - 46x}{100} = 18$$

$$\frac{6x}{100} = 18$$

$$6x = 1800$$

$$x = 300$$

On putting the value of x

Minimum qualifying marks = $(300 \times 46\%) + 10$

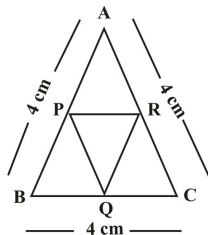
$$= \left(\frac{300 \times 46}{100} \right) + 10$$

$$= 138 + 10$$

$$= 148 \text{ marks}$$

43.

Ans. (c)



Area of $\Delta PQR = \frac{1}{4} \times \text{Area of equilateral triangle ABC}$

$$= \frac{1}{4} \times \frac{\sqrt{3}}{4} \times 4^2 = \sqrt{3} \text{ cm}^2$$

44.

Ans. (a) : According to the question,
One day's work of A, B and C

$$= \frac{1}{8} + \frac{1}{10} + \frac{1}{20}$$

$$= \frac{5+4+2}{40}$$

$$= \frac{11}{40} \text{ part}$$

(A+B+C) can finish the work = $\frac{40}{11} \text{ days} = 3\frac{7}{11} \text{ Days}$

45.

Ans. (b) : Given,

Distance between A and B = 240 km.

Ratio of speed of A and B = 5 : 7
= 5x, 7x (Let)

According to the question,

Speed of B = 7x = 84 km/h

$$x = 12 \text{ km/h}$$

Speed of A = 5x = 5 × 12 = 60 km/h

Hence, Time taken by A and B to meet each other

$$= \frac{240}{144} \text{ h}$$

$$= \frac{240}{144} \times 60 \text{ minutes}$$

$$= 100 \text{ minutes}$$

46.

Ans : (d) Principal = ₹ 1640

Rate = 7.5% Annual

Time = 6 Years

$$\therefore \text{Simple interest} = \frac{P \times R \times T}{100} = \frac{1640 \times 7.5 \times 6}{100}$$

Simple interest = ₹ 738

47.

Ans : (b) Principal (P) = ₹ 2000

Rate (r) = 20% per annum,

If half yearly interest is payable so, Rate (r) = $\frac{20}{2}$
= 10%

Time (T) = 18 months = 3 Half yearly

Formula-

$$\text{Compound interest} = \text{Principal} \left(1 + \frac{\text{Rate}}{100} \right)^{\text{Time}}$$

$$= 2000 \left(1 + \frac{10}{100} \right)^3$$

$$= 2000 \left(\frac{11}{10} \right)^3 = 2 \times 1331 = 2662$$

After 18 months amount will be ₹ 2662

48.

Ans : (a) [Selling price = Cost price $\times \frac{(100 \pm P/L)}{100}$]

$$\text{Selling price} = \frac{2500 \times 125}{100} = 3125$$

Profit = Selling price - (Cost price + Tax)

$$\text{Profit} = 3125 - (2500 + 125)$$

$$\text{Profit} = 3125 - 2625 = 500$$

49.

Ans. (b) : According to the question,

C.P. of x articles = S.P. of y articles

$$\frac{\text{SP}}{\text{CP}} = \frac{x}{y}$$

$$\text{Given, } \frac{\text{SP}}{\text{CP}} = \frac{125}{100} = \frac{5}{4}$$

$$\text{Hence, } \frac{x}{y} = \frac{5}{4}$$

Hence, ratio of x and y are 5 : 4.

50.

Ans : (a) The given series- 7, 14, 21, 28,

Let the sum of n terms = 952

$$7 + 14 + 21 + 28 + \dots = 952$$

$$\Rightarrow 7(1 + 2 + 3 + 4 + \dots) = 952$$

$$\Rightarrow 1 + 2 + 3 + 4 + \dots = 136$$

$$\Rightarrow \frac{n(n+1)}{2} = 136$$

$$\therefore \text{The sum of n consecutive numbers} = \frac{n(n+1)}{2}$$

$$\Rightarrow n^2 + n = 272$$

$$\Rightarrow n^2 + n - 272 = 0$$

$$\Rightarrow n^2 + 17n - 16n - 272 = 0$$

$$\Rightarrow (n - 16)(n + 17) = 0$$

$$n - 16 = 0 \Rightarrow n = 16$$

Hence, the sum of 16 terms is 952.

51.

$$\text{Ans. (b) : } \frac{1 + \tan^2 A}{1 + \cot^2 A} =$$

$$\therefore \left(\tan A = \frac{\sin A}{\cos A}, \cot A = \frac{\cos A}{\sin A} \right)$$

$$= \frac{1 + \frac{\sin^2 A}{\cos^2 A}}{\cos^2 A}$$

$$= \frac{1 + \frac{\sin^2 A}{\cos^2 A}}{\frac{\cos^2 A + \sin^2 A}{\cos^2 A}}$$

$$= \frac{\cos^2 A + \sin^2 A}{\sin^2 A + \cos^2 A} \times \frac{\cos^2 A}{\cos^2 A}$$

$$= \frac{1}{\cos^2 A} \times \frac{\sin^2 A}{1}$$

$$= \frac{\sin^2 A}{\cos^2 A}$$

$$= \tan^2 A$$

52.

$$\text{Ans : (b) Mean} = \frac{\text{Sum of numbers}}{\text{number of terms}}$$

$$= \frac{1 + \frac{1}{2} + \frac{1}{2} + \frac{3}{4} + \frac{1}{4} + 2 + \frac{1}{2} + \frac{1}{4} + \frac{3}{4}}{9}$$

$$= \frac{4 + 2 + 2 + 3 + 1 + 8 + 2 + 1 + 3}{9} = \frac{26}{9} = \frac{26}{36} = \frac{13}{18}$$

53.

Ans : (a) From given equation,

$$\sqrt{54} \times \sqrt{6}$$

$$\text{From, } \sqrt[m]{m} \times \sqrt[n]{n} = \sqrt[m \times n]{m \times n}$$

$$= \sqrt{54 \times 6} = \sqrt{324}$$

$$= 18$$

54.

Ans : (a) Let the age of John is x years and age of Jill is y years.

According to the question,

$$y - x = 15 \quad \dots\dots\dots(i)$$

$$\text{And } (y-12) = (x-12) 1.5$$

$$y - 12 = 1.5x - 18$$

$$y - 1.5x = -6 \quad \dots\dots\dots(ii)$$

From equation (i) and (ii)-

$$y - x - (y - 1.5x) = 15 - (-6)$$

$$y - x - y + 1.5x = 15 + 6$$

$$0.5x = 21$$

$$x = \frac{21}{0.5}$$

$$x = 42$$

Putting the value of x in equation (i)-

$$y - 42 = 15$$

$$y = 15 + 42 = 57$$

So, present age of Jill is 57 years.

55.

Ans : (a) Emptied part of the container by hole-1 in 1

$$\text{minute} = \frac{1}{15} \text{ part}$$

Emptied part of the container by hole-2 in 1 minute =

$$\frac{1}{10} \text{ part}$$

Emptied part of the container by both holes in 1 minute

$$= \frac{1}{15} + \frac{1}{10} = \frac{25}{150} \text{ part}$$

Hence the time taken by hole-1 and holes 2 to empty the

$$\text{container} = \frac{150}{25} = 6 \text{ minute}$$

56.

Ans. (a): Bombay (Mumbai) is a union of 7 islands which was captured by Portuguese in 1534 from the ruler of Gujarat, Bahadurshah. In 1661 Portuguese had gifted Bombay to the British King Charles II as a part of the marriage settlement between King Charles II and Catherine of Braganza.

57.

Ans. (a) : Alauddin Khilji (1296-1316) had instituted a number of significant administrative changes, related to revenues, price controls and society. The scale of agrarian tax at 50% was the highest under Khilji. He also imposed house tax (Ghari) and pasture tax(Charai) on the agrarian population.

58.

Ans.(b) : The Vedic Gods were classified under terrestrial (Prithvishthana), atmospheric (Antarikshasthana), and Celestial (Dyusthana)

Prithvi, Agni, Soma, Brihaspati and rivers belongs to Prithvishthana

Indra, Rudra, Vayu, Vata, Prujanaya belongs to Antarikshasthana.

Surya, Pushan, Vishnu, Mitra, Adityas, Ushas and Asvins belongs to dyusthana (Celestial).

59.

Ans. (c): The 'first past the post' system is also known as the simple majority system, wherein voters cast their votes for a single candidate and the candidate with the most votes wins the election. This system has been borrowed from the British constitution.

60.

Ans. (d): The Supreme Court has the right to take the final decision in a dispute related to the election of the President of India. The Supreme Court shall inquire and decide regarding all doubts and disputes arising out of or in connection with the election of the President as per Article 71 (1) of the Constitution.

61.

Ans. (b): City councils govern the area that is in transition from rural to urban.

It exercises the legislative powers of city government, including adopting the annual city budget, ordinances and resolutions setting appropriate tax levies, Mayoral veto over ride authority and setting the council agenda.

62.

Ans. (a) : Corona is the outermost layer of the Sun. It experiences a very high temperature, about one million degree celsius. It starts at about 2100 km above the photosphere. Corona isn't visible from the earth (except during solar eclipse). Layers of the Sun are Photosphere, Chromosphere, Transition region, Corona.

63.

Ans. (c) :	
Column-A (Mountain range)	Column-B (State)
A. Aravali mountain	1. Rajasthan
B. Vindhya range	2. Madhya Pradesh
C. Western ghat	3. Kerala and Karnataka
D. Himalaya range	4. Himachal Pradesh and Uttarakhand

64.

Ans.(b) : Cross elasticity of demand measures the responsiveness in the demanded quantity of one good (Tea) when the price of another product (coffee) changes. This concept is used to identify the relationship between two goods they can be-

- (i) Complements (negative cross elasticity) Ex. Car & Petrol.
- (ii) Substitutes (positive cross elasticity) Ex. Tea and Coffee.
- (iii) Unrelated

65.

Ans. (b): Wholesale price Index is a price index which represents average price of some selected commodities and it is used for measurement of headline inflation in India. India and Philippines uses Wholesale Price Index as index in form of inflation changes.

66.

Ans. (b) : The provision (initiated) of Bharat Ratna was done by the President Dr. Rajendra Prasad on January 2, 1954. The first award was given to Chakravarti Raj Gopalachari, CV Raman and Sarvepalli Radha Krishnan in the year 1954. The original statutes did not provide for posthumous awards but were amended in January 1955 to permit them.

67.

Ans. (b) : Goa Liberation Day is celebrated on 19 December.

68.

Ans. (a) : Maulana Abul Kalam Azad's most popular book is India Wins Freedom is an account of the Partition from the Maulana Azad's perspective. It includes his personal experiences when India became independent.

69.

Ans. (a) Irish diplomat and former Director General of GATT (Now WTO) is Peter Sutherland who is called "Father of Globalization". WTO (World Trade Organization) was established on 1 Jan 1995 by replacing the GATT. It's headquarters is situated in Geneva Switzerland.

70.

Ans. (a) : The Surajkund Mela, also known as International Craft Fair is a handicraft fair organized about 40 km from Delhi at Surajkund in the Faridabad district of Haryana.

71.

Ans. (c): Light Combat Aircraft-Tejas is an Indian single-engine multirole light fighter designed by the Aeronautical Development Agency (ADA) in collaboration with Aircraft Research and Design Centre (ARDC) of Hindustan Aeronautics Limited (HAL) for the Indian Air Force and Indian Navy. It came from the Light Combat Aircraft (LCA) programme, which began in the 1980s to replace India's ageing MiG-21 fighters. In 2003, the LCA was officially named "Tejas".

72.

Ans. (a) : India first participated in the Olympics in 1900 in Paris. The country was represented by alone athlete Norman Pritchard an Anglo Indian who won India's first medal at the Olympics in the 200 meters hurdles.

73.

Ans.(c) : Santosh Trophy is an Indian Football tournament that is played among teams of government institutes and Indian states.

74.

Ans. (a) : Puli Kali is a form of folk art, dance, music and drama that depicts the theme of tiger hunting. Performers are pointed like tigers and hunters in yellow, red and black, and they enact their roles to the beats of instruments like Udukku and Thakil. This peculiar event is a major attraction in one of the popular festivals in South India, Onam.

75.

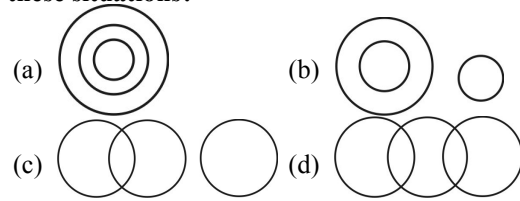
Ans. (b): Losoong festival is celebrated on the occasion of the end of the harvest season and at the end of the tenth month of the Tibetan year in the rural Sikkim.

PRACTICE SET-4

1. Which is the best option for a woman who is about to give birth?
 - (a) Having surgery (caesarean section) to clottier the body.
 - (b) Getting a trained nurse to assist in labor.
 - (c) Giving birth in a well equipped hospital
 - (d) Getting enough rest and nutrition a week before childbirth
2. The reproductive organs of angiosperms are located in
 - (a) Stem
 - (b) Root
 - (c) Flower
 - (d) Leaves
3. Cod liver oil obtained from fish, is a rich source of which vitamin?
 - (a) Vitamin C
 - (b) Vitamin B₁₂
 - (c) Vitamin D
 - (d) Vitamin B₁
4. The largest corpuscles in human blood is
 - (a) Lymphatic cells
 - (b) Cells coloured with alkali colour
 - (c) Red cells
 - (d) White cells
5. Which of the following animals reproduce by budding and can perform regeneration?
 - (a) Planaria
 - (b) Hydra
 - (c) Plasmodium
 - (d) Yeast
6. Colourless plastids are called
 - (a) Leucoplast
 - (b) Apicoplastids
 - (c) Chloroplasts
 - (d) Chromoplasts
7. A student got a stain on his shirt while doing an activity in the science laboratory. Which chemical should he use to remove the stain ?
 - (a) Sodium carbonate
 - (b) Sodium chloride
 - (c) Sodium hydrogencarbonate
 - (d) Sodium hydroxide
8. Elements were placed in the periodic table of Newland with halogens.
 - (a) Mn and As
 - (b) Fe and Se
 - (c) Ce and La
 - (d) Co and Ni
9. In the nucleus number of denotes atomic number.
 - (a) proton
 - (b) neutron
 - (c) electron
 - (d) hydron
10. Which of the following is not the concept of Dalton's atomic theory?
 - (a) Atoms of different elements have different mass and chemical properties.
 - (b) Atoms combine in proportion to small integer numbers to form compounds.
 - (c) Atoms are invisible particles that cannot be formed or destroyed in a chemical reaction.
 - (d) All substances are made up of small particles called molecules.
11. The magnetic field produced by a current carrying conductor decreases as the _____ increases.
 - (a) voltage
 - (b) current
 - (c) distance
 - (d) resistance
12. In which situation the molecular attraction is very strong?
 - (a) Solid
 - (b) Fluid
 - (c) The Gas
 - (d) Steam
13. $1 \text{ Kg} \times 1 \text{ ms}^{-2}$, It is said.....
 - (a) 1 newton
 - (b) 1 coulomb
 - (c) 1 pascal
 - (d) 1 joule
14. $1 \text{ kWh} = ?$
 - (a) $3.6 \times 10^5 \text{ J}$
 - (b) $3.6 \times 10^{-6} \text{ J}$
 - (c) $3.6 \times 10^6 \text{ J}$
 - (d) $3.6 \times 10^{-5} \text{ J}$
15. Which unit is equal to unit of energy –
 - (a) Power
 - (b) Density
 - (c) Work
 - (d) Force
16. Select the alternative which is related to the third word in the same way as the second word, is related to first word.
Jaggery : Sugarcane :: Coconut : ?
 - (a) Beach
 - (b) Fruit
 - (c) Coconut hair
 - (d) White
17. Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.
 $20 : 30 :: 42 : ? :: 72 : 90$
 - (a) 55
 - (b) 51
 - (c) 52
 - (d) 56
18. In a certain code language, 'BOOTS' is written as '54%8#' and 'ULTRA' is written as '%38@9'. How will 'BLARE' be written in that language ?
 - (a) 593#2
 - (b) 534#2
 - (c) 543@%
 - (d) 539@2
19. In a certain code language, 'TONE' is written as 'VPMC' and 'FIRE' is written as 'HJQC'. How will 'CITY' be written in that language?
 - (a) EJSW
 - (b) EGRX
 - (c) EHPU
 - (d) EIUZ
20. Among the four words listed, three are alike in some manner and one is different. Select the odd one.
Black Pepper, Cardamom, Onion, Clove
 - (a) Black Pepper
 - (b) Clove
 - (c) Cardamom
 - (d) Onion
21. Four names have been given out of which three are compatible in some way and one is inconsistent. Select an inconsistent name.
 - (a) Nikola Tesla
 - (b) Thomas Edison
 - (c) Christopher Columbus
 - (d) James Watt
22. Which of the following numbers will replace the question mark (?) in the given series?
3 7 23 59 ? 223
 - (a) 133
 - (b) 123
 - (c) 143
 - (d) 113
23. Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.
QW – R–XE –Q–ERQZE–
 - (a) EQRER
 - (b) EQRYE
 - (c) EQRYR
 - (d) EQZYR

24. If 'A' means '+', 'S' means '-', 'M' means '×', 'D' means '÷', 'B' means '(' and 'F' means ')', then solve the following expression:
B700A110S90FDB9M10S10F
 (a) 10 (b) 7
 (c) 9 (d) 90
25. If you are the only child of your mother, Mary. Your maternal uncle, Christopher, is the husband of Mereiya. Sophie is the only sister of Merciya. Jonathan is Sophie's sister's son. How is your mother related to Jonathan?
 (a) Father's Sister (b) Father's Mother
 (c) Mother's Mother (d) Mother's Sister
26. Three statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.
Statements:
 All eggs are millets.
 All millets are balloons.
 All balloons are prisoners.
Conclusions:
 I. All balloons are eggs.
 II. Some prisoners are millets.
 III. All prisoners are balloons.
 (a) All the conclusions follow
 (b) Only conclusion II follows
 (c) Only conclusion I follows
 (d) Only conclusion III follows
27. Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s)
Statements :
 1. No Boy is a Singer.
 2. All Singers are Musicians.
 3. All Musicians are Actors.
Conclusions :
 I. All Musicians cannot be Boys.
 II. All Boys are Actors.
 III. No Actor is a Boy.
 (a) Conclusions II and III follow
 (b) Only conclusion II follows
 (c) Only conclusion I follows
 (d) Conclusion I and II follows
28. Rewa runs 40 m towards East to reach a stadium. She then turns right and runs 20 m. Then, she turns right and runs another 18 m to reach a music store. Again, she turns right and runs 10 m. After this, she turns left and runs 24 m, and finally she turns right and runs 12 m. In which direction is Rewa facing now? (All turns are 90° turns only)
 (a) North (b) South
 (c) West (d) East
29. There is a shop that sells both burgers and sandwiches. Some customers want only a burger and some want only a sandwich. There are some customers who want neither a burger nor a sandwich. The rest of the customers want

both a burger and a sandwich. Which of the following Venn diagrams correctly represents these situations?



30. Each of P, Q, R, S, T, U and V has an exam on a different day of a week starting from Monday and ending of Sunday of the same week. Only three persons have exams between R and V. Only two persons have exams between Q and P. V's exam is on Saturday. Q's exam is immediately before R. Only U's exam is between P and V. T's exam is not held on Wednesday. Q's exam is on Monday. On which day is S's exam held?
 (a) Tuesday (b) Sunday
 (c) Monday (d) Wednesday
31. Three of the given four terms share a certain relationship whereas one is different. Select the one that is different.
Mike, Loudspeaker, Projector, Amplifier
 (a) Loudspeaker (b) Amplifier
 (c) Mike (d) Projector
32. Five boxes G, T, Y, R and U are placed one over the other but not necessarily in the same order. Exactly two boxes are placed between T and Y but T is neither at the bottom nor at the top. What are the probable positions that T can take from the bottom?
 (a) Second and Third (b) First and Third
 (c) Second and Fourth (d) Third and Fourth
33. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.
Statement:
 1. Some of the languages taught in this school are English, Portuguese, Tamil and Sanskrit
 2. Neither Arabic nor French is taught in this school
 3. All languages are taught by well qualified teachers in this school
Conclusion :
 (i) Some other languages are also taught in this school apart from English, Portuguese, Sanskrit and Tamil
 (ii) Tamil is taught by a well-qualified teacher in this school
 (iii) Either Arabic or French is taught in this school
 (a) Only conclusions (i) and (iii) follows
 (b) Only conclusions (i) and (ii) follows
 (c) Only conclusions (iii) follows
 (d) Only conclusions (i) follows
34. **Question:**
 How many cows in a herd are black ?
Statements
 1. There are in hard total 60 cows.
 2. 40% of them are black.
 (a) Both statements together are sufficient to answer the question, but neither statement alone is sufficient

- (b) Alone statement 1 is sufficient but alone statement 2 is not sufficient to answer the question
 (c) Statements 1 and 2 together are not sufficient, and additional data is needed to answer the question
 (d) Alone statement 2 is sufficient but alone statement 1 is not sufficient to answer the question
35. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.
Statement
 "She has been sneezing and has runny nose since a year. She could be suffering from allergic rhinitis." A doctor told a patient's mother.
Assumptions:
 (I) Very few diseases have the symptom of a prolonged sneezing and runny nose.
 (II) One symptom of allergic rhinitis is a prolonged sneezing and runny nose.
 (III) Many diseases have the symptom of a prolonged sneezing and runny nose.
 (a) Assumption II and either I or III are implicit.
 (b) Only I and II are implicit.
 (c) Only assumption I is implicit.
 (d) Only assumption II is implicit.
36. When a number is divided by a divisor, the remainder is 16. When twice the original number is divided by the same divisor, the remainder is 3. Find the value of that divisor
 (a) 29 (b) 51
 (c) 23 (d) 53
37. How many prime numbers are between positive integers 60 and 100?
 (a) 9 (b) 6
 (c) 7 (d) 8
38. Using BODMAS, simplify the following.
 $\frac{7}{9} \times \frac{21}{5} \times 25(65^2 - 55^2)$
 (a) 42000 (b) 86000
 (c) 98000 (d) 84000
39. Arrange the following fractions in the ascending order.
 $\frac{2}{3}, \frac{4}{8}, \frac{5}{9}$ and $\frac{9}{11}$
 (a) $\frac{4}{8} < \frac{5}{9} < \frac{2}{3} < \frac{9}{11}$ (b) $\frac{5}{9} < \frac{2}{3} < \frac{4}{8} < \frac{9}{11}$
 (c) $\frac{5}{9} < \frac{2}{3} < \frac{9}{11} < \frac{4}{8}$ (d) $\frac{4}{8} < \frac{5}{9} < \frac{9}{11} < \frac{2}{3}$
40. The least number which on being divided by 2, 3, 4, 5 and 6 leaves a remainder of 1 but no remainder when divided by 7 is :
 (a) 322 (b) 301
 (c) 308 (d) 315
41. The ratio of the number of marbles that Joyee and Minit had was 5 : 8 while the ratio of the number of marbles that Jacob and Minit had was 7 : 12. What is the ratio of the number of marbles that Joyee and Jacob had ?
 (a) 7 : 5 (b) 2 : 3
 (c) 15 : 14 (d) 5 : 7
42. In a class 82% students passed and 2% students were placed in the reappear category. The number of students who failed was 592. What was the total number of students in the class?
 (a) 3700 (b) 3600
 (c) 2000 (d) 2700
43. If the perimeter of a triangle is 28 cm. Its internal radius is 3.5 cm. Find the area of triangle.
 (a) 49 cm^2 (b) 28 cm^2
 (c) 35 cm^2 (d) 42 cm^2
44. A can complete a piece of work alone in 10 days and B can complete the same piece of work alone in 15 days. Working together A, B and C can complete this work in $4\frac{1}{2}$ days. If B does not work, while A and C work on alternate days, starting with C, then in how many days will the work be completed ?
 (a) $13\frac{1}{9}$ (b) 13
 (c) $12\frac{2}{3}$ (d) $13\frac{1}{5}$
45. A rectangular lawn is 60 meters long and 40 meters wide, approximately how long will it take for a person to cross its diagonal at a speed of 3 km/h.
 (a) 92.8 seconds (b) 81.5 seconds
 (c) 84.5 seconds (d) 86.5 seconds
46. A certain sum amounts to ₹16500 in 2 years at 5% p.a. simple interest. Find the sum.
 (a) ₹ 14000 (b) ₹14500
 (c) ₹ 15000 (d) ₹15500
47. ₹10000 is being compounded at 20% per annum. Calculate the amount after 2 years if the rate of interest is charged half yearly.
 (a) ₹14600 (b) ₹12500
 (c) ₹14642 (d) ₹14641
48. The difference of selling prices of an item on the basis of profit of 8% and 12% is ₹ 3. The ratio of the selling prices of both the items is:
 (a) 27 : 28 (b) 27 : 29
 (c) 29 : 31 (d) 27 : 31
49. A shopkeeper sold two toys for ₹990 each. On first toy he gained 10% and on the second he lost 10%. Find the total percentage gain or loss.
 (a) 10% Loss (b) 10% Gain
 (c) 1% Loss (d) 1% Gain
50. If HCF of $2x^2 + 5x - 12$ and $x^2 + x - 12$ is $(x+a)$, then find the value of a.
 (a) -3 (b) -2
 (c) 4 (d) 5
51. If $2(\cos\theta + \sec\theta) = 5$, then $\sec^2\theta + \cos^2\theta$ find the value?
 (a) $\frac{4}{17}$ (b) $\frac{17}{4}$
 (c) $\frac{25}{2}$ (d) $\frac{25}{2}$
52. If an observation 70 is removed from the data 60, 68, 70, 72, 74, 76, 78, 80, then the median is increased by:
 (a) 0.5 (b) 1.5
 (c) 2 (d) 1

53. Find the square root of 42.25.
 (a) 7.5 (b) 4.5
 (c) 6.5 (d) 5.5
54. After seven years from now Virat will be twice as old as Mohindar. Five years ago Mohindar's age was one year less than $\frac{2}{5}$ of Virat's age. What is Virat's present age?
 (a) 53 years (b) 51 years
 (c) 57 years (d) 55 years
55. Pipe A can fill a tank in X hours. Pipe B can empty it in 15 hours. If both the pipes are opened together, then the tank will be filled in 7 hours and 30 minutes. Find the value of x?
 (a) 8 (b) 5
 (c) 10 (d) 9
56. Which place was called the "Nursery of the Bengal army"?
 (a) Bengal (b) Eastern Uttar Pradesh
 (c) Punjab (d) Awadh
57. A record is given of his administrative achievements in Futuhat-e-Firozshahi of ____
 (a) Gulbadan Begum's
 (b) Abul Fazal's
 (c) Ziyauddin Barani's
 (d) Firozshah Tughalaq's
58. Which one of the following limbs of Vedas is known for the explanation and meaning of complex words?
 (a) Kalpa (b) Chhanda
 (c) Vyakaran (d) Nirukta
59. Which of the following schedules of the Indian Constitution describes the number of seats represented in the Council of States from each state and Union Territory?
 (a) Second Schedule (b) First Schedule
 (c) Third Schedule (d) Fourth Schedule
60. Who is elected by an electoral college consisting of members of both house of parliament, Rajya Sabha and Lok Sabha?
 (a) Vice President
 (b) Governor
 (c) President
 (d) Chief Justice of India
61. What is the correct statement about Mayor?
 (a) Mayor is the second citizen of the Municipal Corporation after City Magistrate.
 (b) Tenure of Mayors of cities in India is fixed for five years.
 (c) Mayor is elected by the Governor of the State
 (d) Mayor is the head of the Municipal Corporation.
62. Which planet has a Moon named Ganymede?
 (a) Jupiter (b) Venus
 (c) Mercury (d) Saturn
63. Which of the following areas have an uplifted region and saline sandy plains and swamps?
 (a) Ganga Brahmaputra Delta
 (b) Konkan Coast
 (c) Rann of Kutch
 (d) Malabar Coast
64. In economics, the slope of the demand curve is typically _____.
 (a) Curved moving from left to right
 (b) downward from left to right
 (c) upward from left to right
 (d) straight parallel to X axis from left to right
65. To purchase local property, increase in existing money by outer sources is called?
 (a) Capital inflow (b) Capital outflow
 (c) Per capita net income (d) Net factor income
66. Who was the first Indian to win the Pulitzer Prize?
 (a) Gobind Behari Lal (b) Siddhartha Mukherjee
 (c) Geeta Anand (d) Jhumpa Lahiri
67. When is Halloween celebrated?
 (a) 1 December (b) 29 September
 (c) 3 November (d) 31 October
68. 'Durgeshnandini' was written by:
 (a) Premchand
 (b) Chandu Menon
 (c) Rabindranath Tagore
 (d) Bankim Chandra Chattopadhyay
69. World Trade Organization was constituted under _____ agreement on January 1, 1995.
 (a) Asean free trade agreement
 (b) Trans-pacific partnership
 (c) Marrakesh Agreement
 (d) Comprehensive Economic partnership
70. Valley of the kings-one of the most important archaeological sites in the world is located in _____.
 (a) Thailand (b) Norway
 (c) Egypt (d) Turkey
71. The Defence Research and Development Organisation (DRDO) was established in:
 (a) 1947 (b) 1991
 (c) 1958 (d) 1950
72. Baichung Bhutia was the first Indian sportsman to refuse to carry the Olympic Torch Relay to support the -
 (a) Tibetan Independence Movement
 (b) Discrimination Against Women
 (c) Children not provided training facilities for Sports
 (d) More funds for Indian Sports
73. With which of following sports is Black Pearl associated?
 (a) Soccer (b) Golf
 (c) Snooker (d) Horse Racing
74. Which cultural festival of India is a ten-day festival of classical dance, folk art and light music, and is held every year between February and March at Shilpgram?
 (a) Taj Mahotsav
 (b) Hampi Dance Utsav
 (c) Natyanjali Utsav
 (d) Nishagandhi Festival
75. Kolkali is a folk art performed in _____.
 (a) North Malabar region of Kerala
 (b) Eastern part of Uttar Pradesh
 (c) Southern part of Gujarat
 (d) Western part of Uttar Pradesh

SOLUTION : PRACTICE SET- 4

ANSWER KEY

1. (c)	7. (a)	13. (a)	19. (a)	25. (a)	31. (d)	37. (d)	43. (a)	49. (c)	55. (b)	61. (d)	67. (d)	73. (a)
2. (c)	8. (d)	14. (c)	20. (d)	26. (b)	32. (c)	38. (c)	44. (a)	50. (c)	56. (d)	62. (a)	68. (d)	74. (a)
3. (c)	9. (a)	15. (c)	21. (c)	27. (c)	33. (b)	39. (a)	45. (d)	51. (b)	57. (d)	63. (c)	69. (c)	75. (a)
4. (d)	10. (d)	16. (c)	22. (b)	28. (a)	34. (a)	40. (b)	46. (c)	52. (d)	58. (d)	64. (b)	70. (c)	
5. (b)	11. (c)	17. (d)	23. (c)	29. (c)	35. (d)	41. (c)	47. (d)	53. (c)	59. (d)	65. (a)	71. (c)	
6. (a)	12. (a)	18. (d)	24. (c)	30. (d)	36. (a)	42. (a)	48. (a)	54. (d)	60. (a)	66. (a)	72. (a)	

SOLUTION

1.

Ans. (c) : The best option for a woman who is about to give birth is giving birth in a well equipped hospital. Because if you are at increased risk for certain complications, you will have quick access to specialist care and increased monitoring.

2.

Ans : (c) The angiosperms are vascular seed plants in which the ovule (egg) is fertilized and develops into a seed in an enclosed hollow ovary. The ovary itself is usually enclosed in a flower. Herb, shrubs and trees- all three are included in angiosperms.

3.

Ans : (c) Cod liver oil obtained from fish, is a rich source of Vitamin-D. Fish oil contains omega-3 fatty acids (EPA and DHA).

4.

Ans : (d) The largest corpuscles in human blood are white blood corpuscles. Their diameter is about 12 to 15 micrometers. It is larger than the red blood corpuscles (about 8.0 micrometers) in size but is tiny, colourless, nucleated and less in number. The shape of a WBC is irregular like Amoeba.

5.

Ans. (b) Hydra is the animal of Phylum Cnidaria. It is microscopic in shape. Hydra usually reproduces asexually by budding, a process by which small portions of the adult structure become new, but genetically identical individuals. This process is known as regeneration. All known Cnidaria can reproduce asexually by various means, in addition to regenerating after being fragmented.

6.

Ans. (a) : Leucoplasts are colourless plastids and mainly help in storage of food compounds like starch, proteins or fats. Such colourless plastids are present in underground roots, stems. The chloroplast is a type of plastid which produces coloured pigment. The chloroplast is involved in carrying out photosynthesis. It gives green colour to leaves.

7.

Ans.(a) : Sodium Carbonate chemical should be used to remove the stain if a student got a stain on his shirt while doing an activity in the science laboratory.

8.

Ans : (d) Newland formulated the Octave rule and for this rule he prepared a table in which cobalt (Co-27) and nickel (Ni-28) were placed in the category of halogen elements. According to Newland's law of octaves, starting from any element the eighth element had the same properties as the first element.

9.

Ans : (a) The number of protons present in the nucleus of an element's atom represents the atomic number of that element. The atomic number of an element represents the fundamental properties of that element.

10.

Ans : (d) According to Dalton's atomic theory, "every substance consists or made up of small particles called atoms." The atom cannot be divided by any chemical or physical method. Hence option (d) is not the concept of Dalton's atomic theory.

11.

Ans. (c) : A current carrying conductor produces a magnetic field around it. The magnetic field produced by a current carrying conductor decreases as the distance increases.

12.

Ans.(a) The state in which the molecular force of attraction is very strong is called the solid state of the substance. The molecules in the solid are very close.

13.

Ans : (a) From Newton's Second Law -

$$\begin{aligned} \text{Force} &= \text{mass} \times \text{acceleration} \\ &= 1 \text{ Kg} \times 1 \text{ m/s}^2 = 1 \text{ Newton} \end{aligned}$$

The unit of force is Newton.

14.

Ans : (c) $1 \text{ kWh} = 3.6 \times 10^6 \text{ J}$

15.

Ans : (c) The SI unit of energy and work is same i.e. Joule (J), named after English physicist James Prescott Joule (1818 - 1889). Joule discovered the relationship between heat and mechanical work, which led to the development of the laws of thermodynamics.

16.

Ans. (c) : Just as 'Jaggery' is obtained from 'Sugarcane', Similarly, 'Coconut hair' is obtained from 'Coconut'.

17.

Ans. (d) : Just as,

$$\begin{array}{l} 20 \quad : \quad 30 \\ \downarrow \quad \quad \downarrow \\ 4 \times 5 \quad \quad (4 + 1) \times (5 + 1) \end{array}$$

And,

$$\begin{array}{l} 72 \quad : \quad 90 \\ \downarrow \quad \quad \downarrow \\ 8 \times 9 \quad \quad (8 + 1)(9 + 1) \end{array}$$

Similarly,

$$\begin{array}{l} 42 \quad : \quad \boxed{56} \\ \downarrow \quad \quad \downarrow \\ 6 \times 7 \quad \quad (6 + 1)(7 + 1) \end{array}$$

Hence, $\boxed{? = 56}$

18.

Ans. (d) : Just as, $\begin{matrix} B & O & U & T & S \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 5 & 4 & \% & 8 & \# \end{matrix}$ And, $\begin{matrix} U & L & T & R & A \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ \% & 3 & 8 & @ & 9 \end{matrix}$

Similarly,
Now, using code of letters

$\begin{matrix} B & L & A & R & E \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ \boxed{5} & \boxed{3} & \boxed{9} & \boxed{@} & \boxed{2} \end{matrix}$

Hence, option (d) is correct answer.

19.

Ans.(a) : Just as,

$T \xrightarrow{+2} V$

$O \xrightarrow{+1} P$

$N \xrightarrow{-1} M$

$E \xrightarrow{-2} C$

And,

$F \xrightarrow{+2} H$

$I \xrightarrow{+1} J$

$R \xrightarrow{-1} Q$

$E \xrightarrow{-2} C$

Same as,

$\begin{matrix} C \xrightarrow{+2} E \\ I \xrightarrow{+1} J \\ T \xrightarrow{-1} S \\ Y \xrightarrow{-2} W \end{matrix}$

20.

Ans. (d) : Onion is a type of vegetable whereas Black Pepper, Clove and Cardamom comes under spices.

21.

Ans. (c) : From the given option, option (c) is odd because Christopher Columbus was a sailor who discovered America during his sea voyage. Nikola Tesla, Thomas Edison and James Watt are scientist, they are similar.

22.

Ans. (b) : The given series is as follows -

$3, 7, 23, 59, \boxed{123}, 223$
 $\begin{matrix} \uparrow & \uparrow & \uparrow & \uparrow & \uparrow \\ +2^2 & +4^2 & +6^2 & +8^2 & +10^2 \end{matrix}$

Hence $\boxed{? = 123}$

23.

Ans. (c) : The given series is as follows

$\underline{QWER/QXER/QYER/QZER}$
 $\begin{matrix} \curvearrowright & \curvearrowright & \curvearrowright \\ +1 & +1 & +1 \end{matrix}$

Hence, EQRYR will complete the letter series.

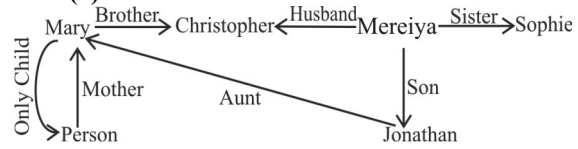
24.

Ans. (c) : Given that,
B700A110S90FDB9M10S10F

According to the question, on changing letters into mathematical symbol, we have-
 $= (700+110-90) \div (9 \times 10-10)$
 $= 720 \div (80) = 9$

25.

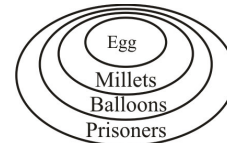
Ans. (a) :



Hence, relationship of man's mother to Jonathan's father's sister.

26.

Ans. (b) : According to the statement, on making Venn diagram-



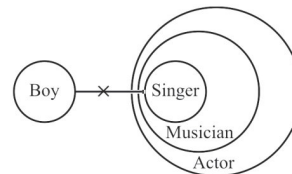
Conclusion :-

- (i) (X)
- (ii) (✓)
- (iii) (X)

Hence, it is clear from figure that only conclusion II follows. Hence option (b) is correct.

27.

Ans. (c) : According to the statement Venn diagram is as follows,

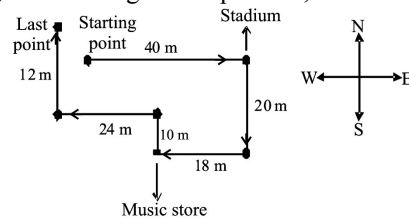


- Conclusion -
- I. (✓)
 - II. (X)
 - III. (X)

Hence, only conclusion I follow.

28.

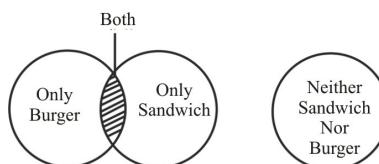
Ans. (a) : According to the question,



Hence, it is clear from the above diagram that Rewa is facing in North direction.

29.

Ans. (c) : According to the question,



The Venn diagram of option (c) correctly represents these situations.

30.

Ans. (d) :

Days of week	Persons
Monday	Q
Tuesday	R
Wednesday	S
Thursday	P
Friday	U
Saturday	V
Sunday	T

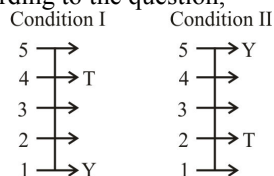
Hence it is clear that S's exam is on 'Wednesday'

31.

Ans. (d) : Mike, Loudspeaker and Amplifier used for recording sounds or for making voice louder, while Projector is a piece of equipment for projecting photographs, movies or computer slides onto a screen.

32.

Ans.(c) : According to the question,



According to the Ist condition position of T is fourth from the bottom, whereas according to the IInd condition position of T is second from the bottom.

Hence, option (c) is correct.

33.

Ans. (b) : Some of the languages taught in this school are English, Portuguese, Tamil and Sanskrit. All languages are taught by well qualified teachers in this school. According to the statement only conclusion (i) and (ii) follows.

34.

Ans. (a) : From statement 1,

$$\text{Total number of cows} = 60$$

From statement 2,

$$\text{Total number of black cows} = \frac{60 \times 40}{100} = 24$$

Hence, Both statements together are sufficient to answer the question, but neither statement alone is sufficient.

35.

Ans. (d) : It is clear from above statement that assumption II "Prolonged sneezing and runny nose is a symptom of allergic rhinitis" is implicit in statement.

36.

Ans. (a) : Let, the original number be N, the divisor be d, quotient be q.

$$N = dq + 16$$

$$\therefore 2N = 2(dq + 16)$$

$$2N = 2dq + 32$$

When $(2dq + 32)$ is divided d then remainder is 3.

$2dq$ is completely divisible by d, then

$$\therefore \text{Required number} = 32 - 3 = 29$$

37.

Ans : (d) The prime numbers between 60 and 100 = 61, 67, 71, 73, 79, 83, 89, 97

Hence, Total 8 prime numbers will be between 60 and 100.

38.

Ans. (c) : Given expression,

$$\begin{aligned} & \frac{7}{9} \times \frac{21}{5} \times 25(65^2 - 55^2) \\ &= \frac{49 \times 5}{3} [(65 + 55)(65 - 55)] \\ &= \frac{49 \times 5}{3} \times 120 \times 10 \\ &= 49 \times 5 \times 40 \times 10 \\ &= 98000 \end{aligned}$$

39.

Ans. (a) : From question,

$$\begin{array}{cccc} \frac{2}{3}, & \frac{4}{8}, & \frac{5}{9} & \text{and} & \frac{9}{11} \\ \downarrow & \downarrow & \downarrow & & \downarrow \\ 0.67 & 0.50 & 0.55 & & 0.81 \end{array}$$

(Ascending order),

$$\begin{array}{cccc} 0.50 & 0.55 & 0.67 & 0.81 \\ \downarrow & \downarrow & \downarrow & \downarrow \\ \frac{4}{8} & < & \frac{5}{9} & < & \frac{2}{3} & < & \frac{9}{11} \end{array}$$

40.

Ans. (b) : The smallest number = LCM of 2, 3, 4, 5 and 6 = 60,

According to the question-

$$(60x + 1), \text{ is divisible by } 7.$$

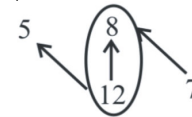
$$\therefore \text{Taking } x = 5$$

$$\text{Required number} = 60 \times 5 + 1 = 301$$

41.

Ans : (c)

Joyee : Minit : Jacob



$$\begin{aligned} \text{Joyee : Minit : Jacob} &= 60 : 96 : 56 \\ &= 15 : 24 : 14 \end{aligned}$$

Hence, the ratio of the number of marbles Joyee and Jacobs had = 15:14

42.

Ans. (a) : Let, no. of the total students in class = x

$$\text{Passed student} = x \times 82\% = x \times \frac{82}{100}$$

Again students in reappear category

$$= x \times 2\% = x \times \frac{2}{100}$$

$$\text{Total passed students} = x \times \frac{2}{100} + x \times \frac{82}{100}$$

$$= x \times \frac{84}{100}$$

$$\text{Failed students} = x - x \times \frac{84}{100} = x \times \frac{16}{100}$$

According to the question-

$$x \times \frac{16}{100} = 592$$

$$x = \frac{592}{16} \times 100$$

$$\boxed{x = 3700}$$

43.
Ans : (a)

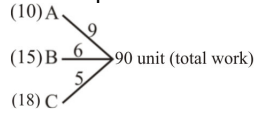


$$\begin{aligned} \text{Area of } \triangle ABC &= \text{Area of } \triangle OBC + \text{Area of } \triangle OAC + \\ &+ \text{Area of } \triangle OAB \\ &= \frac{1}{2} \times r \times BC + \frac{1}{2} \times r \times AC + \frac{1}{2} \times r \times AB \\ &= \frac{1}{2} \times r \times (BC + AC + AB) \\ &= \frac{1}{2} \times 3.5 \times 28 = 49 \text{ cm}^2 \end{aligned}$$

44.

$$\begin{aligned} \text{Ans. (a) : One day's work of C} &= \frac{2}{9} - \left(\frac{1}{10} + \frac{1}{15} \right) \\ &= \frac{2}{9} - \left(\frac{3+2}{30} \right) \\ &= \frac{2}{9} - \frac{1}{6} \\ &= \frac{4-3}{18} = \frac{1}{18} \text{ part} \end{aligned}$$

Time taken by C to complete the work = 18 days



2 day's work of (A + C) = (9 + 15) = 14 unit
(2 × 6) = 12 day's work of (A + C) = (14 × 6) = 84 unit
Remaining work = 90 – 84 = 6 unit
work done by C on 13th day = 5 unit
Remaining work = 6 – 5 = 1 unit

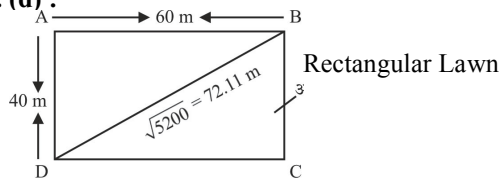
Time taken by A to do 1 unit work = $\frac{1}{9}$ days

Hence the total time taken by A and C to complete the

$$\begin{aligned} \text{total work} &= 13 + \frac{1}{9} \\ &= 13 \frac{1}{9} \text{ days} \end{aligned}$$

45.

Ans. (d) :



Length of rectangular lawn (AB) = 60 m
breadth (AD) = 40 m
Diagonal (DB) = ?

$$\begin{aligned} \text{From Pythagoras theorem,} \\ BD^2 &= AB^2 + AD^2 \\ BD^2 &= (60)^2 + (40)^2 \\ BD^2 &= 3600 + 1600 \\ BD^2 &= 5200 \\ BD &= \sqrt{5200} \\ BD &= 72.11 \approx 72 \end{aligned}$$

Length of diagonal = 72 m
Time = ?

$$\text{Speed} = 3 \text{ km/h} = 3 \times \frac{5}{18} = \frac{5}{6} \text{ m/sec}$$

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$= \frac{72}{\frac{5}{6}} = \frac{72 \times 6}{5} = 86.4 \approx 86.5 \text{ seconds (approximately 86.5)sec}$$

46.

Ans. (c) : Given that,
Total amount = ₹16500
Rate = 5% annual
Time = 2 years
Principal = ?

Let the Principal be ₹ P

$$\text{Then, } P + \frac{P \times R \times T}{100} = 16500$$

$$P + \frac{P \times 5 \times 2}{100} = 16500$$

$$\frac{11P}{10} = 16500$$

$$P = ₹ 15000$$

47.

Ans : (d) Interest compounded half yearly

$$\text{Rate} = \frac{20}{2} = 10\%$$

Time = 2 × 2 = 4 Years

$$\therefore \text{Amount} = \text{Principal} \left(1 + \frac{\text{Rate}}{100} \right)^{\text{Time}}$$

$$= 10000 \left(1 + \frac{10}{100} \right)^4$$

$$= 10000 \left(1 + \frac{1}{10} \right)^4 = 10000 \left(\frac{11}{10} \right)^4$$

$$= 10000 \times \frac{14641}{10000} = ₹ 14641$$

48.

Ans : (a) Let the cost price of the item = ₹ x.

The difference of selling prices = ₹ 3

According to the question,

$$x \times \frac{112}{100} - x \times \frac{108}{100} = 3$$

$$\frac{4x}{100} = 3, \quad x = \frac{300}{4} = 75$$

$$\begin{aligned} \text{So, the required ratio} &= 75 \times \frac{108}{100} : 75 \times \frac{112}{100} \\ &= 108 : 112 = 27 : 28 \end{aligned}$$

49.

Ans. (c) : Selling price of the toys = 990 + 990
= ₹ 1980

According to the question,

$$\begin{aligned} \text{Cost price of the toys} &= 990 \times \frac{100}{110} + 990 \times \frac{100}{90} \\ &= 900 + 1100 = ₹ 2000 \end{aligned}$$

$$\text{Loss \%} = \frac{2000-1980}{2000} \times 100 = \frac{20}{2000} \times 100 = 1\%$$

50.

$$\begin{aligned} \text{Ans : (c) First term,} \\ 2x^2 + 5x - 12 \\ = 2x^2 - 3x + 8x - 12 \\ = x(2x-3) + 4(2x-3) \\ = (x+4)(2x-3) \end{aligned}$$

$$\begin{aligned} \text{Second term,} \\ = x^2 + x - 12 \\ = x^2 + 4x - 3x - 12 \\ = x(x+4) - 3(x+4) \\ = (x+4)(x-3) \end{aligned}$$

So, from both terms the HCF = $(x+4)$

On comparing $(x+4)$ with $(x+a)$, $\Rightarrow \boxed{a=4}$

51.

$$\begin{aligned} \text{Ans. (b) : Given,} \\ 2(\cos \theta + \sec \theta) = 5 \end{aligned}$$

$$\cos \theta + \sec \theta = \frac{5}{2}$$

On squaring both sides,

$$(\cos \theta + \sec \theta)^2 = \left(\frac{5}{2}\right)^2$$

$$\cos^2 \theta + \sec^2 \theta + 2 \cos \theta \cdot \sec \theta = \frac{25}{4}$$

$$\cos^2 \theta + \sec^2 \theta + 2 = \frac{25}{4}$$

$$\cos^2 \theta + \sec^2 \theta = \frac{25}{4} - 2$$

$$\cos^2 \theta + \sec^2 \theta = \frac{17}{4}$$

52.

Ans. (d) : Given observations- 60, 68, 70, 72, 74, 76, 78, 80 Number of term = 8 (even)

$$\text{Median} = \frac{\left(\frac{n}{2}\right)^{\text{th}} \text{ term} + \left(\frac{n}{2} + 1\right)^{\text{th}} \text{ term}}{2}$$

$$= \frac{\left(\frac{8}{2}\right)^{\text{th}} \text{ term} + \left(\frac{8}{2} + 1\right)^{\text{th}} \text{ term}}{2}$$

$$= \frac{4^{\text{th}} \text{ term} + 5^{\text{th}} \text{ term}}{2}$$

$$= \frac{72 + 74}{2}$$

$$= \frac{146}{2}$$

$$\text{Median} = 73$$

Number of term on removing 70 = 7 (odd)

$$\begin{aligned} \therefore \text{Median} &= \frac{n+1}{2} \text{th term} \\ &= \frac{7+1}{2} = 4^{\text{th}} \text{ term} \\ &= 74 \end{aligned}$$

Then, Increased median = $74 - 73 = 1$

53.

Ans. (c) : From question,
 $x = 42.25$

$$\sqrt{x} = \sqrt{\frac{4225}{100}} = \frac{65}{10} = \frac{13}{2} = 6.5$$

54.

Ans : (d) Let the age of Virat before 5 years = x years

Age of Mohindar before 5 years = $\left(\frac{2x}{5} - 1\right)$ years

Present age of Virat = $(x + 5)$ years

Present age of Mohindar = $\left(\frac{2x}{5} + 4\right)$ years

According to the question,

$$x + 5 + 7 = 2\left(\frac{2x}{5} + 4 + 7\right)$$

$$5(x + 12) = 4x + 110, \quad x = 50$$

\therefore Present age of Virat = $x + 5 = 50 + 5 = 55$ years

55.

Ans. (b) : Part filled by pipe A in 1 hour = $\frac{1}{x}$

Part emptied by pipe B in 1 hour = $\frac{1}{15}$

According to the question,

$$\frac{1}{x} - \frac{1}{15} = \frac{1}{7 \text{ hr } 30 \text{ minutes}}$$

$$\frac{1}{x} - \frac{1}{15} = \frac{1}{7 + \frac{1}{2}} \Rightarrow \frac{15-x}{15x} = \frac{2}{15}$$

$$2x = 15 - x$$

$$3x = 15, \quad \boxed{x = 5 \text{ hours}}$$

56.

Ans. (d) : The majority of the Bengal Army were recruited from the villages of Awadh and eastern Uttar Pradesh. Due to which Awadh is called as the 'Nursery of the Bengal Army'.

57.

Ans. (d): Futuh-e-Firozshahi has a record of administrative achievements of Firozshah Tughlaq. Firoz Shah Tughlaq was the cousin of Muhammad bin Tughlaq. His fiscal policy was governed by Shariat which allows the king to collect only 4 taxes that are as under

(i) Kharaj-It was a land revenue.

(ii) Zakat- It was collected by religious institution.

(iii) Jizya- It is tax on non-Muslims in an Islamic country.

(iv) Haq-e-Sharb- It is irrigation tax or water tax.

• He founded several cities including Jaunpur, Firozpur, Firozabad, Hissar and Fatehabad. He died in September 1388 AD and he was buried in Hauz khas area in Delhi.

58.

Ans. (d) : Vedangas are the organ/part of veda. These are 6 in numbers - Shiksha, Chhanda, Vyakarna, Nirukta, Jyotisha and Kalpa.

Nirukta is much famous for its description of complex words. It was composed by Yaska who recognized it as the complementary of Vyakarna. The tough words which were out of reach of Vyakarna are well described in Nirukta.

59.

Ans. (d): The Indian Constitution is divided into 25 parts and 12 schedules.

4th Schedule – It contains the provision in relation to the allocation of seats for states and Union territories in the Rajya Sabha.

5th Schedule – It contains the provision in relation to the administration and control of scheduled areas as well as scheduled tribes residing in any state other than the states of Assam, Meghalaya, Tripura and Mizoram.

60.

Ans. (a) The Vice-President is elected by an electoral college in which elected and nominated members of both houses of parliament i.e. Lok Sabha and Rajya Sabha participate.

61.

Ans.(d): Mayor is the head of the Municipal Corporation, some of the other characteristics and function of Mayor are:

- (1) Mayor is the first citizen of the Municipal Corporation and head of Municipal Corporation.
- (2) Tenure of Mayors in India varies between 1 to 5 years.
- (3) Clause 23 of the Municipal law provides that the Mayor/the Municipal chairperson as the case may be shall be elected by the elected councillors from among themselves.

62.

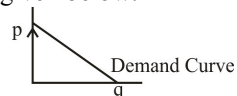
Ans. (a): Jupiter is the largest planet in the solar system and its largest satellite is Ganymede, which is also the largest satellite of our solar system. Some other prominent satellites are Himalia, Europa, Ayo, IO, Callisto, Pasiphae etc. Among them Ganymede and Europa are the satellite having ice-beneath which is a reservoir. Europa has liquid water and the evidences of hydrogen para-oxide is also found there.

63.

Ans. (c) : The Rann of Kutch (in Gujarat) is an area having an uplifted region and saline sandy plains and swamps, lying over border regions of India and Pakistan. The regions consists of desert at a side and has a marine ecosystem at another side.

64.

Ans. (b): In economy the law of Demand states that with all other factors being constant or equal, the price and quantity demanded of any product or service will be inversely related to each other. Graphical representation between price (p) of the commodity and its quantity demanded (q) is given below:



The shape of slope of demand curve is downward from left to right.

65.

Ans. (a): For purchase of local property increase in existing money by outer source is called capital inflow, in form of outer source of creation mainly conservation of foreign investment import and reforms in trade conditions.

66.

Ans. (a) : Gobind Behari Lal was an Indian - American Journalist and independence activist. He became the first Indian to win the Pulitzer Prize in 1937. Pulitzer Prize for reporting started in 1917.

67.

Ans. (d) Halloween, contraction of All Hallow's Eve, a holiday observed on October 31, the evening before All Saints Day. The celebration marks the day before the western Christian feast of All Saints and initiates the season of Allhallowtide which lasts three days and concludes with All Soul's Day.

68.

Ans. (d) : Durgeshnandini is a Bengali historical romantic novel written by Indian writer Bankim Chandra Chattopadhyay in 1865.

69.

Ans. (c) WTO is an international organization set up in 1995 by replacing the General Agreement on Trade and Tariffs (GATT) under the Marrakesh Agreement. It is the only global International organization dealing with the International trade between nations.

70.

Ans. (c) : Valley of the kings-one of the most important archaeological sites in the world is located in Egypt. It is also known as the Valley of the gates of kings.

71.

Ans. (c) : Defence Research and Development Organisation (DRDO) was established in 1958 charged with military's research and development. It was formed in 1958 by the merging of Technical Development Establishment. The Chief and Director General of DRDO is the scientific advisor of the Defence Minister. The organisation is headquartered in New Delhi.

72.

Ans. (a) : Baichung Bhutia was the first Indian sportsman to refuse to carry the Olympic Torch Relay to support the Tibetan Independence Movement. He is a retired footballer.

73.

Ans. (a) : Brazilian Footballer Pele is also known as 'Black Pearl'. He was part of the Brazillian national teams that won three World Cup Championships (1957, 1962, 1970).

74.

Ans. (a) : **The Taj Mahotsav** is an annual 10 day (from 18 to 27 February) event at Shilpgram in Agra.

Hampi Dance Utsav- Organised during the month of October and November in Hampi village near Vijaynagar in the state of Karnatka.

Natyanjali is an annual dance festival commemorating Hindu deity Shiva. It is currently organised by collaborative efforts of the Department of Tourism, Tamil Nadu and Natyanjali Trust.

Nishagandhi dance festival organised by Kerala Tourism Department, is a one week festival of classical dance. It usually happens in the last week of January every year.

75.

Ans. (a) : Kolkali is a folk art performed in Malabar region of Kerala, India. The dance performers move in a circle, striking small sticks and keeping rhythm with special steps. Many of the traditional performing art forms of Kerala are Kathakali, Velakali, Poorakkali etc.

PRACTICE SET-5

- What happens when plants are kept in dark room for three days ?**
 - Plants hibernate for those 3 days
 - Plants oil reserves get used up
 - Plants utilize protein reserves
 - Plants starch resources get used up
- You have prepared a temporary slide of Rhoel leaf in water. What change will you observe when you put a strong solution of sugar on the slide?**
 - Cells will lose water and there will be shrinkage of contents of the cell away from the cell wall
 - No change will be seen
 - Cells of the leaf will take in water and swell
 - Some cells will take in water; others will lose water
- Which of the following sexually transmitted diseases is caused by a virus?**
 - Warts
 - Gonorrhoea
 - Syphilis
 - Tuberculosis (Chlamydia)
- In which of the following animals are the Trachea found?**
 - Human
 - Fish
 - Earthworm
 - Cockroach
- Earthworm is related to which of these animal species?**
 - Porifera
 - Annelida
 - Mollusca
 - Arthropoda
- The tissue that stores fat is called:**
 - connective tissue
 - areolar tissue
 - epithelial tissue
 - adipose tissue
- Sodium is a reactive metal, which if kept open reacts with _____ explode and catch fire.**
 - Oxygen
 - Hydrogen
 - Nitrogen
 - Phosphorus
- Toothpaste is generally _____ in nature.**
 - acidic
 - harmful
 - neutral
 - basic
- Isobars have the same number of?**
 - Ion
 - Nucleus
 - Electron
 - Proton
- Atoms chemically combine to become?**
 - Molecules
 - Element
 - Both element and alloy
 - Alloy
- What is the net resistance of two resistors 10 ohm and 40 ohm connected in parallel?**
 - 8 ohm
 - 1/60 ohm
 - 1/8 ohm
 - 60 ohm
- 273.15°C temperature is equal to:**
 - 0 K
 - 100 K
 - 173 K
 - 23 K
- Mass × acceleration =?**
 - force
 - inversion
 - velocity
 - pressure
- Cyanocobalamin is a man-made form of _____ vitamin.**
 - B₁₂
 - B₆
 - B₂
 - B₁
- Ampere second is the unit of –**
 - Charge
 - Power
 - Voltage
 - Energy
- The option which is related to the third word. In the same way as the second word is related to the first word is -**

Poem : Verse :: Book : ?

 - Story
 - Page
 - Printing
 - Language
- Select the set in which the numbers are related in the same way as are the numbers of the following sets.**

(NOTE:- Operation should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(24, 42)
(36, 63)

 - 52, 91
 - 40, 82
 - 48, 96
 - 36, 91
- BU23G is related to GZ18L in a certain way. In the same way, LC41M is related to QH36R. To which of the following is GU18N related following the same logic?**
 - ZL3G
 - LZ13H
 - LZ13S
 - LP15J
- In a certain code language, MAHARAJA is written as ZNUNENWN. How will RAINDROP be coded as in that language?**
 - ENVAEQBC
 - ENVAQEBC
 - EVNAQEBC
 - ENAVQEBC
- Choose the appropriate option which is different from the others as the others are inter-related.**
 - Border : country
 - Coastline : Sea
 - Bridge : steel
 - Wall : Room
- Four letter-clusters have been given out of which three are alike in some manner and one is different. Select the one that is different.**
 - GEM
 - JHQ
 - KIQ
 - YWE
- Which of the following numbers will replace the question mark (?) in the given series? 24, 28, 35, 48, 73, ?**
 - 122
 - 121
 - 120
 - 123

23. Select the letter - cluster from among the given options that can replace the question mark(?) in the following series.
BOY, FMU, ?, NIM, RGI
(a) JKQ (b) IKR (c) ILR (d) JLQ
24. If '−' means '+', '+' means '×', '×' means '÷', '÷' means '−', What will come in place of the question mark (?) in the following equation?
 $3 \div 8 \times 2 + 1 - 5 = ?$
(a) 7 (b) 4 (c) 6 (d) 5
25. Jitesh's brother-in-law Jagdish is also Suresh's father-in-law. How could Suresh's wife be related to Jitesh ?
(a) Aunt (b) Sister-in-law
(c) Niece (d) Cousin
26. Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statement.
Statement:
All lamps are lanterns.
All lanterns are torches.
All torches are candles.
Conclusions:
I. Some candles are lamps
II. All lanterns are lamps
III. No lantern is a lamp
(a) Only conclusion II follows
(b) Only conclusion I and II follows
(c) Only conclusion I follows
(d) None of the conclusions follow
27. Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.
Statements:
All packets are urns.
No urn is a truck.
All trucks are drums.
Conclusions:
I. Some packets are drums.
II. Some drums are urns.
III. All drums are truck.
(a) Only conclusions I and II follow.
(b) Only conclusions II and III follow.
(c) None of the conclusions follow.
(d) Only conclusions I and III follow.
28. Rekha, from point A, walks 41 m towards the west. She takes a right turn and walks 84 m. She takes a right turn again and walks 92 m. Again, she takes a right turn and walks 84 m. She takes a right turn again and walks 19 m to reach point B. How far and in which direction is point B from point A? (All turns are 90 degree turns only)
(a) 30 m, West (b) 32 m, West
(c) 32 m, East (d) 30 m, East
29. Select the Venn diagram that best represents the relationship between the given groups of classes.
Paragraph, Letter, Word, Sentence
-
30. Five students A, B, C, D and E study in different schools K, L, M, N and O, but not necessarily in the same order. Each one likes only one subject, viz. Hindi, Mathematics, Science, Social Science and English. C studies in M, B does not like Social Science. D likes English and studies in N. The student of L likes Mathematics. E likes Hindi but he is neither from O nor L. B studies in O.
Which one of the following students studies in school L and likes Mathematics?
(a) D (b) B
(c) C (d) A
31. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one
(a) Eagle (b) Emu
(c) Sparrow (d) Crow
32. In a college, the Art room, the Library, the Gym, the Labs, the Storerooms, the Staffrooms and the Classrooms are there on seven different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2, and so on till the topmost floor is numbered 7. No other floors are there below the Library, and the Library is immediately below the Gym. Only two floors are there between the Gym and the Classrooms. Both the Labs and the Staffrooms are on even numbered floors. Only three floors are there between the Storerooms and the Art room. The Storerooms are immediately below the Labs. Which of the following is/are there on floor number 4?
(a) Storerooms (b) Art room
(c) Labs (d) Staffrooms
33. Read the given statement and conclusions carefully and decide which of the conclusions logically follow(s) from the statement.
Statement:
Computer is one of the greatest innovations of mankind
Conclusions:
1. No other innovation is better than computer
2. Computers have benefited mankind
(a) Only conclusion 1 follows
(b) Both the conclusions follow
(c) Either conclusion 1 or 2 follows
(d) Only conclusion 2 follows

34. **Question:**
What is the weight of ten iron balls if each ball is of the same weight ?
Statements:
1. One-fourth of each ball's weight is 5 kg.
 2. The total weight of three iron balls is 20 kg more than the total weight of two iron balls.
- (a) Alone statement 1 is sufficient while alone statement 2 alone is insufficient
(b) Both statement 1 and 2 are sufficient
(c) Either statement 1 or 2 is sufficient
(d) Statement 2 alone is sufficient while statement 1 alone is insufficient
35. **Statement:**
We are living in a time when the environment is in danger. So it is important to preserve it.
Assumption:
- I. We need to protect environment to prevent health problems, maintain ecosystem and preserve the earth for our children.
 - II. Pollution not only increases spending on health care but also decreases working capacity.
- (a) Only assumption I implicit
(b) Both assumption I and II are not implicit
(c) Both assumption I and II are implicit
(d) Only assumption II implicit
36. If the number $6484y6$ is divisible by 8, then find the least value of y ?
(a) 3 (b) 4
(c) 1 (d) 7
37. If the sum of two numbers is 25 and the product is 136, then the sum of their cubes is :
(a) 5425 (b) 5524
(c) 4525 (d) 4524
38. Solve it
 $79 + [37 - \{45 - (1 - 36 \div 6 \times 8)\}] = ?$
(a) 33 (b) 24
(c) 59 (d) 41
39. Select the option that gives the fractions $\frac{2}{5}, \frac{1}{3}, \frac{3}{5}, \frac{1}{4}, \frac{7}{10}, \frac{5}{8}$ in ascending order :
(a) $\frac{1}{4}, \frac{1}{3}, \frac{2}{5}, \frac{3}{5}, \frac{7}{8}, \frac{5}{10}$ (b) $\frac{7}{10}, \frac{5}{8}, \frac{3}{5}, \frac{2}{5}, \frac{1}{3}, \frac{1}{4}$
(c) $\frac{1}{4}, \frac{1}{3}, \frac{3}{5}, \frac{2}{5}, \frac{7}{8}, \frac{5}{10}$ (d) $\frac{1}{3}, \frac{1}{4}, \frac{2}{5}, \frac{3}{5}, \frac{7}{8}, \frac{5}{10}$
40. What will be the least multiple of 23 which when divided by 18, 21 and 24 leaves the remainder 7, 10 and 13 respectively.
(a) 3113 (b) 3013
(c) 3103 (d) 3131
41. If $a : b = 3 : 4$ and $d : b = 4 : 3$, then find the ratio of a to d .
(a) 9 : 16 (b) 3 : 4
(c) 4 : 3 (d) 16 : 9
42. In a class of 60 students 60% are boys. If 25% girls go to school by bicycle, then find the number of girls who do not go to school by bicycle?
(a) 24 (b) 27
(c) 18 (d) 36
43. A field is in the shape of a rhombus whose side is 122 m. The length of one of its diagonal's is 240 m. What is the area (in m^2) of the field?
(a) 1320 (b) 3080
(c) 5280 (d) 1760
44. 12 men can build a wall in 24.5 days. How many men would be able to build five such walls in 49 days ?
(a) 40 (b) 30
(c) 50 (d) 28
45. Julie can cover a distance of 140 m in 18 second. At that given speed how much distance can Julie cover in 1 hour?
(a) 25.2 km (b) 31.5 km
(c) 28 km (d) 29.4 km
46. A sum of money was invested at a certain rate of simple interest per annum for a period of 4 years. Had the rate of simple interest per annum been 2% more, the sum invested would have earned a total of ₹640 more as interest in these 4 years. What was the sum (in ₹) invested?
(a) 8,000 (b) 9,000
(c) 7,500 (d) 9,500
47. Mr. Yashwant invested money in FD. What will be the total amount on maturity if ₹10000 is invested at a rate of 20% compound interest annually for 6 months, compounded quarterly?
(a) ₹11025.25 (b) ₹11025
(c) ₹11025.75 (d) ₹11025.5
48. A dealer sells a table for ₹ 400 making a profit of 25%. He sells another table at a loss of 10% and on the whole transaction he makes neither profit nor loss. How much (in ₹) did the second table cost for him?
(a) 750 (b) 700
(c) 800 (d) 850
49. A trader sells a shirt at 6% less amount than the printed price. He fixed the printed price 15% more than the cost price. What is the profit % earned by the trader?
(a) 8.1% (b) 21%
(c) 13.5% (d) 9%
50. If $x + y = 8$ product of x and y is, 15 then find the value of $x^4 + y^4$:
(a) 606 (b) 806
(c) 906 (d) 706
51. If $\sin\theta + \operatorname{cosec}\theta = 2$ then the value of $\sin^8\theta + \operatorname{cosec}^8\theta$ is:
(a) 2^4 (b) 2
(c) 1 (d) 2^8
52. Find the median of the given number- 55, 53, 59, 56, 61, 69, and 31
(a) 55 (b) 56
(c) 59 (d) 61
53. Find the value of $\sqrt{0.6}$ -
(a) 0.944 (b) 0.874
(c) 0.894 (d) 0.774

54. Five years hence, the age of Jacob will be four times that of his son. Three years ago, Jacob's age was seven times that of his son. Their present ages are:
 (a) 59 and 21 (b) 59 and 11
 (c) 69 and 11 (d) 49 and 21
55. Tank has two taps. Tap A is to fill the tank and tap B is to empty the tank. If only tap A can fill the tank in 35 hours, then only tap B can empty the full tank in 70 hours. Find the time taken to fill the half filled tank?
 (a) 35 hours (b) 40 hours
 (c) 70 hours (d) 55 hours
56. The Hindu Widow's Remarriage Act was passed in the year ___ legalising the remarriage of widows in all jurisdictions of India under East India Company rule.
 (a) 1856 (b) 1858
 (c) 1859 (d) 1857
57. Who completed the construction of the Qutub Minar?
 (a) Nasir-ud-Din Muhammad
 (b) Firoz Shah Tughlaq
 (c) Qutub-ud-Din Aibak
 (d) Muhi-ud-Din Muhammad
58. Gautama (Siddhartha) is believed to have piously meditated at which place for six years before he went to Bodhgaya for the final realisation?
 (a) Pragbodhi (b) Kapilavastu
 (c) Rajgir (d) Itkhori
59. The State List contains the subjects of local importance. Which of the following falls under the State List?
 (a) Public Health and Sanitation
 (b) Taxes on income other than agricultural income
 (c) Banking and Insurance
 (d) Corporation tax
60. As per Constitution of India, if for a period of days a member of either House of Parliament is without permission of the House, absent from all meetings thereof, the House may declare his seat vacant
 (a) 60 (b) 15
 (c) 45 (d) 30
61. Which Article in the Constitution provides for All States to have a uniform 3 tier Panchayati Raj structure i.e. the village, intermediate and district levels?
 (a) Article 243C (b) Article 243
 (c) Article 243B (d) Article 243A
62. Which dwarf Asteroid planet is present in Asteroid belt?
 (a) Make (b) Pluto
 (c) Ceres (d) Eris
63. Where is the island of Netrani located?
 (a) Kerala (b) Andaman & Nicobar
 (c) Karnataka (d) Goa
64. In relation to consumer behavior, two indifference curves _____.
 (a) intersect each other at 45 degrees.
 (b) always intersect each other at right angles.
 (c) intersect each other at 120 degrees.
 (d) never intersect each other
65. Which of the following formulas is used to determine the Gross Fiscal Deficit?
 (a) Capital Receipt – (Revenue Expenditure + Capital Expenditure)
 (b) Total Expenditure – (Revenue Receipts + Non-debt creating Capital Receipts)
 (c) Total Receipt – Total Expenditure
 (d) Total Expenditure – (Revenue Receipts + Capital Receipt)
66. Jnanpith Award contains a cash prize along with a bronze replica of Goddess _____.
 (a) Durga (b) Sita
 (c) Sarswati (d) Lakshmi
67. When is 'International Day of Sign Languages' celebrated every year around the world?
 (a) 13 September (b) 13 October
 (c) 23 October (d) 23 September
68. 'Waiting for a Visa' is whose autobiography?
 (a) B.R. Ambedkar (b) Indira Gandhi
 (c) Satyajit Ray (d) Jawaharlal Nehru
69. Which agency was created by the United Nations to provide emergency food and health care to children and mothers in the countries affected by World War II?
 (a) UNICEF (b) UNESCO
 (c) WHO (d) IMF
70. In which Indian state "Namdroling Monastery" is located
 (a) Andhra Pradesh (b) Sikkim
 (c) Himachal Pradesh (d) Karnataka
71. Which of the following is India's first formally designed and indigenously designed and manufactured ballistic missile submarine (SSBN)?
 (a) INS Calvary (b) INS Vagin
 (c) INS Arihant (d) INS Chakra
72. Which of the following countries hosted the first Commonwealth Games in 1930?
 (a) Australia (b) New Zealand
 (c) Canada (d) England
73. _____ has won the FIFA Men's Football World Cup the maximum number of times.
 (a) Brazil (b) England
 (c) France (d) Germany
74. Which of the following festivals is associated with Jharkhand?
 (a) Losar (b) Chavang Kut
 (c) Tusu (d) Saga Dawa
75. Rechungma, Gha to Kito and Chi Rmu are the dance forms of _____.
 (a) Sikkim
 (b) Manipur
 (c) Andaman and Nicobar Islands
 (d) Goa

SOLUTION : PRACTICE SET- 5

ANSWER KEY

1. (d)	7. (a)	13. (a)	19. (b)	25. (c)	31. (b)	37. (a)	43. (c)	49. (a)	55. (a)	61. (c)	67. (d)	73. (a)
2. (a)	8. (d)	14. (a)	20. (c)	26. (c)	32. (c)	38. (b)	44. (b)	50. (d)	56. (a)	62. (c)	68. (a)	74. (c)
3. (a)	9. (b)	15. (a)	21. (b)	27. (c)	33. (d)	39. (a)	45. (c)	51. (b)	57. (b)	63. (c)	69. (a)	75. (a)
4. (d)	10. (a)	16. (b)	22. (a)	28. (c)	34. (c)	40. (b)	46. (a)	52. (b)	58. (a)	64. (d)	70. (d)	
5. (b)	11. (a)	17. (a)	23. (a)	29. (b)	35. (a)	41. (a)	47. (b)	53. (d)	59. (a)	65. (b)	71. (c)	
6. (d)	12. (a)	18. (c)	24. (b)	30. (d)	36. (c)	42. (c)	48. (c)	54. (b)	60. (a)	66. (c)	72. (c)	

SOLUTION

1.

Ans.(d) : Plants starch resources get used up, when plants are kept in dark room for three days. Starch is an insoluble, non-structural carbohydrate composed of α -glucose polymers. It stores energy in a dense, osmotically inert form.

2.

Ans.(a) : When a strong solution of sugar on the temporary slide of Rhoeo leaf in water is placed, we observe that cells will lose water and there will be shrinkage of contents of the cell away from the cell wall. The main principle behind this reaction is osmosis. Osmosis is a process of movement of solvents through semi-permeable membrane from a region of lower solute concentration to higher solute concentration.

3.

Ans. (a) : Warts, a sexually transmitted disease is caused by a virus named as human papilloma virus.

4.

Ans. (d) :

Name of animal	Respiratory organ
Fish	Gills
Earthworm	Skin
Cockroach	Trachea
Human	Lungs

5.

Ans : (b) Annelida is the phylum that includes earthworm and leech. Body of these organisms are metamerically segmented and hence the name Annelida has been given to it.

6.

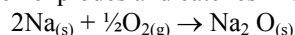
Ans.(d): The tissue that stores the fat in our body is known as adipose tissues.

They are mostly found beneath the skin, around the internal organ, between muscles and bone marrow. It also provides insulation and maintains the body temperature.

Mammals have two types of adipose tissue:- White adipose tissue (WAT) and brown Adipose tissue (BAT)

7.

Ans. (a) : Sodium is ordinarily quite reactive with air, and the reactivity is a function of the relative humidity, or water vapour content of the air. The corrosion of solid sodium by oxygen also is accelerated by the presence of small amounts of impurities in the sodium. Sodium is the metal that reacts vigorously with oxygen and then explodes and catches fire.



8.

Ans. (d) : Toothpastes are usually weakly basic in nature because the bacteria of our mouth releases acids by action on the leftover food in our mouth so to neutralize the acid toothpaste have to be base.

9.

Ans. (b) Atoms of different substances or elements that have the same atomic mass but have different atomic numbers, are called **Isobars**. In isobars, the nucleus (the sum of the number of protons and neutrons) is the same and the number of protons is different. Isotopes have the same number of protons.

10.

Ans. (a) Atoms of two or more elements of the same type or of different types join together by strong chemical bonds to form 'molecules'.

11.

Ans.(a) : Given, $R_1 = 10\Omega$, $R_2 = 40\Omega$ in parallel,

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$$

$$\frac{1}{R} = \frac{1}{10} + \frac{1}{40}$$

$$= \frac{4+1}{40}$$

$$= \frac{5}{40}$$

$$R = 8\Omega$$

12.

Ans. (a) : -273.15°C temperature is equal to 0 Kelvin. Absolute temperature, also called thermodynamic temperature, is the temperature of an object on a scale where 0 is taken as absolute zero. Absolute temperature scale is Kelvin.

13.

Ans : (a) Force is the external factor that changes or tries to change the initial state of an object. Force is a vector quantity. Its SI unit is Newton.

From Newton's Second Law-

Newton's Second Law states that the acceleration of an object is dependent upon two variables- the net force acting upon the object and the mass of the object.

$$\text{Force} = \text{mass} \times \text{acceleration}$$

14.

Ans. (a) : Cyanocobalamin is a man-made form of B_{12} vitamin.

Fat Soluble Vitamins:-

Vitamin A- Retinol

Vitamin D- Calciferol

Vitamin E- Tocopherol

Vitamin K1- Phylloquinone

Vitamin K2- Menaquinone

Vitamin K3- Menadione

Water Soluble Vitamins:-

- Vitamin B₁- Thiamine
- Vitamin B₂- Riboflavin
- Vitamin B₃- Niacin, Nicotinic acid
- Vitamin B₅- Pantothenic acid
- Vitamin B₆- Pyridoxine
- Vitamin B₇- Biotin
- Vitamin B₉- Folic acid
- Vitamin B₁₂- Cyanocobalamin, Cobalamin
- Vitamin C- Ascorbic acid

15.

Ans. (a) Ampere second is the unit of charge.
Electric Charge (Q) = Ampere (I) × Second (t)

16.

Ans. (b) : Just as Verse comes under Poem in the same way Page comes under Book.

17.

Ans. (a) : Just as,

$$(24, 42) \Rightarrow \begin{array}{cc} 24 & 42 \\ \downarrow & \downarrow \\ 6 \times 4 & 6 \times 7 \end{array}$$

and,

$$(36, 63) \Rightarrow \begin{array}{cc} 36 & 63 \\ \downarrow & \downarrow \\ 9 \times 4 & 9 \times 7 \end{array}$$

Same as from option (a),

$$(52, 91) \Rightarrow \begin{array}{cc} \boxed{52} & \boxed{91} \\ \downarrow & \downarrow \\ 13 \times 4 & 13 \times 7 \end{array}$$

Hence, option (a) is correct.

18.

Ans. (c) : Just as,

$$\begin{array}{ccccc} B & U & 23 & G & \\ +5 \downarrow & +5 \downarrow & -5 \downarrow & +5 \downarrow & \\ G & Z & 18 & L & \end{array} \quad \text{And,} \quad \begin{array}{ccccc} L & C & 41 & M & \\ +5 \downarrow & +5 \downarrow & -5 \downarrow & +5 \downarrow & \\ Q & H & 36 & R & \end{array}$$

Similarly,

$$\begin{array}{ccccc} G & U & 18 & N & \\ +5 \downarrow & +5 \downarrow & -5 \downarrow & +5 \downarrow & \\ L & Z & 13 & S & \end{array}$$

19.

Ans. (b) : Just as,

$$\begin{array}{l} M \xrightarrow{+13} Z \\ A \xrightarrow{+13} N \\ H \xrightarrow{+13} U \\ A \xrightarrow{+13} N \\ R \xrightarrow{+13} E \\ A \xrightarrow{+13} N \\ J \xrightarrow{+13} W \\ A \xrightarrow{+13} N \end{array} \quad \text{Similarly,} \quad \begin{array}{l} R \xrightarrow{+13} E \\ A \xrightarrow{+13} N \\ I \xrightarrow{+13} V \\ N \xrightarrow{+13} A \\ D \xrightarrow{+13} Q \\ R \xrightarrow{+13} E \\ O \xrightarrow{+13} B \\ P \xrightarrow{+13} C \end{array}$$

20.

Ans. (c) : Countries have borders, seas have coastlines and rooms have walls, whereas bridges and steel have no relation. Hence option (c) is different from the others.

21.

Ans. (b) : From options-

- (a) $G \xrightarrow{-2} E \xrightarrow{+8} M$
- (b) $J \xrightarrow{-2} H \xrightarrow{+9} Q$ (Different)
- (c) $K \xrightarrow{-2} I \xrightarrow{+8} Q$
- (d) $Y \xrightarrow{-2} W \xrightarrow{+8} E$

Hence, option (b) is odd one.

22.

Ans. (a) : The given series is as follows-

$$\begin{array}{ccccccc} 24 & 28 & 35 & 48 & 73 & \boxed{122} \\ +4 & +7 & +13 & +25 & +49 & \\ +3 & +6 & +12 & +24 & & \\ \times 2 & \times 2 & \times 2 & & & \end{array}$$

Hence, ? = $\boxed{122}$

23.

Ans. (a) : The given series is as follows-

$$\begin{array}{ccccccc} B \xrightarrow{+4} F \xrightarrow{+4} J \xrightarrow{+4} N \xrightarrow{+4} R \\ O \xrightarrow{-2} M \xrightarrow{-2} K \xrightarrow{-2} I \xrightarrow{-2} G \\ Y \xrightarrow{-4} U \xrightarrow{-4} Q \xrightarrow{-4} M \xrightarrow{-4} I \end{array}$$

Hence, ? = \boxed{JKQ}

24.

Ans. (b) : Given that -

$$3 \div 8 \times 2 + 1 - 5 = ?$$

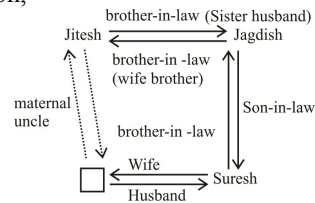
$$\begin{array}{ll} - \rightarrow + & \times \rightarrow \div \\ + \rightarrow \times & \div \rightarrow - \end{array}$$

According to the question, on changing the mathematical symbols

$$\begin{aligned} 3 - 8 \div 2 \times 1 + 5 &= 3 - 4 \times 1 + 5 \\ &= 3 - 4 + 5 \\ &= 8 - 4 = 4 \end{aligned}$$

25.

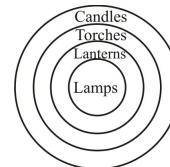
Ans. (c) : On drawing blood relation diagram according to the question,



It is clear from the diagram that Suresh's wife will be Jitesh's niece and Jitesh will be Suresh's wife's maternal uncle.

26.

Ans. (c) : According to the question, Venn diagram is as follows:-



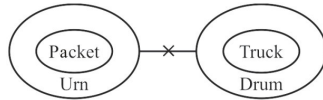
Conclusion :-

- I. (✓)
- II. (×)
- III. (×)

Hence, it is clear from above that only conclusion I follows.

27.

Ans. (c) : According to the statement Venn diagram is as follows,

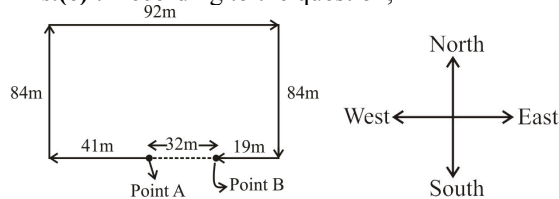


Conclusion – I. (X)
II. (X)
III. (X)

Hence, none of conclusion follow.

28.

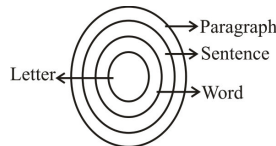
Ans.(c) : According to the question,



Hence, it is clear from diagram that point B is 32 m far in east direction from point A.

29.

Ans. (b) : According to the question Venn diagram is as follows:



Hence, option (b) is correct.

30.

Ans. (d) : According to the question,		
student	Subject	School
A	Mathematics	L
B	Science	O
C	Social science	M
D	English	N
E	Hindi	K

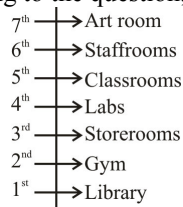
Hence, it is clear from above that student A studies in school L and likes Mathematics.

31.

Ans. (b) : Eagle, Sparrow and Crow are flying birds, while 'Emu' is a flightless bird found in Australia.

32.

Ans. (c) : According to the question,



Hence, Labs is on floor number 4.

33.

Ans. (d) : Computer is one of the greatest innovations of mankind because Computer has benefited mankind. Hence, only conclusion 2 follows.

34.

Ans : (c) From statement 1

$$\frac{1}{4} \text{th weight of ball} = 5 \text{ kg}$$

$$\therefore \text{Weight of 1 ball} = 5 \times 4 = 20 \text{ kg}$$

$$\therefore \text{Weight of 10 balls} = 10 \times 20 = 200 \text{ kg}$$

From statement 2,

$$\text{Weight of 3 balls} - \text{Weight of 2 balls} = 20 \text{ kg}$$

$$\text{Weight of 1 ball} = 20 \text{ kg}$$

$$\therefore \text{Weight of 10 balls} = 20 \times 10 = 200 \text{ kg}$$

Hence, it is clear that both statements alone are sufficient to answer the question.

35.

Ans. (a) : We need to protect the environment to prevent health problems, maintain the ecosystem and preserve the earth for our children. It is true. Assumption II talks about the effect of pollution, which is not implicit in statement. So only assumption I is implicit in the statement.

36.

Ans. (c) : Divisibility rule of 8 - If the last three digits of the given number are divisible by 8 then it will be divisible by 8.

On putting Least value of $y = 1$

$$\text{Number} = 648416$$

$$\text{Divided by} = \frac{416}{8} = 52$$

37.

Ans. (a) : Let the numbers be a and b respectively.

According to the question

$$a + b = 25$$

$$ab = 136$$

$$\therefore [a^3 + b^3 = (a+b)(a^2 + b^2 - ab)]$$

$$(a+b)^2 = (25)^2 \text{ (On squaring both side)}$$

$$a^2 + b^2 + 2ab = 625$$

$$a^2 + b^2 = 625 - 272$$

$$a^2 + b^2 = 353$$

$$a^3 + b^3 = 25 \times (353 - 136)$$

$$a^3 + b^3 = 25 \times 217$$

$$a^3 + b^3 = 5425$$

38.

Ans. (b) : According to the question,

$$79 + [37 - \{45 - (1 - 36 \div 6 \times 8)\}]$$

Solving by BODMAS rule-

$$= 79 + [37 - \{45 - (1 - 6 \times 8)\}]$$

$$= 79 + [37 - \{45 - (1 - 48)\}]$$

$$= 79 + [37 - \{45 + 47\}]$$

$$= 79 + [37 - 92]$$

$$= 116 - 92 = 24$$

39.

Ans. (a) : From question

$$\frac{2}{5} = 0.4, \frac{1}{3} = 0.33, \frac{3}{5} = 0.6, \frac{1}{4} = 0.25,$$

$$\frac{7}{10} = 0.7, \frac{5}{8} = 0.625$$

Hence, ascending order of given fractions

$$= \frac{1}{4}, \frac{1}{3}, \frac{2}{5}, \frac{3}{5}, \frac{5}{8}, \frac{7}{10}$$

40.

Ans. (b) : LCM of 18, 21, 24 = 504

$$\left\{ \begin{array}{l} \because 18 - 7 = 11 \\ 21 - 10 = 11 \\ 24 - 13 = 11 \end{array} \right\}$$

Required Number = $504 \times n - 11$

Let, on putting $n = 6$
 $= 504 \times 6 - 11$

Required Number = 3013

41.

Ans. (a) : $a : b = (3 : 4) \times 3$

$d : b = (4 : 3) \times 4$

$a : b : d$

$9 : 12 : 16$

Hence, $a : d = 9 : 16$

42.

Ans : (c) From question,

Number of boys in 60 students = $\frac{60 \times 60}{100} = 36$

Then, number of girls = $60 - 36 = 24$

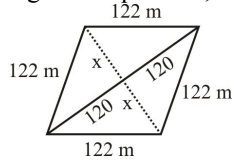
The number of girls who go to school by bicycle

$$= \frac{24 \times 25}{100} = 6$$

So, the required number of girls who do not go to school by bicycle = $24 - 6 = 18$

43.

Ans. (c) : According to the question,



$$x^2 = 122^2 - 120^2 \text{ (From Pythagoras theorem)}$$

$$= 14884 - 14400$$

$$= 484$$

$$x = 22 \text{ meter}$$

Second diagonal (d_2) = $2x$

$$= 2 \times 22$$

$$= 44 \text{ meter}$$

Area of rhombus = $\frac{1}{2} \times d_1 \times d_2$

$$= \frac{1}{2} \times 240 \times 44 = 5280 \text{ m}^2$$

44.

Ans. (b) : Given,

$M_1 = 12$, $M_2 = ?$

$D_1 = 24.5$, $D_2 = 49$

$W_1 = 1$ wall $W_2 = 5$ wall

Then,

$$\frac{M_1 D_1}{W_1} = \frac{M_2 D_2}{W_2}$$

$$\frac{12 \times 24.5}{1} = \frac{M_2 \times 49}{5}$$

$$M_2 = 30 \text{ Men}$$

45.

Ans. (c) : Speed = Distance / Time

Time = 18 seconds

Distance = 140 meter

$$\text{then, Speed} = \frac{140}{18} \text{ m/sec}$$

$$= \frac{140}{18} \times \frac{18}{5} \text{ km/hour}$$

$$= 28 \text{ km/h.}$$

The distance covered by Julie in 1 hour = 28 km.

46.

Ans. (a) : Let the invested sum = ₹ P

According to the question,

$$\frac{P \times 4 \times (R + 2)}{100} - \frac{P \times 4 \times R}{100} = 640$$

$$\Rightarrow \frac{4P}{100} [R + 2 - R] = 640$$

$$\Rightarrow \frac{8P}{100} = 640$$

$$\Rightarrow P = \frac{640 \times 100}{8}$$

$$P = ₹ 8000$$

47.

Ans : (b) Principal (P) = ₹10000, $r = 20\%$ annually

$$= \frac{20}{4} \% \text{ quarterly, } r = 5\% \text{ quarterly}$$

Time (n) = 6 months

= 2 quarterly

$$\text{Amount} = P \left(1 + \frac{r}{100} \right)^n$$

$$= 10,000 \left(1 + \frac{5}{100} \right)^2$$

$$= 10,000 \left(1 + \frac{1}{20} \right)^2$$

$$= 10,000 \left(\frac{21}{20} \right)^2$$

$$= 10,000 \times \frac{21}{20} \times \frac{21}{20} = ₹11025$$

48.

Ans. (c) : Let the cost price of the second table (CP_2) = ₹ x

According to the question –

$$400 - 400 \times \frac{100}{125} = x - x \times \frac{90}{100}$$

$$\therefore 400 + x \times \frac{90}{100} = 400 \times \frac{100}{125} + x$$

$$400 + \frac{9x}{10} = 320 + x$$

$$80 = \frac{x}{10} \Rightarrow \therefore x = ₹ 800$$

49.

Ans. (a) : According to the question,

$$\begin{aligned} \text{The profit earned by the trader} &= x + y + \frac{xy}{100} \\ &= -6 + 15 + \frac{-6 \times 15}{100} = 9 + \frac{-90}{100} = 9 - 0.9 = 8.1\% \end{aligned}$$

50.

Ans. (d) : Given,

$$x + y = 8 \dots\dots(i)$$

$$xy = 15 \dots\dots(ii)$$

From the eq. (i)

$$(x + y)^2 = 8^2$$

$$x^2 + y^2 + 2xy = 64$$

$$x^2 + y^2 + 2 \times 15 = 64 \quad \{\because xy = 15\}$$

$$(x^2 + y^2) = 34$$

$$(x^2 + y^2)^2 = (34)^2$$

$$x^4 + y^4 + 2x^2y^2 = 1156$$

$$x^4 + y^4 = 1156 - 2 \times (15)^2$$

$$x^4 + y^4 = 706$$

51.

Ans. (b) $\sin\theta + \operatorname{cosec}\theta = 2$

$$\sin\theta + \frac{1}{\sin\theta} = 2$$

$$\sin^2\theta - 2\sin\theta + 1 = 0$$

$$(\sin\theta - 1)^2 = 0$$

$$\sin\theta = 1$$

$$\sin\theta = \sin 90^\circ$$

$$\boxed{\theta = 90^\circ}$$

$$\begin{aligned} ? &= \sin^8\theta + \operatorname{cosec}^8\theta \\ &= \sin^8 90^\circ + \operatorname{cosec}^8 90^\circ \end{aligned}$$

$$= (1)^8 + (1)^8$$

$$= 1 + 1$$

$$= 2$$

52.

Ans : (b) Arranging the numbers in ascending order- 31, 53, 55, 56, 59, 61, 69
n = 7 (odd)

$$\begin{aligned} \text{median} &= \left(\frac{n+1}{2}\right)^{\text{th}} \text{ term} = \left(\frac{7+1}{2}\right)^{\text{th}} \text{ term} \\ &= 4^{\text{th}} \text{ term} \\ &= 56 \end{aligned}$$

53.

Ans. (d) : $\sqrt{0.6}$ = Square root of 0.600000

So, finding the square root by division method,

	0.774
7	0.600000
+7	49
147	1100
+7	1029
1544	7100
4	6176
	924

Hence the required value is 0.774 (approx).

54.

Ans. (b) : Let the age of Jacob and his Son be x years and y years respectively.

According to the first condition -

$$(x + 5) = 4(y + 5)$$

$$x - 4y = 15 \dots\dots\dots (i)$$

According to the second condition,

$$(x - 3) = (y - 3) \times 7$$

$$x - 7y = -18 \dots\dots\dots (ii)$$

from equation (i) and (ii) -

$$x = 59 \text{ years}$$

$$y = 11 \text{ years}$$

55.

Ans. (a) : Filled portion of tank in 1 hour by tap A = $\frac{1}{35}$

Emptied part of tank in 1 hour by tap B = $\frac{1}{70}$

Suppose time taken to fill half empty tank completely = t hours

According to the question-

$$\frac{t}{35} - \frac{t}{70} = \frac{1}{2}$$

$$\frac{2t - t}{70} = \frac{1}{2}$$

$$\frac{t}{70} = \frac{1}{2}$$

$$t = 35 \text{ hours}$$

Hence It will take 35 hours to fill the half empty cistern completely.

56.

Ans.(a) :

It legalized the remarriage of Hindu widows. Ishwar Chandra Vidyasagar rallied in favour of widows remarriage and fought against any social injustice towards women. The draft of the Hindu widow's remarriage Act 1856 was drafted by dalhourise and passed by Lord canning in 1857.

Some important points -

Widow Remarriage Association was founded by Vishnu Shasti Pandit in 1850 (Bombay).

The Child Marriage Restraint act was passed on 28th September 1929.

The act fixed the marriageable age for girls as 14 years 18 years for boys. It is popularly known as Sharda act after its sponser, Harbilas Sarda.

57.

Ans. (b) : Qutub Minar is a soaring, 73m high tower of victory, built in 1199 by Qutub-ud-din Aibak immediately after the defeat of Delhi's last Hindu kingdom. He commenced the construction of the Qutub Minar in 1193 AD, but could only finish the basement. His successor, Iltutmish added three more storeys and in 1368, Firoz Shah Tughlaq constructed the fifth and the last storey of it.

58.

Ans.(a) : Pragbodhi is the place where lord Buddha spent six year before attaining enlightenment. The place is evidence of Gautam Buddha's efforts toward the eternal truth. When he realized the truth, he became Buddha - the enlightened one. Historical developments have led to change of the name of mountain and now it is called Dhungeswara.

59.

Ans. (a)

- The Union List has a range of subjects under which the Parliament may make laws. This includes foreign affairs, defense, railways, banking, economy, citizenship etc.
- The State lists contains subjects under which the legislature of a state may make laws in public order, public health, police and sanitation, hospitals and dispensaries etc.
- The Concurrent List includes subjects that give powers to both the centre and state governments to make laws like education, medical education and universities, criminal law, forests, ports other than major parts etc.

60.

Ans. (a): Under the Article 102 of Indian constitution, if a member of either house of Parliament is absent for 60 days without the permission of the House, then the House can terminate his/her membership.

61.

Ans. (c): Article 243B under part IX in the Constitution provides for All States to have a uniform 3 tier Panchayati Raj structure i.e., the village, intermediate and district levels.

62.

Ans. (c): There are some small celestial bodies between the orbits of Mars and Jupiter which revolve around the sun that is called asteroid. Such asteroids are Ceres, Vesta, Pallas, Hygeia etc. In continuation dwarf planet Ceres is the largest object in the asteroid belt between Mars and Jupiter and the only dwarf planet located in the inner solar system. It was the first member of the asteroid belt to be discovered by Giuseppe Piazzi in 1801.

63.

Ans. (c): Netrani Island in Murudeshwar is located off the coast of Karnataka, also known as the 'Pigeon Island'.

64.

Ans. (d): Two indifference curve can never intersect each other in relation to consumer behavior. As two indifference curves cannot represent the same level of satisfaction and it would break down the indifference curve analysis. This is because the consumer would have more than one point on the indifference curve giving him a different level of satisfaction.

65.

Ans. (b): To determine the Gross Fiscal deficit we use the formula \rightarrow Total Expenditure – (Revenue Receipts + Non-debt creating capital Receipts).

66.

Ans. (c) : The Jnanpith Award is given to prominent personality of literature in 22 constitutionally adopted languages. It is distributed every year. It consists of:

\rightarrow ₹11 lakh cash prize,

\rightarrow Bronze replica of Goddess Saraswati

67.

Ans. (d) : The UN General Assembly has proclaimed 23rd September as the International Day of Sign Languages in order to raise awareness of the importance of sign language in the full realization of the human rights of people who are deaf.

68.

Ans. (a) : 'Waiting for a Visa' is an autobiography of Dr. B.R. Ambedkar. This book suggests how untouchables Dalit community still waits acceptance or welcome not only from the Indian government but also from the society in general. This book is used as a text book in Columbia University.

69.

Ans. (a): UNICEF was created by the United Nations General Assembly resolution 57 (1) on 11 December 1946 to provide emergency food and healthcare to children's and mother's in the countries which are affected by World War II. Its headquarters is in New York, USA. In 1965, the organization got Nobel Peace Prize and in 1989 got the Indira Gandhi Peace Prize.

70.

Ans. (d) : Namdroling Monastery is located in Mysuru district of Karnataka. It is the largest teaching centre of the school of Tibetan Buddhism known as Nyingmapa. It is spread over an area of 80 square feet and was built from Bamboo which was donated by the Indian Government to the Tibetans in exile.

71.

Ans. (c) : INS Arihant, class of indigenous Ballistic Missile nuclear submariners or Ship Submersible Ballistic Nuclear (SSBN), is armed with K-15 (Sagarika missile) with a range of 750 km. The first and only operational SSBN, INS Arihant will give India the standoff capability to launch nuclear weapons submerged in Indian water. The first unit of the INS Arihant, was commissioned into the Navy in August 2016.

72.

Ans. (c): The first Commonwealth Games were held in 1930 in Hamilton, Canada where 11 countries sent 400 athletes to take part in 6 sports and 59 events.

73.

Ans. (a) : Brazil have won five times, and they are the only team to have played in every tournament. The other World Cup winners are Germany and Italy, with four titles each. The first competition for the cup was organized in 1930 by the Fédération Internationale de Football Association (FIFA) and was won by Uruguay.

74.

Ans. (c) : Tusu festival is a folk festival held on the last day of the Bengali month of Poush i.e., Makar Sankranti. Tusu festival is associated with south-eastern part of Jharkhand.

Losar – Sikkim, H.P., Ladakh, Arunachal Pradesh

Chavang Kut – Manipur

Saga Dawa – Sikkim, Arunachal Pradesh

75.

Ans. (a) :

State

Dance forms

Sikkim – Chu faat, Rechungma, Gha to kito

Chi Rmu, Yak Chaam, Tashi Yangku

Manipur – Rakhhal, Nat Rash, Raukat

Goa – Mandi, Fugdi, Dakhi, Khol

Arunachal Pradesh – Mask dance, Buiya, Chalo, Wancho

Pradesh

PRACTICE SET-6

- A contraceptive technique that increases phagocytosis of sperms within the uterus is :**
 - use of oral contraceptives
 - use of condoms
 - surgery
 - use of copper T
- The stomata are located in :**
 - Red blood cells
 - Chlorophyll
 - Stomach
 - Leaves
- Why is HIV spread through sexual contact?**
 - Blood is mixed during sexual contact
 - Viral particles are abundant in seminal fluids
 - The virus lives inside sperms
 - The virus is present in the skin of sex organs
- Trachea is a part of the _____ system of the human body.**
 - Cardiac
 - Respiratory
 - Excretory
 - Digestive
- How many pair of eyes do spiders have?**
 - 1
 - 2
 - 4
 - 8
- Stratified squamous epithelium is present in:**
 - Kidney
 - Respiratory system
 - Esophagus
 - Skin
- What is the chemical name of lime water?**
 - magnesium hydroxide
 - ammonium hydroxide
 - sodium hydroxide
 - calcium hydroxide
- The term 'triads' was used by:**
 - Johann Wolfgang Dobereiner
 - Henry Moseley
 - John Newlands
 - Mendeleev
- Which of the following is not correct about diffusion?**
 - The rate of diffusion of gases depends on their volume.
 - In diffusion, particles move from high concentration to low concentration.
 - The rate of diffusion of gases is higher than that of solid and liquid.
 - Diffusion is possible only when the particles of substance are in constant motion.
- The mass of N_2 and H_2 in ammonia is always in the ratio**
 - 3 : 14
 - 8 : 3
 - 14 : 3
 - 3 : 8
- An electric oven is rated 2500 W. The energy used by it in 5 hours will be:**
 - 12.5 kWh
 - 12500 kWh
 - 12.5 J
 - 12500J
- Which electric device is not based on Joule's law of heating?**
 - Electric kettle
 - Electric plugs and switches
 - Electric iron
 - Fuse used in an electric circuit
- What is called pushing or pulling an object to move it?**
 - pressure
 - force
 - friction
 - inertia
- Tachometer is used for-**
 - R.P.M.
 - Torque
 - Rotational kinetic energy
 - Distance
- The unit of approximate distance from the earth to the sun is –**
 - Light year
 - Astronomical Unit
 - Kelvin
 - Joule
- Select the option that is related to the third term in the same way as the second term is related to the first term.**
Bricks : Kiln :: Coins :
 - Laboratory
 - Mine
 - Mint
 - Factory
- Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.**
14 : 203 :: 16 : 264 :: 18 : ?
 - 347
 - 423
 - 333
 - 353
- If the code for LETTER is written as 1252072218 and BLISS is written as 2129198, then which of the given option will be the code for COMMON?**
 - 31513141113
 - 31214131514
 - 31513141214
 - 31152131512
- In a certain code language, ABHIMANYU is written as BAIJNBOUY. How will KARMPUTRA be written as in that language?**
 - AKSNQVUAR
 - ABRNQVUSR
 - AKSPMTUSB
 - ABRNVUTAR
- Out of the four words listed, three are alike in some manner and one is different. Select the odd one.**
 - Umpire
 - Pitch
 - Boundary
 - Ground
- Four letter clusters have been given out of which three are alike in some manner and one is different. Select the odd one –**
 - JMLK
 - VYXW
 - PSRQ
 - CGEF
- Select the number from among the given options that can replace the question mark (?) in the following series.**
9, 7, 28, 26, 65, 63, 126, 124, ?
 - 217
 - 215
 - 137
 - 136
- The given letter, clusters follow a certain pattern. Select the option that gives the correct sequence of the letters that are missing from the letter clusters.**
DECAB / GJFF_ / KNJJ_ / PQOM_
 - MFJ
 - FJM
 - EIN
 - ENI

24. If '+' means '×', '-' means '÷', '×' means '-', and '÷' means '+', what will come in place of the question mark (?) in the following equation?

$$4 \times 5 + 3 \div 16 - 1 = ?$$

- (a) 10 (b) 12
(c) 8 (d) 5
25. A family consists of 7 people with three couples. The artist is married to the politician and they have three children. The teacher is the sister-in-law of the accountant, who is the wife of the engineer. The doctor and businessman are brothers. Who among the following could be the husband of the teacher?

- (a) Engineer (b) Doctor
(c) Politician (d) Accountant

26. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow (s) from the statements.

Statements:

1. All Cars are Eatable Goods.
2. All Geysers are Eatable Goods.

Conclusions:

- i. Some Cars are Geysers.
 - ii. Some Geysers are Cars.
- (a) Either conclusion (i) or (ii) follows
(b) Neither conclusion (i) nor (ii) follows
(c) Both conclusions (i) and (ii) follow
(d) Only conclusion (i) follows

27. Statements:

- 1) All bricks are buildings.
- 2) Some bricks are hotels.

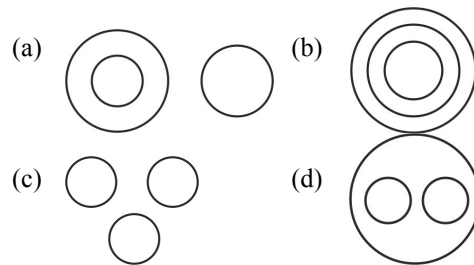
Conclusion :

- I. Some hotels are buildings.
 - II. No hotel is building.
 - III. Some hotels are bricks.
- (a) Only conclusion II and III follows
(b) Only conclusion I is appropriate
(c) Only conclusion I and III follows
(d) No Conclusion follows

28. Mr. X runs in marathon starting from point A. He runs 5 km in North direction and reaches at point B, then turns right and runs 6 km and reaches at point C, then turns right and runs 8 km and reaches at point D, then turn right and runs 10 km and reaches at point E, then turn right and runs 6 km and reaches at point F, then turn right and runs 1 km and reaches at point G, then turns right and runs 3 km and reach at point H.

If Mr. X turns to the right from point E, then which of the following direction is he facing now?

- (a) West (b) South
(c) East (d) North
29. Choose the most suitable Venn diagram for the following words-
Horse, Monkey, Tiger



30. Each of D, E, F, G, H, I and J has a football match to participate on a different day of a week, starting from Monday to Sunday of the same week. E has a match on the day immediately after I. G has a match immediately after H. J has a match immediately after E, but not on Sunday. D has a match on Wednesday. Who among the following has a match on Sunday ?

- (a) G (b) F
(c) H (d) E

31. Out of the four words listed, three are alike in some manner and one is different. Select the odd one.

- (a) Tendon (b) Nose
(c) Ligament (d) Bone

32. Five people Zunaid, Riya, Hema, Indu and Jagan, are sitting around a circular table facing the centre (but not necessarily in the same order). Zunaid is sitting second to the left of Indu. Hema is sitting second to the right of Riya. Jagan is not an immediate neighbour of Zunaid.

Who is sitting third to the right of Riya?

- (a) Zunaid (b) Indu
(c) Jagan (d) Hema

33. A statement is given followed by two inferences. Decide which of the inferences can be drawn from the given statement

Statement:

Some students who do not perform well in the written exam still rank high in the merit list for admission to College A.

Inferences:

1. Candidates who perform well in the written exam never make it to the merit list for admission to College A
 2. Criteria other than written examination are also considered for admission to College A
- (a) Only 1 can be inferred
(b) Only 2 can be inferred
(c) Both 1 and 2 can be inferred
(d) Neither 1 nor 2 can be inferred

34. Question: Is $Y > 0$?

Statements:

1. $X + Y > 0$
2. $X - Y > 0$

- (a) Neither 1 nor 2 is sufficient to answer the question
(b) 2 alone is sufficient while 1 alone is not sufficient to answer the question
(c) Both 1 and 2 together are sufficient to answer the question
(d) 1 alone is sufficient while 2 alone is not sufficient to answer the question

35. **Statement:**
Y told Z, "Mobile phones are addictive."
Assumption:
I. Mobile phones have many attractive games and features.
II. People spend more time with mobile phones.
(a) Only assumption I is implicit
(b) Only assumption II is implicit
(c) Both assumptions I and II are implicit
(d) Neither assumption I nor II is implicit
36. Pragma invited male and females to her birthday party in the ratio of 7 : 6. If the number of males in the party were 56, then the total number of guests attending the party were?
(a) 48 (b) 104
(c) 108 (d) 112
37. The value of $\left\{\frac{3}{5} \times [3 + \{3 + (11 + 5 + 6)\}]\right\}$ is:
(a) $10\frac{2}{5}$ (b) $12\frac{6}{5}$
(c) $11\frac{4}{5}$ (d) $16\frac{4}{5}$
38. Decimal expansion of $\frac{109}{100}$ is:
(a) $1 + \frac{0}{10} + \frac{9}{100}$ (b) $10 + \frac{9}{100}$
(c) $1 + \frac{9}{100}$ (d) $100 + 9 + \frac{0}{100}$
39. What is the smallest number, which when divided by 6, 7, 8, 9, and 12, gives remainder 2 in each case?
(a) 508 (b) 608
(c) 502 (d) 506
40. If $a : b = 2 : 3$ and $b : c = 3 : 4$, then $a : b : c = ?$
(a) 3 : 4 : 2 (b) 3 : 2 : 4
(c) 2 : 4 : 3 (d) 2 : 3 : 4
41. Ramu used to spend 72% of his income. His income is increased by 12% and he increases his expenditure by 5%. If Ramu earlier saved ₹y and after the increases he now saves ₹x, then what is the value of $\left(\frac{x-y}{y} \times 100\right)\%$?
(a) 30% (b) 22%
(c) 25% (d) 27%
42. The area of a trapezium is 1792 cm² and the perpendicular distance between its parallel sides is 28 cm. If the length of one of the parallel sides is 72 cm, then find the length of the other side.
(a) 64 cm (b) 56 cm
(c) 84 cm (d) 48 cm
43. Sixteen men can complete a work in 24 days. Twenty four women can complete the same work in 32 days. Sixteen men and sixteen women together worked for twelve days, after which women dropped. How many more men are to be taken to complete the remaining work in 2 days?
(a) 32 (b) 24
(c) 64 (d) 48
44. If the 15 digit number 4a5124356789734 is divisible by 9, then the value of "a" is
(a) 1 (b) 4
(c) 5 (d) 3
45. Vaishali covers a certain distance by car at 50 kmph and returns to the original place through the same route on a bicycle at 10 kmph. If the time taken by her for the whole journey was 2 hours 24 minutes, then what was the total distance that she covered?
(a) 40 km (b) 50 km
(c) 48 km (d) 60 km
46. The simple interest on a certain sum for 5 years at 13% per annum is ₹ 650. The sum is:
(a) ₹1,090 (b) ₹1,096
(c) ₹1,065 (d) ₹1,000
47. What is the compound interest on a sum of ₹ 19,500 invested for $1\frac{2}{5}$ years at 10% p.a. interest compounded annually?
(a) ₹ 2,808 (b) ₹ 2,608
(c) ₹ 2,880 (d) ₹ 2,480
48. A man buys 15 identical articles for a total of ₹ 15. If he sells each of them for ₹ 1.23, then his profit percentage is:
(a) 23% (b) 50%
(c) 32% (d) 8%
49. A dishonest dealer professes to sell his goods at the cost price but uses a false weight and thus gains 25%. How much quantity of grains does he give for a kilogram?
(a) 800 gram (b) 900 gram
(c) 750 gram (d) 975 gram
50. The number of solutions of the pair of linear equations $x + 2y - 8 = 0$ and $2x + 4y = 16$ is
(a) 0 (b) 1
(c) infinite (d) 2
51. $\frac{\tan 45^\circ}{1 + \cos 45^\circ} + \frac{1 + \sin 45^\circ}{\cot 45^\circ} = ?$
(a) $3 - \frac{\sqrt{2}}{2}$ (b) $\sqrt{2}$
(c) $3 - 2\sqrt{2}$ (d) $-\frac{\sqrt{2}}{2}$
52. In the data set given below, what is the difference between the Median and the Mode? {2.1, 5, 6, 7, 8, 9.3, 11, 15, 17, 19.21, 27, 31, 31, 33, 16.5, 14, 10}
(a) 19 (b) 10
(c) 17 (d) 15
53. $\sqrt{0.015625} \times \sqrt{0.0256} = \underline{\hspace{2cm}}$
(a) 0.004 (b) 0.002
(c) 0.04 (d) 0.02
54. The ratio of present ages of Ram and Shyam is 7:8. After nine years this ratio will be 8:9. What is the present ages of Ram and Shyam (in years respectively)?
(a) 64, 73 (b) 63, 72
(c) 72, 63 (d) 73, 64

55. Three pipes A, B and C can fill a tank in 5 hours, 8 hours and 12 hours, respectively. If all the pipes are opened at the same time, then the time taken to fill the tank is:
- (a) $4\frac{22}{49}$ hours (b) $2\frac{22}{49}$ hours
(c) $5\frac{22}{49}$ hours (d) $3\frac{22}{49}$ hours
56. Which of the following Acts empowered the British East India Company to retain the territories and the revenues in India in trust for the crown not for any specified period?
- (a) The Government of India Act, 1935
(b) The Regulating Act, 1773
(c) The Charter Act, 1853
(d) The Indian Council Act, 1909
57. Which of the following minarets is memorial built by Muhammad Quli Qutub Shah in memory of plague abolition?
- (a) Alai Minar (b) Char Minar
(c) Fateh Burj (d) Qutub Minar
58. Which Chinese scholar lived in Vijayawada to study Buddhist text.
- (a) Dong Jahongshu (b) Juan Zhang
(c) Kui weeping (d) Dongfang Shuo
59. Which of the following articles provided that an Inter-State Council can be formed by a Presidential Order?
- (a) Article 263 (b) Article 261
(c) Article 264 (d) Article 262
60. Fund can be spent from the Consolidated Fund of India-
- (a) With the permission/consent of the President
(b) With the approval of Parliament
(c) With the approval of CAG
(d) With the approval of the above officers
61. Who plays the role of an intermediary between the state government and the municipal corporation?
- (a) Municipal Commissioner
(b) Aldermen
(c) Municipal Councillors
(d) Mahapaur
62. The Earth's crust has only ____ carbon in the form of minerals.
- (a) 21% (b) 0.3%
(c) 0.02% (d) 7.8%
63. 'Natural Levees' are :
- (a) depositional landforms of the river
(b) depositional landforms of wind
(c) erosional landforms of river
(d) erosional landforms of wind
64. A Giffen good is related to which of the following?
- (a) Income effect has no relation to the substitution effect
(b) Income effect is stronger than the substitution effect
(c) Substitution effect is stronger than the income effect
(d) Income effect is equal to the substitution effect
65. Which of the following indicates the borrowing needs of the Government?
- (a) Fiscal deficit
(b) Revenue deficit
(c) Current account deficit
(d) Capital deficit
66. Dada Saheb Phalke Award is related to which field?
- (a) Literature (b) Cinema
(c) Journalism (d) Volleyball
67. The Government of India celebrates _____ every year as 'Civil Services Day' for the civil servants to rededicate themselves to the cause of citizens and renew their commitment to public service and excellence in work.
- (a) 21 January (b) 21 April
(c) 21 May (d) 21 October
68. Who wrote the famous Bangla Novel 'Pather Panchali'?
- (a) Bankim Chandra Chattopadhyay
(b) Bibhutibhushan Bandopadhyay
(c) Sharat Chandra Chattopadhyay
(d) Rabindra Nath Tagore
69. Which of the United Nation's organization has International Institute of Education Planning at Paris as its part?
- (a) UNICEF (b) UNESCO
(c) UNU (d) ILO
70. Which continent have the highest number of World Heritage Sites?
- (a) Asia (b) Europe
(c) South America (d) Australia
71. Which one of the following is anti-tank guided missile?
- (a) Trishul (b) Akash
(c) Prithvi (d) Nag
72. Which Nation has hosted the Commonwealth Games five times?
- (a) Australia (b) England
(c) Canada (d) New Zealand
73. Which country has played every FIFA Football World Cup since it began ?
- (a) Germany (b) Brazil
(c) England (d) Spain
74. Select the correct sequence of states according to the given sequence of cultural festivals celebrated in the respective states.
Hampi Dance Utsav, Mamallapuram Dance Utsav, Nishagandhi Festival, Taj Mahotsav
- (a) Kerala, Tamil Nadu, Karnataka, Uttar Pradesh
(b) Karnataka, Tamil Nadu, Kerala, Uttar Pradesh
(c) Uttar Pradesh, Tamil Nadu, Kerala, Karnataka
(d) Tamil Nadu, Karnataka, Kerala, Uttar Pradesh
75. Rai is primarily a folk dance of which of the following states?
- (a) Manipur (b) Madhya Pradesh
(c) Karnataka (d) Andhra Pradesh

SOLUTION : PRACTICE SET- 6

ANSWER KEY

1. (d)	7. (d)	13. (b)	19. (a)	25. (b)	31. (b)	37. (d)	43. (a)	49. (a)	55. (b)	61. (a)	67. (b)	73. (b)
2. (d)	8. (a)	14. (a)	20. (a)	26. (b)	32. (b)	38. (a)	44. (b)	50. (c)	56. (c)	62. (c)	68. (b)	74. (b)
3. (b)	9. (a)	15. (b)	21. (d)	27. (c)	33. (b)	39. (d)	45. (a)	51. (a)	57. (b)	63. (a)	69. (b)	75. (b)
4. (b)	10. (c)	16. (c)	22. (a)	28. (d)	34. (a)	40. (d)	46. (d)	52. (c)	58. (b)	64. (b)	70. (b)	
5. (c)	11. (a)	17. (c)	23. (c)	29. (c)	35. (b)	41. (a)	47. (a)	53. (d)	59. (a)	65. (a)	71. (d)	
6. (d)	12. (b)	18. (c)	24. (d)	30. (b)	36. (b)	42. (b)	48. (a)	54. (b)	60. (b)	66. (b)	72. (a)	

SOLUTION

1.

Ans. (d) : Copper T is a contraceptive technique that increases phagocytosis of sperms within the uterus, because it is a copper releasing intrauterine device (IUD). It suppresses sperm motility and fertilizing capacity of sperms.

2.

Ans : (d) The stomata are mainly located in the leaves. Stomata are tiny openings or pores in plant tissue that allow for gas exchange. Apart from evaporation of water vapor in the transpiration, oxygen and carbon dioxide are also exchanged through stomata present in the leaves. Transpiration is the biological process by which water is lost in the form of water vapour from the aerial parts of the plants.

3.

Ans. (b) : HIV (Human Immunodeficiency virus) is a virus that attacks the body's immune system.

If HIV is not treated, it can lead to AIDS (acquired immunodeficiency syndrome).

HIV is spread through sexual contact because viral particles are abundant in seminal fluids.

4.

Ans. (b) Trachea is a part of the respiratory system of the human body. Trachea, commonly known as the windpipe, is a tube about 4 inches long and less than an inch in diameter in most people. The trachea begins just under the larynx (voice box) and runs down behind the breastbone (sternum). The trachea then divides into two smaller tubes called bronchi: one bronchus for each lung. The trachea is composed of about 20 rings of tough cartilage. The back part of each ring is made of muscle and connective tissue. Moist, smooth tissue called mucosa lines the inside of the trachea. The trachea widens and lengthens slightly with each breath in, returning to its resting size with each breath out.

5.

Ans : (c) 4 pairs of eyes are found in spiders, but they don't have very clear vision. Spider belongs to phylum Arthropoda. The body of a spider is divided into two regions, cephalothorax and abdomen, attached by a narrow pedicel. There are around 40,000 species of spiders identified in the world and the diversity of species is truly incredible.

6.

Ans. (d) Stratified squamous epithelium are found in nearly every organ system where the body comes into close contact with the outside environment – from the skin to the respiratory, digestive, excretory and reproductive systems. They also protect the body from desiccation and water loss.

Stratified squamous epithelia consists of tissues formed from multiple layers of cells resting on a basement membrane, with the superficial layer(s) consisting of squamous cells.

7.

Ans. (d) : The chemical name of lime water is calcium hydroxide $\text{Ca}(\text{OH})_2$.

8.

Ans. (a) : Triads, any of the several sets of three chemically fane elements, of which the atomic weight is almost equal to the mean of the atomic weight of the rest of the two elements. Triads were identified by Johann Wolfgang Dobereiner, a German chemist in 1817-1829.

9.

Ans : (a) According to Graham's law of diffusion, the rate of diffusion of a gas is inversely proportional to the square root of the mass of its particles. That is, the rate of diffusion of a gas does not depend on its volume.

10.

Ans : (c) The mass of N_2 and H_2 in ammonia is always in the ratio 14:3. Ammonia gas was first discovered by Priestley in 1771. It is found in the ashes of various animals, trees, plants, rot and volcanic mountains. It is used as an antidote, in ice packets, to make rayon.

11.

Ans. (a) : Given,

$$\text{Power} = 2500 \text{ Watt} = 25 \text{ kW}$$

$$\text{Time} = 5 \text{ hours}$$

$$P = \frac{W}{t}$$

$$W = P \times t$$

$$= 2500 \times 5$$

$$= 12500 = 12.5 \text{ kWh}$$

12.

Ans. (b) : According to Joule's law of heating, (i) heat produced in a resistor is directly proportional to square of flowing current in it.

$$H \propto I^2$$

(ii) it is directly proportional to the resistance of a resistor.

$$H \propto R$$

(iii) and it is directly proportional to time for which current flows through the conductor or resistor.

$$H \propto t$$

So,

$$\boxed{H = I^2RT}$$

The devices which work on Joule's law of heating are electric heater, electric bulb, electric iron etc.

Electric plugs and switches do not work on Joule's law of heating.

13.

Ans : (b) In science, a push or a pull on an object is called a force. Example - open or close the door its example of push or pull of an object.

14.

Ans : (a) Tachometer is an instrument used for measuring the rotation or revolution speed of objects, such as an engine or a shaft. The tachometer measures rotations per minute (RPM) of engines shafts and is widely used in automobiles, airplanes, marine engineering field and many others.

15.

Ans : (b) The unit of approximate distance from the earth to the sun is Astronomical unit (symbol : au or AU).

$$\Rightarrow 1\text{AU} = 1.5 \times 10^{11}\text{m}$$

16.

Ans. (c) : Just as, bricks are made in a kiln. Similarly, coins are minted in the mint.

17.

Ans. (c) : Given,

$$14 : 203 :: 16 : 264 :: 18 : \boxed{? = 333}$$

$$\begin{array}{ccc} \uparrow & \uparrow & \uparrow \\ (14)^2 + 7 & (16)^2 + 8 & (18)^2 + 9 \end{array}$$

Hence, option (c) is correct answer.

18.

Ans. (c) : Just as,

L	→	12
E	→	5
T	→	20
T	Opposite →	G = 7
E	Opposite →	V = 22
R	→	18

And,

B	→	2
L	→	12
I	→	9
S	→	19
S	Opposite →	H = 8

Same as,

C	→	3
O	→	15
M	→	13
M	Opposite →	N = 14
O	Opposite →	L = 12
N	→	14

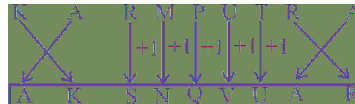
Hence, it is clear that option (c) is correct.

19.

Ans. (a) : Just as,



Similarly,



20.

Ans. (a) : Pitch, Boundary and Ground are the venues related to the game, whereas, the umpire is the main person responsible for decisions of game.

21.

Ans. (d) : From the given options,

- (a) $J \xrightarrow{+3} M \xrightarrow{-1} L \xrightarrow{-1} K$
 (b) $V \xrightarrow{+3} Y \xrightarrow{-1} X \xrightarrow{-1} W$
 (c) $P \xrightarrow{+3} S \xrightarrow{-1} R \xrightarrow{-1} Q$
 (d) $C \xrightarrow{+4} G \xrightarrow{-2} E \xrightarrow{+1} F$

Hence, it is clear that option (d) is different.

22.

Ans. (a) : The given series is as follows-

$$\begin{array}{cccccccc} 9 & 7 & 28 & 26 & 65 & 63 & 126 & 124 & \boxed{217} \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 2^3 + 1 & 2^3 - 1 & 3^3 + 1 & 3^3 - 1 & 4^3 + 1 & 4^3 - 1 & 5^3 + 1 & 5^3 - 1 & 6^3 + 1 \end{array}$$

Hence, option (a) is the correct answer.

23.

Ans. (c) : The given series is as follow-

D	→ ⁺³	G	→ ⁺⁴	K	→ ⁺⁵	P
E	→ ⁺⁵	J	→ ⁺⁴	N	→ ⁺³	Q
C	→ ⁺³	F	→ ⁺⁴	J	→ ⁺⁵	O
A	→ ⁺⁵	F	→ ⁺⁴	J	→ ⁺³	M
B	→ ⁺³	E	→ ⁺⁴	I	→ ⁺⁵	N

from the above series, it is clear that the sequence of missing letter is-

DECAB / GJFFE / KNJJI / PQOMN

Hence, option (c) is correct answer.

24.

Ans. (d) : The given equation is -

$$4 \times 5 + 3 \div 16 - 1 = ?$$

$$+ \rightarrow \times \quad \times \rightarrow -$$

$$- \rightarrow \div \quad \div \rightarrow +$$

According to the question, on changing the signs-

$$4 - 5 \times 3 + 16 \div 1 = ?$$

$$4 - 5 \times 3 + 16 = ?$$

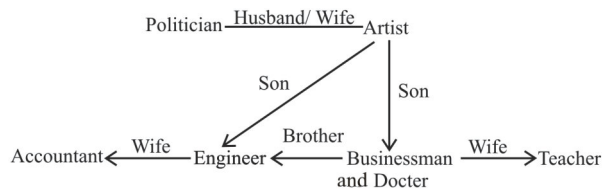
$$4 - 15 + 16 = ?$$

$$20 - 15 = ?$$

$$\boxed{? = 5}$$

25.

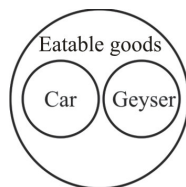
Ans. (b) : According to the question,



So, Doctor may be the husband of Teacher because Artist is married to Politician and Accountant is married to Engineer and it is said that there are only three married couples and Businessman is not in option. So option (b) is correct.

26.

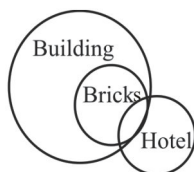
Ans. (b) On making Venn diagram,



It is clear from the Venn diagram that Neither conclusion (i) nor (ii) follows.

27.

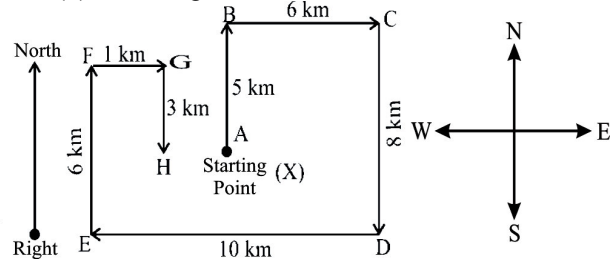
Ans. (c) : On making Venn diagram,



Therefore, it is clear from the Venn-diagram that only conclusion I and III are follows.

28.

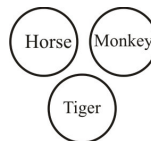
Ans. (d) : Walking order of Mr. X is as follows:



As per the image, Mr. X turns to the right from point E, then his face will be towards North.

29.

Ans. (c) : Horse, Monkey and Tiger are different animal



Hence, option (c) is most suitable Venn diagram is correct.

30.

Ans. (b) : According to the question-

Days	Person
Monday	H
Tuesday	G
Wednesday	D
Thursday	I
Friday	E
Saturday	J
Sunday	F

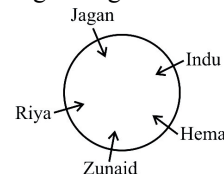
Hence, It is clear that F has a match on Sunday.

31.

Ans. (b) : Tendon, Ligament and Bone are the internal parts of the body while the Nose is the external part which is different from other.

32.

Ans. (b) : The sitting arrangement is as follows-



Hence, it is clear from above that Indu is sitting third to the right of Riya.

33.

Ans. (b) : By the given statement inference may be drawn as criteria other than written examination are also considered for admission to College A because the statement states that some students who do not perform well in the written exam still rank high in the merit list for admission to College A. Hence, only (2) can be inferred.

34.

Ans. (a) : $x + y > 0$
 $x - y > 0$

Hence, to answer the question neither 1 nor 2 is sufficient.

35.

Ans. (b) : According to the statement Y told Z that mobile phones are addictive here it is not necessary that all mobile phones have very attractive games and features but people spend more time with mobile phones. So here only assumption II is implicit in the statement.

36.

Ans. (b) : Let number of males = $7x$
 and, number of female = $6x$
 According to the question-

$$7x = 56$$

$$x = 8$$

$$\therefore \text{Total number of guests} = 7x + 6x$$

$$= 13x$$

$$= 13 \times 8$$

$$= 104$$

37.

Ans. (d) : From question,

$$\left\{ \frac{3}{5} \times [3 + \{3 + (11 + 5 + 6)\}] \right\}$$

$$= \left\{ \frac{3}{5} \times [3 + \{3 + (22)\}] \right\}$$

$$= \left\{ \frac{3}{5} \times [3 + \{25\}] \right\}$$

$$= \left\{ \frac{3}{5} \times [28] \right\}$$

$$= \left\{ \frac{3}{5} \times 28 \right\}$$

$$= 16 \frac{4}{5}$$

38.

Ans. (a) : Decimal expansion of $\frac{109}{100} = \frac{100}{100} + \frac{0}{10} + \frac{9}{100}$

$$= 1 + \frac{0}{10} + \frac{9}{100}$$

Hence, option (a) is answer.

39.

Ans : (d) LCM of 6, 7, 8, 9, and 12.

2	6, 7, 8, 9, 12
2	3, 7, 4, 9, 6
2	3, 7, 2, 9, 3
3	3, 7, 1, 9, 3
3	1, 7, 1, 3, 1
7	1, 7, 1, 1, 1
	1, 1, 1, 1, 1

$$\text{LCM} = 2 \times 2 \times 2 \times 3 \times 3 \times 7 = 504$$

So, the required number = $504 + 2 = 506$

40.

Ans. (d) : Given,

$$a : b = 2 : 3 \text{ and } b : c = 3 : 4$$

$$a : b = 2 : 3$$

$$b : c = 3 : 4$$

$$a : b : c = 6 : 9 : 12$$

$$\text{or } a : b : c = 2 : 3 : 4$$

41.

Ans. (a) : Let the initial income of Ramu = 100 unit

Initial expenditure = 72

Initial saving (y) = 28

According to the question,

$$\text{Increased income of Ramu} = 100 \times \frac{112}{100} = ₹ 112$$

$$\text{Increased expenditure} = 72 \times \frac{5}{100} = ₹ 3.6$$

$$\therefore \text{New expenditure} = 72 + 3.6 = 75.6$$

$$\text{Final saving (x)} = 112 - 75.6 = 36.4$$

$$\text{Required value of } \left(\frac{x-y}{y} \times 100 \right) \%$$

$$= \frac{(36.4 - 28)}{28} \times 100 \Rightarrow \frac{8.4}{28} \times 100 = 30\%$$

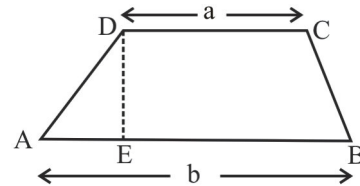
42.

Ans. (b) : Given,

$$\text{Area of trapezium} = 1792 \text{ cm}^2$$

Distance between its parallel sides. (h) = 28 cm

Length of other side (b) = ?



Now,

$$\text{Area of trapezium} = \frac{1}{2}(a + b) \times h$$

$$1792 = \frac{1}{2}(72 + b) \times 28$$

$$256 = (72 + b) \times 2$$

$$128 = 72 + b$$

$$b = 128 - 72$$

Length of other side (b) = 56 cm

43.

Ans. (a) : According to the question,

$$M \rightarrow 16 \times 24$$

$$W \rightarrow 24 \times 32$$

$$24 \times 32 = 768$$

$$16M \times 24 = 24W \times 32$$

$$\frac{M}{W} = \frac{2}{1}$$

$$\begin{aligned}
 (16M + 16W) \times 12 + (16M + XM) \times 2 &= 768 \\
 48 \times 12 + (32 + 2X) \times 2 &= 768 \\
 576 + (64 + 4X) &= 768 \\
 4X &= 768 - 640 \\
 4X &= 128 \\
 X &= 32
 \end{aligned}$$

44.

Ans. (b) : Divisibility rule of 9 - If the sum of the digits are divisible by 9, then the number is divisible by 9.

Number - $4a5124356789734$

On divided by 9 -

$$\begin{aligned}
 &\frac{4+a+5+1+2+4+3+5+6+7+8+9+7+3+4}{9} \\
 &= \frac{a+68}{9} \Rightarrow \text{On putting } a = 4 \Rightarrow \frac{4+68}{9} = \frac{72}{9} = 8
 \end{aligned}$$

Hence the value of $a = 4$

45.

Ans. (a) : Let the distance covered by Vaishali in one side be d km.

According to the question,

$$\begin{aligned}
 \text{Time} &= \frac{\text{Distance}}{\text{Speed}} \\
 \frac{d}{50} + \frac{d}{10} &= 2 + \frac{24}{60} = 2\frac{2}{5} \\
 &= \frac{d}{50} + \frac{d}{10} = \frac{12}{5} \\
 &= \frac{d+5d}{50} = \frac{12}{5} \\
 &= \frac{6d}{50} = \frac{12}{5}
 \end{aligned}$$

$$d = 20 \text{ km}$$

$$\begin{aligned}
 \therefore \text{Total distance} &= \text{distance covered by car} + \\
 &\text{distance covered by cycle on returning the} \\
 &\text{original place} \\
 &= 20 + 20 \\
 &= 40 \text{ km}
 \end{aligned}$$

46.

Ans. (d) : Given,

Rate = 13%

Time = 5 years

Interest = ₹650

$$SI = \frac{P \times R \times T}{100}$$

$$650 = \frac{P \times 13 \times 5}{100}$$

$$P = ₹1000$$

47.

Ans. (a) : Given,

Principal (P) = ₹19500,

Rate (R) = 10%,

$$\text{Time (T)} = 1\frac{2}{5}$$

$$\begin{aligned}
 \text{C.I.} &= 19500 \left[\left(1 + \frac{10}{100} \right)^1 \left(1 + \frac{10 \times 2}{100 \times 5} \right) - 1 \right] \\
 &= 19500 \left[\frac{11}{10} \times \frac{26}{25} - 1 \right] \\
 &= 19500 \left[\frac{286 - 250}{250} \right] \\
 &= 19500 \times \frac{36}{250} \\
 &= ₹2808
 \end{aligned}$$

48.

Ans. (a) : According to the question -

Cost price of 15 articles = ₹15

Cost price of 1 articles = ₹1

Selling price of 1 articles = ₹1.23

$$\begin{aligned}
 \% \text{ profit} &= \frac{1.23 - 1}{1} \times 100 \\
 &= 0.23 \times 100 \\
 &= 23\%
 \end{aligned}$$

49.

Ans. (a) : Let the amount of grain be x grams.

According to the question -

$$\frac{25}{100} = \frac{1000 - x}{x}$$

$$x = 4000 - 4x$$

$$x = \frac{4000}{5}$$

$$x = 800 \text{ gm}$$

50.

Ans : (c)

(I) Unique solution will be equation of $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$

(II) No solution of equation $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$

(III) Infinite solution must be equation of $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$

Equation $x + 2y - 8 = 0$, $2x + 4y - 16 = 0$

$$\text{Then } \frac{1}{2} = \frac{2}{4} = \frac{-8}{-16}$$

$\left[\frac{1}{2} = \frac{1}{2} = \frac{1}{2} \right]$ So, the equation will have infinite solutions.

51.

Ans. (a) : According to question,

$$\begin{aligned} & \frac{\tan 45^\circ}{1 + \cos 45^\circ} + \frac{1 + \sin 45^\circ}{\cot 45^\circ} \\ &= \frac{1}{1 + \frac{1}{\sqrt{2}}} + \frac{1 + \frac{1}{\sqrt{2}}}{1} \\ &= \frac{\sqrt{2}}{\sqrt{2} + 1} + \frac{\sqrt{2} + 1}{\sqrt{2}} \\ &= \frac{2 + (\sqrt{2} + 1)^2}{\sqrt{2}(\sqrt{2} + 1)} = \frac{2 + 2 + 1 + 2\sqrt{2}}{\sqrt{2}(\sqrt{2} + 1)} \\ &= \frac{5 + 2\sqrt{2}}{\sqrt{2}(\sqrt{2} + 1)} \end{aligned}$$

On multiplying the numerator and denominator by $\sqrt{2}(\sqrt{2} - 1)$

$$\begin{aligned} &= \frac{(5 + 2\sqrt{2}) \times \sqrt{2}(\sqrt{2} - 1)}{\sqrt{2}(\sqrt{2} + 1) \times \sqrt{2}(\sqrt{2} - 1)} \\ &= \frac{10 + 4\sqrt{2} - 5\sqrt{2} - 4}{2(2 - 1)} \\ &= \frac{6 - \sqrt{2}}{2} = 3 - \frac{\sqrt{2}}{2} \end{aligned}$$

52.

Ans. (c) : Arranging the numbers in ascending order, 2.1, 5, 6, 7, 8, 9.3, 10, 11, 14, 15, 16.5, 17, 19.21, 27, 31, 31, 33

Mode = 31 (has come 2 times)

and, total number of terms $n = 17$ (odd)

$$\begin{aligned} \therefore \text{Median} &= \left(\frac{n+1}{2}\right)^{\text{th}} \text{ term} \\ &= \left(\frac{17+1}{2}\right)^{\text{th}} \text{ term} \\ &= 9^{\text{th}} \text{ term} = 14 \end{aligned}$$

\therefore Difference between Median and Mode
= $31 - 14 = 17$

53.

Ans. (d) : According to question,

$$\begin{aligned} & \sqrt{0.015625} \times \sqrt{0.0256} \\ &= \sqrt{0.125 \times 0.125} \times \sqrt{0.16 \times 0.16} \\ &= 0.125 \times 0.16 \\ &= 0.02 \end{aligned}$$

54.

Ans. (b) : Let the present ages of Ram and Shyam is $7x$ and $8x$ respectively.

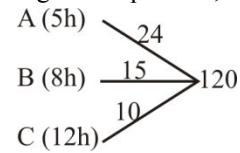
According to the question-

$$\begin{aligned} \frac{7x+9}{8x+9} &= \frac{8}{9} \\ 64x+72 &= 63x+81 \\ x &= 9 \end{aligned}$$

Then, the present age of Ram and Shyam, $7x = 7 \times 9 = 63$ years, $8x = 8 \times 9 = 72$ years respectively.

55.

Ans. (b) : According to the question,



So, time taken to fill the tank by all three pipes

$$= \frac{120}{24+15+10} = 2\frac{22}{49} \text{ hours}$$

56.

Ans. (c) : The charter Act of 1853 empowered the British East India Company to retain the territories and the revenues in India in trust for the crown without determining or fixing any specified period. This Act gave birth to the Indian civil services and was open to all including Indian. This ended the system of appointments by recommendation and started a system of open and fair competition.

57.

Ans. (b): The Charminar (four minarets) was constructed in 1591 AD, is a monument and mosque located in Hyderabad, Telangana. It is an example of Indian - Islamic Architecture. The fifth ruler of Qutub Shahi dynasty, Muhammad Quli Qutub Shah built Charminar after shifting his capital from Golkonda to the newly formed city of Hyderabad. The Charminar was built to commemorate the eradication of plague, which was prevalent during that time.

58.

Ans. (b): A Chinese scholar named Juan Zhang lived in Vijayawada to study Buddhist texts. Chinese Buddhism is the Chinese branch of Buddhism. Traditions of Buddhism left a deep impact on Chinese culture and civilization for two thousand years. These Buddhist traditions can be seen in Chinese art, politics, literature, philosophy and medicine. More than 65% of the world's Buddhist population lives in China. Due to this reason, The Chinese scholars used to come to India to study the Buddhist text here and the ideas and values of Buddhists were absorbed in China.

59.

Ans. (a):

Article Provisions

- 261 – Public Acts, records and Judicial proceedings.
- 262 – Adjudication of disputes relating to waters of Inter-state rivers or river valleys.
- 263 – Provisions with respect to an Inter-State Council.
- 264 – Finance Commission Interpretation

60.

Ans. (b): The Consolidated Fund India was set up under Article 266 of the Constitution of India is a such type of fund in which the remaining amount left after giving the state their share of taxes and duties is used. It is the largest fund of India, placed under the Parliament. Fund cannot be withdrawn without the approval of Parliament.

61.

Ans. (a): A municipal commissioner is appointed by the state government from the Indian Administrative service or provincial Civil service to head the administrative staff of the municipal corporation, implement the decisions of the corporation, and prepare its annual budget. He plays the role of intermediary between state government and Municipal Corporation.

62.

Ans.(c) : The amount of carbon present in the Earth's crust as minerals is 0.02%. In the earth's crust only 0.02% of carbon is found in the form of minerals like carbonates, hydrogen carbonates, coal and petroleum, and the atmosphere has 0.03% of carbon dioxide.

63.

Ans. (a) : Levees are usually made of earth. The natural movement of the body of water pushes sediment to the side and creates a natural levee. Hence natural levees are depositional landforms of Rivers.

64.

Ans. (b): If the income effect is stronger than the substitution effect, the demand for the good would be positively related to its price. Such a good is called a Giffen good. These are the goods that are highly inferior. Such goods share a positive relationship with the price. That is as the price of the good increases the demand also increases. This is because such goods have strong income effect. Examples of Giffen goods include bread, rice, and wheat.

65.

Ans. (a): The difference between total revenue and total expenditure of the government is termed as fiscal deficit. It is an indication of the total borrowings needed by the government.

66.

Ans. (b): Dada Saheb Phalke is India's highest award in cinema. Presented first in 1969, the award was introduced by the government of India to commemorate Dada Saheb Phalke's contribution to Indian Cinema. Phalke is known as 'the father of Indian cinema' The first recipient of the award was actress Devika Rani. The prestigious 51st Dada Saheb Phalke Award was honoured to Rajnikant.

67.

Ans. (b) : The Civil Services refer to the career government civil servants who are the permanent executive branch of the Republic of India. 21 April was chosen to commemorate the day in 1947 when Sardar Vallabhbhai Patel, the first Home Minister of Independent India, addressed the probationers of Administrative Services Officers. Charles Cornwallis is known as 'the Father of Civil Service in India'.

68.

Ans. (b) : Bibhutibhushan Bandopadhyay was a famous Bengali writer and novelist. He is especially known for his epic 'Pather Panchali'. A film was also produced based on it by the famous film maker Satyajit Ray.

69.

Ans. (b) : The United Nations Educational, Scientific And Cultural Organization (UNESCO) is an international organization that promotes education, science and culture. UNESCO was founded on November 16, 1945. It has the International institute of Educational planning in Paris as its part. UNESCO'S International Institute for Educational planning was founded in Paris, France, in 1963. The Headquarters of UNESCO is situated in Paris.

70.

Ans. (b): Europe continent has the highest World Heritage Site. The list of World Heritage Sites is given by UNESCO.

71.

Ans. (d) : Nag missile also called "Prospina" for the land-attack version, is an Indian third-generation, all-weather, fire-and-forget, lock-on after launch, anti-tank guided missile (ATGM) with an operational range of 500 m to 20 km.

72.

Ans. (a) : Australia had hosted the Commonwealth Games five times (1938, 1962, 1982, 2006 and 2018).

73.

Ans. (b) : The 21 FIFA World Cup tournaments have been won by eight national teams. Brazil have won five times, and they are the only team to have played in every tournament.

74.


Ans.(b) : Some of the famous cultural festivals of Karnataka are Hampi Dance Utsav, Pattadakal Dance, Ugadi and Karaga festival etc. Popular festivals in Tamil Nadu are Mamallapuram Dance Utsav, Pongal, Jallikattu and Mahamaham festival etc. Kerala is most popularly known for its major festivals like Onam, Vishu, Theyyam, Attukal Pongal and Nisha Gandhi Dance festival. Taj Mahotsav is cultural festival of Uttar Pradesh.

75.

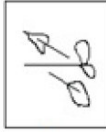
Ans. (b) : Dance folk	State
Mataki, Jawara, Grida Dance, Rai	→ Madhya Pradesh
Kuchipudi, Bonalu Dance	→ Andhra Pradesh
Luvat Pheizak, Dol Cholam, Thang Ta	→ Manipur
Yakshagana, Huttari, Suggi	→ Karnataka

PRACTICE SET-7

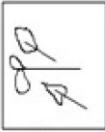
1. **What is most likely cause for food poisoning?**
 - (a) Eating food spoilt by microorganisms
 - (b) Eating frozen foods
 - (c) Eating home cooked food
 - (d) Eating food with preservatives
2. **How many molecules of carbon dioxide are formed during the breakdown of pyruvate using oxygen in the mitochondria?**
 - (a) Two
 - (b) Six
 - (c) Five
 - (d) Three
3. **Which one of the following diseases is NOT caused by a virus?**
 - (a) Chicken Pox
 - (b) Tuberculosis
 - (c) Influenza
 - (d) Measles
4. **Where can we find the glomerulus in a human being?**
 - (a) In the bone marrow
 - (b) In the uterus
 - (c) In the liver
 - (d) In the kidney
5. **Frogs have a pair of lungs like human beings but they can also breath through their :**
 - (a) spiracles
 - (b) trachea
 - (c) slippery and moist skin
 - (d) gills
6. **Histamine-secreting cells are found in**
 - (a) Connective tissues
 - (b) Lungs
 - (c) Nervous tissues
 - (d) Muscle tissues
7. **Molecular formula of potassium nitrate is.**
 - (a) KNO_3
 - (b) KNO_2
 - (c) KNO_4
 - (d) KNO
8. **Mendeleev's periodic table examined the relationship between the atomic mass of elements and their _____.**
 - (a) colour
 - (b) physical and chemical properties both
 - (c) physical properties only
 - (d) chemical properties only
9. **Who invented radioactivity?**
 - (a) Max Planck
 - (b) James Clerk Maxwell
 - (c) Henri Becquerel
 - (d) Heinrich Hertz
10. **The percentage of hydrogen present in an H_2O molecule is**
 - (a) 1.11
 - (b) 11.11
 - (c) 5.55
 - (d) 55.5
11. **The element used as a fuse when a huge current flows through it.**
 - (a) heats up
 - (b) boils
 - (c) melts
 - (d) cools
12. **Visible radiation was discovered by:**
 - (a) Henri Becquerel
 - (b) Wilhelm Rontgen
 - (c) Isaac Newton
 - (d) Guglielmo Marconi
13. **Zero acceleration means**
 - (a) The velocity of the object is constant.
 - (b) The velocity of the object is low.
 - (c) The velocity of the object is zero.
 - (d) The velocity of the object increases.
14. **Which instrument is used for measuring power and speed of wind?**
 - (a) Lactometer
 - (b) Speedometer
 - (c) Thermometer
 - (d) Anemometer
15. **Which of the following has same unit ?**
 - (a) Work & Energy
 - (b) Force & Pressure
 - (c) Force & Momentum
 - (d) Force & Work
16. **Select the option that is related to the third term in the same way as the second term is related to the first term.**
Laboratory : Manual :: Library : ?
 - (a) Book - shelf
 - (b) Catalogue
 - (c) Librarian
 - (d) Books
17. **Select the set in which the numbers are related in the same way as are the numbers of the following sets.**
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 - Operations on 13 such as adding/deleting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)
(4, 3, 16)
(3, 5, 19)
 - (a) (8, 2, 20)
 - (b) (8, 1, 18)
 - (c) (5, 2, 49)
 - (d) (3, 2, 12)
18. **If $ACE = 35$, $AGED = 91$ then $CARE = ?$**
 - (a) 359
 - (b) 323
 - (c) 288
 - (d) 358
19. **In a certain code language, 'NDRWCK' is written as 'GUGPTZ'. What is the code for 'MTSFHJ' in that code language**
 - (a) FOPWWW
 - (b) FOPXXX
 - (c) FKHZZZ
 - (d) FKHYYY
20. **Four letter-cluster have been given, out of which three are alike in some manner and one is different. Select the odd one.**
 - (a) BAYZ
 - (b) DCWV
 - (c) FEUV
 - (d) HGST
21. **Four figures have been given, out of which three are alike in some manner and one is different. Select the odd one.**




A.



B.



C.



D.

 - (a) C
 - (b) A
 - (c) D
 - (d) B
22. **Select the number from the option that can replace the question mark (?) and complete the given series,**
0, 7, 26, 63, 124, ?
 - (a) 214
 - (b) 212
 - (c) 213
 - (d) 215

23. Which of the following terms will replace the question mark (?) in the given series to make to logically complete?

MSN15, QWR18, UAV21, YEZ24?

- (a) DNS31 (b) CID27
(c) DBC27 (d) CJL31
24. If '+' means '-', '-' means '×', '×' means '÷', and '÷' means '+', what will come in place of the question mark (?) in the following equation?

$$12 \times 3 - 25 \div 25 + 25 = ?$$

- (a) 200 (b) 300
(c) 100 (d) 80
25. Fatima and Abdul are siblings. Fatima's father Aziz is the only son of his parents. Ansari is the paternal grandfather of Abdul. Sarah is the daughter-in-law of Ansari. How is Sarah related to Aziz?
- (a) Sister (b) Mother
(c) Wife (d) Aunt
26. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow from the statements.

Statements:

- All red are white.
- All white are black.

Conclusions:

- Some white are red.
- Some black are red
- Some red are not black.
- All black are white.

- (a) Only conclusions 1 and 4 follow
(b) Only conclusions 1 and 3 follow
(c) Only conclusions 2 and 4 follow
(d) Only conclusions 1 and 2 follow

27. Statements:

Some teachers are rich.
All diabetic are rich.

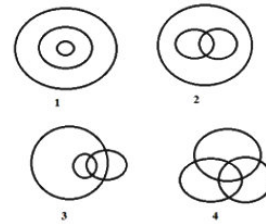
Conclusions:

- Some diabetic are teachers.
- Some rich people are diabetic.

- (a) Only conclusion 2 can be drawn
(b) Neither 1 nor 2 can be drawn
(c) Both 1 and 2 can be drawn
(d) Only conclusion 1 can be drawn
28. From point 'O' facing West, a person walks 4 km to reach point A, then from there he walks 4 km to the right and reaches point B, then he walks 4 km to the right and reaches point C, turning to the right. He walks to 3 km of point D, turns left and walks 4 km to reach point E, turns right and walks 5 km to reach point F. The man at point E stands facing the direction

- (a) North (b) West
(c) East (d) South

29. Select the Venn diagram that best represents the relationship between the following classes. Players, Humans, Students



- (a) 4 (b) 3
(c) 1 (d) 2

30. Given below is a paragraph. While S1 and S6 are the first and last sentences of this paragraph, the parts that are labelled 1, 2, 3 and 4 are jumbled up. Rearrange them to form a meaningful and coherent paragraph.

S1 : Shruti has been trying to lose weight.

- Regular exercising keeps our body fit and healthy.
- The trainer has suggested her to start with regular exercising in the morning.
- She has not yet started her exercising sessions.
- She says that because of late night office hours, it is difficult for her to get up early in the morning.

S6 : I think it is just a lame excuse for her laziness.

- (a) 4,2,3,1 (b) 2,1,3,4
(c) 1,2,4,3 (d) 3,2,1,4

31. In the following question, four letter pairs are given. The letters on left side of (-) is related to the letters on the right side of (-) with some Logic/rule/Relation. Three are similar on the basis of same Logic/Rule/Relation. Select the odd one out from the given alternatives.

- (a) ZBN - EHU (b) PSD - KYU
(c) SJF - MPX (d) NRB - IXS

32. P, Q, R, S, T, U and V were seven kids sitting around a square table, facing the centre. Three of them were sitting at the corners while four others were sitting at the exact centre of the sides. One of the corners was empty. U, sitting at one of the centre of the sides, was second to the right of T. There was one empty chair between P and U. R and Q were diagonally opposite to each other. T was at the immediate left of Q. S was to the immediate left of V. Who among the following was the kid at a corner position?

- (a) T (b) S (c) U (d) V

33. Read the given statement and conclusions carefully and select the conclusion(s) that logically follows(s) from the statements.

Statement:

Indian Education is lacking quality due to low funds. India is allocating additional funds to education sector.

Conclusions:

- There would be improvement in quality of education in India.
 - Only funds can improve the education standards.
- (a) Only conclusion I follows
(b) Either I or II follows
(c) Only conclusion II follows
(d) Neither I nor II follows

34. **Question:**
If X scored an average of 50 marks in History, Language and Science, then how much did he score in Science
Statements:
1. His average score in History and Language is 25.
2. He got 30 marks in Language.
(a) Both 1 and 2 are sufficient to answer the given question
(b) 2 alone is sufficient while 1 alone is not sufficient to answer the given question
(c) 1 alone is sufficient while 2 alone is not sufficient to answer the given question
(d) Neither 1 nor 2 is sufficient to answer the given question
35. **Statement:**
The managing director of XYZ, an advertising bank in the newspaper, said, "We do not send messages to customers nor make calls to make any corrections, updates to bank account correction.
Assumption:
I. Fake calls are coming to people for theft of bank account details.
II. Bank officials call customers to change ATM PINS.
(a) Either I or II is implicit
(b) Only II is implicit
(c) Neither I nor II is implicit
(d) Only I is implicit
36. If the 8 digit number $3x5479y4$ is divisible by 88 and the 8 digit number $425139z2$ is divisible by 9, then find the maximum possible value of $(3x + 2y - z)$.
(a) 33 (b) 37
(c) 25 (d) 35
37. The sum of the digits of a two digit number is 13. If those digits are interchanged, the number gets decreased by 27. Find the changed number.
(a) 85 (b) 76
(c) 67 (d) 58
38. $\{20 - (25 - 33)\} \div \{-5 \times 4 - (-6)\} + 56 \div (-27 + 13) = ?$
(a) -2 (b) -6
(c) -4 (d) 4
39. Which of the following will give a recurring decimal?
(a) $\frac{21}{30}$ (b) $\frac{21}{120}$
(c) $\frac{21}{60}$ (d) $\frac{21}{90}$
40. If $P = a \times m \times r$ and $Q = b \times m \times 2 \times r$, where a, b, m, r are odd prime numbers, then the HCF of P and Q is:
(a) a r (b) b r
(c) m r (d) 2 r
41. If A is 80% more than B and B is 20% less than C, then what will be the value of A : B : C?
(a) 36 : 25 : 20 (b) 36 : 20 : 25
(c) 36 : 5 : 20 (d) 20 : 25 : 36
42. Moris spent 25% of his income on food. He got an increment of ₹ 1000, but he did not increase his expenditure on food stuffs. Therefore, his expense of food decreased to 20%. What was his initial income?
(a) ₹ 6500 (b) ₹ 6000
(c) ₹ 5000 (d) ₹ 4000
43. A circular racing track has been developed in a field. If the difference between the outer circumference and the inner circumference of the racing track is 33 m, then find the width of the track (in m) (Use $\pi = \frac{22}{7}$)
(a) $5\frac{1}{5}$ (b) $4\frac{3}{4}$
(c) $5\frac{3}{4}$ (d) $5\frac{1}{4}$
44. A can do 75% of the work in 30 days while B can do 50% of the same work in 18 days. If they work together. What fraction of the work will be done in 1 day?
(a) $\frac{7}{120}$ (b) $\frac{1}{19}$
(c) $\frac{19}{360}$ (d) $\frac{1}{20}$
45. Two woman walk from a place at the speeds of 6 km/h and 8 km/h respectively. First woman takes 40 min more than the second one to cover the distance. Find the distance.
(a) 14 km (b) 16 km
(c) 12 km (d) 10 km
46. Simple interest on an amount 2 years is ₹400. Had 'r' been 4% more than the simple interest would have been ₹400 more. What is the principle amount.
(a) ₹ 4000 (b) ₹ 12000
(c) ₹ 5000 (d) ₹ 10000
47. What will be the compound interest on a sum of ₹25,000 after 3 years at a rate of 12% per annum, compounded annually?
(a) ₹ 900.30 (b) ₹ 10,123.20
(c) ₹ 1,048.20 (d) ₹ 9,720
48. A vendor sells 10 oranges for ₹1 and gains 30%. How many oranges did he buy for ₹1?
(a) 11 (b) 7
(c) 13 (d) 9
49. A man buys 20 articles for ₹16 and sells them at the rate of ₹1.50 per article. What is his gain in percentage?
(a) 87.5% (b) 86.5%
(c) 85.5% (d) 84.5%
50. If $x^2 + 25y^2 = 10xy$, then $x : y = ?$
(a) 5 : 1 (b) 2 : 3
(c) 1 : 5 (d) 3 : 5
51. Find the value of $\tan 1^\circ \cdot \tan 2^\circ \cdot \tan 3^\circ \dots \dots \dots \tan 89^\circ$
(a) $\sqrt{3}$ (b) 0
(c) 1 (d) $\frac{1}{\sqrt{3}}$

52. If mean is 40 and standard deviation is 5 then C.V. (Coefficient of variation) is
 (a) 20% (b) 12.5%
 (c) 5% (d) 100%
53. Simplify the following expression.
 $\sqrt{12.5 \times 8 \times 1.44}$
 (a) 13 (b) 12
 (c) 15 (d) 10
54. The difference in ages of Sunita and Sheela is 12 years. If 9 years ago the elders age was 4 times than that of younger one, then what is their present age?
 (a) 11 and 23 (b) 15 and 27
 (c) 13 and 25 (d) 23 and 35
55. Two pipes X and Y can fill a gas tank in 60 and 75 minutes respectively. There is an outlet Z. If all the three pipes are used together, then the tank gets full in 50 minutes. How much time will be taken by Z to empty the tank completely?
 (a) 100 minutes (b) 75 minutes
 (c) 90 minutes (d) 50 minutes
56. Who was the first person to discuss the concept of poverty in India before independence?
 (a) Surendranath banarjee
 (b) G.V. joshi
 (c) D. vacha
 (d) Dadabhai Naoroji
57. Annamayya was a poet/singer from medieval period. Which current Indian states does he belong to?
 (a) Andhra Pradesh (b) Gujarat
 (c) Tamil Nadu (d) West Bengal
58. The Lauria Nandangarh Pillar is located in ____
 (a) Varanasi (b) Kumrahar
 (c) Champaran (d) Patna
59. In the Preamble of the Indian Constitution, the term 'Socialism' derives its inspiration from which of the following?
 (a) French Revolution
 (b) German Revolution
 (c) American Revolution
 (d) Russian Revolution
60. The secretary General of the Rajya Sabha is appointed by who among the following?
 (a) Prime Minister
 (b) Attorney General
 (c) Chairman of Rajya Sabha
 (d) President
61. Under which Article of the Indian Constitution is there a provision that "the Governor of a state shall at the expiration of every fifth year, constitute a Finance commission to review the financial position of the Panchayats and to make recommendations to this?
 (a) 243X (b) 243 I
 (c) 243 Y (d) 243H
62. International Date line passes through _____.
 (a) 0° Greenwich (b) 180° Greenwich
 (c) 90° Greenwich (d) 270° Greenwich
63. Which river originates at Mahabaleshwar in Maharashtra, passes through Sangli and meets the sea in the Bay of Bengal at Hamasaladevi in Andhra Pradesh?
 (a) Krishna (b) Godavari
 (c) Narmada (d) Tapti
64. is the money that is available from an individual's salary after he/she pays local, state and federal taxes.
 (a) Personal Income (b) Per Capita Income
 (c) Disposable Income (d) National Income
65. What is a per unit Tax (or Unit Tax)?
 (a) A tax that the government imposes per unit sale of output.
 (b) A tax that the factory imposes on total unit purchase on imports.
 (c) A tax that the factory imposes per unit sale of output
 (d) A tax that the government imposes per unit purchase on imports
66. The highest decoration for valour (during wartime) given to the Indian uniformed soldiers is _____.
 (a) Vir Chakra (b) Shaurya Chakra
 (c) Mahavir Chakra (d) Param Vir Chakra
67. On which day is World Day to combat desertification and drought observed?
 (a) 22nd April (b) 5th June
 (c) 17th June (d) 22nd May
68. Who wrote the novel 'The White Tiger'?
 (a) Khushwant Singh (b) Chetan Bhagat
 (c) Vikram Seth (d) Arvind Adiga
69. Which was the last country to join BRICS?
 (a) China (b) India
 (c) Russia (d) South Africa
70. Where is the world's highest post-office located?
 (a) Assam (b) Himachal Pradesh
 (c) Arunachal Pradesh (d) Jammu and Kashmir
71. Which of the following equipment is primarily used in military submarines?
 (a) Telescope (b) Microscope
 (c) Endoscope (d) Periscope
72. How many times the Asian Games have been held in India?
 (a) Three (b) One
 (c) Four (d) Two
73. Nixan Gold Cup is associated with which sport?
 (a) Basketball (b) Badminton
 (c) Football (d) Volleyball
74. Which of the following festivals is also known as 'peerla panduga' ?
 (a) Bakrid (b) Lailat al-Qadr
 (c) Muharam (d) Ramadan
75. Which of the following pairs of folk dance forms and states is NOT matched correctly?
 (a) Lezim – Maharashtra
 (b) Ghoomar – Kerala
 (c) Maha Rasa – Manipur
 (d) Nati – Himachal Pradesh

SOLUTION : PRACTICE SET- 7

ANSWER KEY

1. (a)	7. (a)	13. (a)	19. (d)	25. (c)	31. (a)	37. (d)	43. (d)	49. (a)	55. (a)	61. (b)	67. (c)	73. (c)
2. (d)	8. (b)	14. (d)	20. (b)	26. (d)	32. (d)	38. (b)	44. (c)	50. (a)	56. (d)	62. (b)	68. (d)	74. (c)
3. (b)	9. (c)	15. (a)	21. (a)	27. (a)	33. (a)	39. (d)	45. (b)	51. (c)	57. (a)	63. (a)	69. (d)	75. (b)
4. (d)	10. (b)	16. (b)	22. (d)	28. (c)	34. (c)	40. (c)	46. (c)	52. (b)	58. (c)	64. (c)	70. (b)	
5. (c)	11. (c)	17. (a)	23. (b)	29. (d)	35. (d)	41. (b)	47. (b)	53. (b)	59. (d)	65. (a)	71. (d)	
6. (a)	12. (c)	18. (a)	24. (c)	30. (b)	36. (a)	42. (d)	48. (c)	54. (c)	60. (c)	66. (d)	72. (d)	

SOLUTION

1.

Ans. (a) Food poisoning, also called food borne illness, is caused by eating contaminated food. Infectious organisms including bacteria, viruses and parasites or their toxins are the most common causes of food poisoning.

2.

Ans. (d) : The breakdown of pyruvate using oxygen in mitochondria gives 3 molecules of CO₂, water and energy.

3.

Ans.(b) Diseases that are caused by the virus are called the viral diseases and diseases caused by bacteria are called bacterial diseases. For example–

Viral diseases:–

AIDS, Dengue fever, Small Pox, Chicken Pox, Polio, Measles, Rabies, Jaundice etc.

Bacterial diseases:–

Tuberculosis, Typhoid, Plague, Pneumonia etc.

4.

Ans. (d) : Glomerulus in a human being is found in the kidney. It is the filtering unit of the kidney.

5.

Ans.(c) : Frogs have a pair of lungs like human beings but they can also breath through their slippery and moist skin. The frog has three respiratory surface on its body that it uses to exchange gas with surroundings: the skin, in the lungs and on the lining of the mouth.

6.

Ans. (a) Histamine-secreting cells are found in connective tissues. The main component in the connective tissues of human is a protein called collagen. This connective tissue usually consists of the fibrous lobes (which give rise to the fibres), the macrophage and the mast cells that secrete histamine.

7.

Ans : (a) The molecular formula of potassium nitrate is KNO₃. It is also called saltpeter. It is used as an explosive and fertilizer.

8.

Ans. (b) : When Mendeleev started his work, 63 elements were known. He examined the relationship between the atomic masses of the elements and their physical and chemical properties.

9.

Ans : (c) Some invisible rays are automatically released from certain elements and their compounds. These rays are called radioactive rays or Becquerel rays. The phenomenon of rays emitting automatically from a substance is called

radioactivity. It was first discovered by the French scientist Henri Becquerel. The major radioactive elements are uranium, thorium, polonium, plutonium etc. Pierre Curie and Madame Curie later discovered the most important radioactive element, radium.

10.

Ans. (b) :

Ratio of hydrogen and oxygen in water = 1 : 8

$$\therefore \text{Percentage of hydrogen} = \frac{1}{9} \times 100 = 11.11\%$$

Thus, the percentage of hydrogen present in one molecule of water (H₂O) is 11.11%.

11.

Ans.(c) : The element used as a fuse melts when a huge current flows through it. A fuse works on the principle of heating effect of electric current. fuse wire is made from metals, that have high resistance and low melting point.

12.

Ans. (c) : Visible radiation was discovered by Isaac Newton. The wavelength of visible light ranges from 390-780 nano metres (nm). Its originates from the incandescent things such as sunlight, flames, electric bulb, arclamp and the radiation produced by molecules of ionized gases when elated. Due to this light, we can see the things.

13.

Ans : (a) The rate of change of velocity is called acceleration.

Acceleration = change in velocity/time

According to question,

$$\therefore a = 0$$

Therefore, $0 = \frac{v - u}{t}$

$$0 = u - v$$

$$v = u$$

Or final velocity = initial velocity

Hence, in case of zero acceleration the velocity is constant.

14.

Ans : (d) An anemometer is an instrument that measures wind speed and wind pressure and power. Anemometers are important tools for meteorologists, who study weather patterns. The anemometer counts the number of rotations, or turns, which is used to calculate wind speed. It is also a common weather station instruments.

15.

Ans. (a) Work and energy has the same unit. The SI unit of work and energy is the Joule (J), which is defined as the work done by a force of one Newton for the displacement of one meter.

Energy/Workdone (W) = Force (F) × Displacement (d)

$$W = 1 \text{ N} \times 1 \text{ m}$$

$$W = 1 \text{ N-m} = 1 \text{ Joule}$$

16.

Ans. (b) : Just as, Laboratory has a manual in which explained the instruction of Laboratory. Same as, there is a catalogue in library.

17.

Ans. (a) : Just as, $(4, 3, 16) \rightarrow 4 \times 3 + 4 = 16$ and,

$$(3, 5, 19) \rightarrow 3 \times 5 + 4 = 19$$

Same as,

$$(8, 2, 20) \rightarrow 8 \times 2 + 4 = 20$$

18.

Ans. (a) : Just as,

$$\begin{array}{ccc} \text{A} & \text{C} & \text{E} \\ \downarrow & \downarrow & \downarrow \\ (1)^2 & + & (3)^2 & + & (5)^2 & = & 35 \end{array}$$

And,

$$\begin{array}{cccc} \text{A} & \text{G} & \text{E} & \text{D} \\ \downarrow & \downarrow & \downarrow & \downarrow \\ (1)^2 & + & (7)^2 & + & (5)^2 & + & (4)^2 & = & 91 \end{array}$$

Same as,

$$\begin{array}{cccc} \text{C} & \text{A} & \text{R} & \text{E} \\ \downarrow & \downarrow & \downarrow & \downarrow \\ (3)^2 & + & (1)^2 & + & (18)^2 & + & (5)^2 & = & \boxed{359} \end{array}$$

Hence, CARE = 359

19.

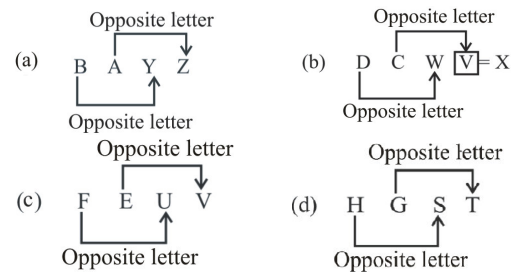
Ans. (d) : Just as,

In the same way,

$$\begin{array}{ll} \text{N} \xrightarrow{-7} \text{G} & \text{M} \xrightarrow{-7} \text{F} \\ \text{D} \xrightarrow{-9} \text{U} & \text{T} \xrightarrow{-9} \text{K} \\ \text{R} \xrightarrow{-11} \text{G} & \text{S} \xrightarrow{-11} \text{H} \\ \text{W} \xrightarrow{-7} \text{P} & \text{F} \xrightarrow{-7} \text{Y} \\ \text{C} \xrightarrow{-9} \text{T} & \text{H} \xrightarrow{-9} \text{Y} \\ \text{K} \xrightarrow{-11} \text{Z} & \text{J} \xrightarrow{-11} \text{Y} \end{array}$$

20.

Ans. (b) : From the given options –



Hence, It is clear from the given options, option (b) is odd.

21.

Ans. (a) : Figure 'C' is different from other figures. So option (a) is correct.

22.

Ans. (d) : The given series is as follows-

$$\begin{array}{cccccc} 0 & 7 & 26 & 63 & 124 & \boxed{215} \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 1^3-1 & 2^3-1 & 3^3-1 & 4^3-1 & 5^3-1 & 6^3-1 \end{array}$$

Hence, ? = 215

23.

Ans. (b) : The given series is as follows :-

$$\begin{array}{cccc} \text{M} \xrightarrow{+4} \text{Q} \xrightarrow{+4} \text{U} \xrightarrow{+4} \text{Y} \xrightarrow{+4} \boxed{\text{C}} \\ \text{S} \xrightarrow{+4} \text{W} \xrightarrow{+4} \text{A} \xrightarrow{+4} \text{E} \xrightarrow{+4} \boxed{\text{I}} \\ \text{N} \xrightarrow{+4} \text{R} \xrightarrow{+4} \text{V} \xrightarrow{+4} \text{Z} \xrightarrow{+4} \boxed{\text{D}} \\ 15 \xrightarrow{+3} 18 \xrightarrow{+3} 21 \xrightarrow{+3} 24 \xrightarrow{+3} \boxed{27} \end{array}$$

24.

Ans. (c) : Given,

$$12 \times 3 - 25 \div 25 + 25 = ?$$

According to the question, on changing the signs-

$$12 \div 3 \times 25 + 25 - 25 = ?$$

$$4 \times 25 + 25 - 25$$

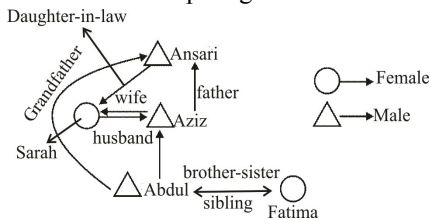
$$100 + 25 - 25$$

$$= 100$$

Hence, option (c) is correct.

25.

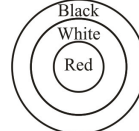
Ans. (c) : The relationship diagram is as follows-



Hence, it is clear from the relation diagram that Sarah is Aziz's wife.

26.

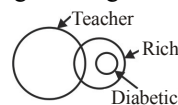
Ans. (d) : As per question, Venn diagram relation will be:



Hence, it is clear that Conclusions 1 and 2 are follow the statement logically.

27.

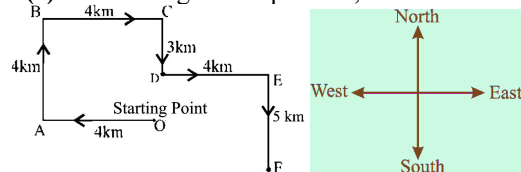
Ans. (a) : On making the diagram as per the statement.



It is clear from the diagram that from the given statements only conclusion 2 can be drawn.

28.

Ans. (c) : According to the question,



So, it is clear from the diagram that the man at point E facing towards East direction.

29.

Ans. (d) : From question, Venn diagram

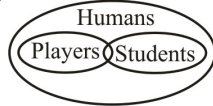


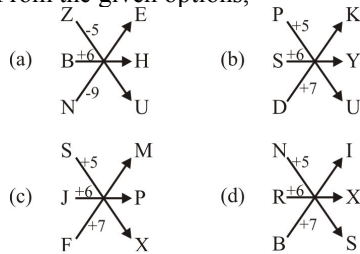
Figure 2 represents the best relationship between the all classes. Hence, option (d) is correct.

30.

Ans. (b) : The sequence of the given sentences to make a meaningful and relevant paragraph according to the question 2, 1, 3, 4. So the whole meaningful paragraph would be – Shruti has been trying to lose weight. The trainer has suggested her to do regular exercise in the morning. Regular exercise keeps our body fit and healthy. She has not started exercise yet. She says that, for her to get up early in the morning is difficult because of working till late night in the office. I think this is a false excuse for her laziness.

31.

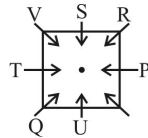
Ans. (a) : From the given options,



Hence, option (a) is different.

32.

Ans. (d) : According to the question, sitting arrangement is as follows :



Hence, it is clear from above that kid V was sitting at a corner position.

33.

Ans. (a) : Indian Education lacks quality due to low funds. India is allocating additional funds to the education sector which will improve the quality of education in India. Hence, conclusion (I) logically follows from the given statement.

34.

Ans. (c) : Average marks of X in total three subjects (history, language and science) = 50

∴ Total marks of three subjects (Science, language history)

$$= 50 \times 3 = 150$$

∴ Average marks in two subjects (history or language) = 25

∴ Total marks in two subjects (history or language) = 25 × 2 = 50

∴ Marks obtained by X in science subject = 150 – 50 = 100

Hence, it is clear that the statement 1 alone is sufficient to answer the question whereas statement 2 alone is not sufficient to answer the question.

35.

Ans. (d) : According to the given statement, only assumption I is correct because the statement by the managing director of the bank states that no message is being sent from the bank for the correction statement of the bank account. It may be that the customer's are getting fake calls on which the managing director has received the information. But assumption II is not correct.

36.

Ans. (a) : On dividing $3x^5479y4$ by 88 ie. 8 and 11 Divisibility rule of 8 - If the last three digits of the given number are divisible by 8, then it will be divisible by 8.

Maximum possible value of $y = 8$

$$\frac{984}{8} = 123$$

Divisibility rule of 11 - The given number can only be completely divided by 11 if the difference of the sum of digits at odd place and sum of digits at even place in a number is 0 or mutiple of 11.

$$3x547984 \Rightarrow (4+9+4+x) - (8+7+5+3)$$

$$17+x - 23 = 0$$

$$x = 6$$

On dividing $425139z2$ by 9

Divisibility rule of 9 :- If the sum of the digits of a number are divisible by 9, then the number is divisible by 9.

$$\frac{4+2+5+1+3+9+z+2}{9} = \frac{26+z}{9}$$

On putting $z = 1$

$$\frac{26+1}{9} = \frac{27}{9} = 3$$

Hence,

$$3x + 2y - z = 3 \times 6 + 2 \times 8 - 1 = 33$$

37.

Ans : (d) Let the tens digit is x ,

The unit digit = $13 - x$

∴ The number = $10 \times x + (13 - x)$

According to the question,

$$10 \times (13 - x) + x = 10 \times x + (13 - x) - 27$$

$$130 - 10x + x = 10x + 13 - x - 27$$

$$18x = 144$$

$$x = 8$$

∴ The changed number,

$$= 10 \times (13 - x) + x$$

$$= 10 \times (13 - 8) + 8$$

$$= 10 \times 5 + 8 = 58$$

38.

Ans. (b) According to question,

$$\{20 - (25 - 33)\} \div \{-5 \times 4 - (-6)\} + 56 \div (-27 + 13) = ?$$

$$= \{20 + 8\} \div \{-20 + 6\} + 56 \div (-14)$$

$$= \{28\} \div \{-14\} - 4$$

$$= -2 - 4 = -6$$

39.

$$\text{Ans : (d)} \quad \frac{21}{30} = 0.7, \quad \frac{21}{120} = 0.175, \quad \frac{21}{60} = 0.35$$

$$\frac{21}{90} = 0.23333 \Rightarrow 0.2\bar{3}$$

Hence option (d) will give recurring decimal.

40.

Ans. (c) : Given,

$$P = a \times m \times r$$

$$Q = b \times m \times 2 \times r$$

\therefore a, b, m, r are odd prime numbers

\therefore HCF of P and Q = $m \times r$

41.

Ans. (b) : \because B is 20% less than C,

Let, $C \rightarrow 100$

$B \rightarrow 80$

A is 80% more than B,

$$\therefore A \rightarrow 80 \times \frac{180}{100}$$

$$\rightarrow 144$$

$$A : B : C = 144 : 80 : 100$$

On dividing by 4,

$$A : B : C = 36 : 20 : 25$$

42.

Ans. (d) Let the initial income = ₹y

According to the question,

$$y \times \frac{25}{100} = (y + 1000) \frac{20}{100}$$

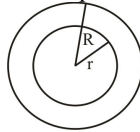
$$25y - 20y = 20000$$

$$5y = 20000$$

$$y = ₹4000$$

43.

Ans. (d) : According to the question,



Let the radius of the outer circle be R and the inner circle be r

Now,

$$2\pi(R - r) = 33$$

$$(R - r) = \frac{33 \times 7}{2 \times 22}$$

$$(R - r) = \frac{21}{4} = 5\frac{1}{4}$$

Hence, width of racing track (in m) = $5\frac{1}{4}$

44.

Ans. (c) : A can do 75% of the work = 30 days

A can do 100% of the work = 40 days

B can do 50% of the work = 18 days

B can do 100% of work = 36 days

$$\text{One day's work of (A + B)} = \frac{1}{40} + \frac{1}{36}$$

$$= \frac{9+10}{360}$$

$$= \frac{19}{360} \text{ unit}$$

45.

Ans. (b) : $s_1 t_1 = s_2 t_2$ (When distance is equal)

$$6 \times \left(t + \frac{40}{60} \right) = 8 \times t$$

$$3 \left(t + \frac{2}{3} \right) = 4t$$

$$3t + 2 = 4t$$

$$t = 2h$$

$$\therefore \text{Distance} = s_2 t_2 = 8 \times 2$$

$$= 16 \text{ km}$$

46.

Ans. (c) Suppose principal amount = ₹P, Rate = r%

According to the first condition

$$400 = \frac{P \times r \times 2}{100} \dots\dots (i)$$

According to the second condition -

$$400 + 400 = \frac{P \times (r + 4) \times 2}{100}$$

$$800 = \frac{P \times (r + 4) \times 2}{100} \dots\dots (ii)$$

By (i) \div (ii)

$$\frac{1}{2} = \frac{r}{r + 4} \Rightarrow r = 4\%$$

So,

$$P = \frac{SI \times 100}{t \times r} = \frac{400 \times 100}{2 \times 4} = ₹5000$$

47.

Ans. (b) : Given, $P = ₹25000$

$$r = 12\%$$

$$t = 3 \text{ years}$$

$$A = P \left(1 + \frac{r}{100} \right)^t$$

$$= 25000 \left(1 + \frac{12}{100} \right)^3$$

$$= 25000 \times \left(\frac{28}{25} \right)^3$$

$$= 25000 \times \frac{28}{25} \times \frac{28}{25} \times \frac{28}{25}$$

$$= \frac{40 \times 21952}{25}$$

$$= 35123.2$$

$$C-I = A - P$$

$$= 35123.2 - 25000$$

$$C-I = ₹10,123.20$$

48.

Ans. (c) : Given :

Selling price of ten oranges = ₹1

Selling price of one orange = ₹ $\frac{1}{10}$

$$\text{Cost price of one orange} = \frac{1}{10} \times \frac{100}{(100 + 30)}$$

$$= \frac{1}{10} \times \frac{100}{130} = \frac{1}{13}$$

Number of oranges bought in one rupee = $\frac{1}{\frac{1}{13}}$

$$= \frac{13}{1} = 13$$

49.

Ans. (a) : From question,

Cost price of 20 articles = ₹16

$$\therefore \text{Cost price of 1 article} = \frac{16}{20} = ₹0.8$$

Given, Selling price of an article = ₹1.50

$$\begin{aligned} \text{Profit} &= \text{Selling price} - \text{Cost price} \\ &= 1.5 - 0.8 \\ &= ₹0.7 \end{aligned}$$

$$\begin{aligned} \text{Profit \%} &= \frac{0.7}{0.8} \times 100\% \\ &= \frac{7}{8} \times 100\% \\ &= 87.5\% \end{aligned}$$

50.

Ans. (a) : Given,

If $x^2 + 25y^2 = 10xy$ then,

$$x^2 + 25y^2 - 10xy = 0$$

$$= x^2 + (5y)^2 - 2 \times x \times 5y = 0 \dots\dots ((a-b)^2 = a^2 + b^2 - 2ab)$$

$$(x - 5y)^2 = 0$$

$$x - 5y = 0$$

$$x = 5y$$

$$\frac{x}{y} = \frac{5}{1}$$

Hence, $x : y = 5 : 1$

51.

Ans. (c) :

$$\tan 1^\circ \tan 2^\circ \tan 3^\circ \dots \tan 87^\circ \tan 88^\circ \tan 89^\circ$$

$$(\because \tan(90^\circ - \theta) = \cot\theta)$$

$$\tan 1^\circ \tan 2^\circ \tan 3^\circ \dots \cot 3^\circ \cot 2^\circ \cot 1^\circ$$

$$= 1 \quad (\because \tan\theta \cdot \cot\theta = 1)$$

52.

Ans. (b) : Given,

Mean = 40, Standard deviation = 5

$$\text{Coefficient of Variation} = \frac{\text{Standard deviation}}{\text{Mean}} \times 100$$

$$= \frac{5}{40} \times 100 = 12.5\%$$

53. According to question,

$$\text{Ans. (b) : } \sqrt{12.5 \times 8 \times 1.44}$$

$$= \sqrt{\frac{125}{10} \times \frac{144}{100} \times 8}$$

$$= \sqrt{\frac{5 \times 5 \times 5 \times 12 \times 12 \times 2 \times 2 \times 2}{10 \times 100}}$$

$$= \frac{5 \times 12 \times 2}{10}$$

$$= 12$$

54.

Ans : (c) Let the present age of Sunita = x years

Present age of Sheela = $(x - 12)$ years

According to the question,

$$x - 9 = 4(x - 12 - 9)$$

$$x - 9 = 4(x - 21)$$

$$x - 9 = 4x - 84$$

$$4x - x = 84 - 9$$

$$3x = 75$$

$$x = 25$$

Present age of Sunita = $x = 25$ years

Present age of Sheela = $x - 12 = 25 - 12 = 13$ years

55.

Ans : (a) Suppose time taken by 'Z' is x minute

$$\text{Filled part of tank by 'X' in 1 minute} = \frac{1}{60}$$

$$\text{Filled part of tank by 'Y' in 1 minute} = \frac{1}{75}$$

$$\text{Emptied part of tank by 'Z' in 1 minute} = \frac{1}{x}$$

As per the question-

$$\frac{1}{60} + \frac{1}{75} - \frac{1}{x} = \frac{1}{50}$$

$$\Rightarrow -\frac{1}{x} = \frac{1}{50} - \left(\frac{1}{60} + \frac{1}{75}\right)$$

$$\Rightarrow -\frac{1}{x} = \frac{1}{50} - \left(\frac{5+4}{300}\right)$$

$$\Rightarrow -\frac{1}{x} = \frac{1}{50} - \frac{9}{300}$$

$$\Rightarrow -\frac{1}{x} = \frac{6-9}{300} = -\frac{3}{300}$$

$$\Rightarrow -\frac{1}{x} = -\frac{1}{100}$$

$$\Rightarrow x = 100 \text{ minute}$$

Hence, time taken by 'Z' to empty the whole tank = 100 minute

56.

Ans. (d) : In Pre- Independent India, Dadabhai Naoroji was the first to discuss the concept of a poverty line. The poverty line proposed by him was based on the cost of a subsistence or minimum basic diet (rice or flour, dal, vegetables, ghee, vegetable oil and salt).

57.

Ans. (a) : Annamayya or Annamacharya was a 15th century Hindu saint and the earliest known Indian musician to compose songs called Sankirtanas in praise of the Lord Venkateswra (Vishnu). He was born on 22 May 1408 in Vijayanagar.

58.

Ans. (c) : Lauria Nandangarh Pillar is one of the seven monolithic pillars commissioned by Mauryan emperor Ashoka. It is situated at Champaran a district in Bihar.

59.

Ans. (d) The term Socialism in the preamble of the Indian Constitution is inspired by the Russian Revolution.

60.

Ans. (c) : The Secretary General of the Rajya Sabha is the administrative head of the Rajya Sabha Secretariat. He is appointed by the chairman of Rajya Sabha.

61.

Ans. (b) : Article 243(I) & 243(Y) of Indian constitution is related to finance commission to review financial position. As per Article 243(I), the governor of a State shall, as soon as may be within one year from the commencement of the constitution (Seventy third

Amendment) Act, 1992, and thereafter at the expiration of every fifth year, constitute a finance commission to review the financial position of the Panchayats and to make recommendations to the Governor as to.

62.

Ans. (b) : In the year of 1884, an international conference was organized at the Washington D.C. (United States of America) in which time zone of 1 hour was set up at 15° longitude at the same time the International Date Line was also adopted which passes through the 180° meridian and it separates the whole world into two consecutive calendar days. It is not a perfectly straight line. It passes through the middle of the Pacific ocean roughly following the 180° line of longitude. There is a difference of one day on either side of the 180° meridian. The time increases east of the prime meridian and decreases to its west. The maximum number of time zone is found in France (12 time zone).

63.

Ans.(a) : Krishna river originates at Mahabaleshwar in Maharashtra, passes through Sangli and meets the sea in the Bay of Bengal at Hamasaladeevi in Andhra Pradesh. Some of the major tributaries joining the Krishna River are Ghatprabha, the Malaprabha, the Bhima, the Tungbhadra and the Musi.

64.

Ans. (c): Disposable Income is the income that is available from an individual's salary after he/she pays local, state and federal taxes.

Disposable Income = gross personal Income – personal Income Taxes.

65.

Ans. (a): The tax that the government imposes per unit sales of output is known as per unit tax.

E.g. Tax on packets of cigarettes.

66.

Ans. (d) : The Param Vir Chakra (PVC) is India's highest military decoration, awarded for displaying distinguished acts of valour during wartime.

It was introduced by the government on 26th January 1950. Major Somnath Sharma was the first recipient of the Param Vir Chakra (PVC).

Mahavir Chakra: It is the second-highest military decoration in India, after the Param Vir Chakra. It is awarded for acts of conspicuous gallantry in the presence of the enemy whether on land, at sea or in the air. It was introduced by the government on 26th January 1950.

Vir Chakra: It is an Indian wartime military bravery award presented for acts of conspicuous gallantry in the presence of the enemy on the battlefield and is the third in precedence in wartime gallantry awards and comes after the Param Vir Chakra and Mahavir Chakra. It was established by the President of India on 26 January 1950. All these are in effect since 15 August 1947.

Shaurya Chakra: The Shaurya Chakra is awarded for gallantry otherwise than in the face of the enemy. It was instituted in 1952.

67.

Ans.(c) : World Desertification and Drought Prevention Day is observed on 17th June every year. In 1994, the United Nations General Assembly declared it to be celebrated on June 17. World Environment Day is observed every year on June 5, Earth Day on April 22, and International Day for Biodiversity on May 22nd.

68.

Ans. (d) : Arvind Adiga is an Indian writer. He has written a novel named 'The White Tiger' based on the Indian caste and varna system. Writing on a world-class standard and placing it in the world scene his book was published in 2008. In the same year, he also received the 40th Man Booker Prize. Arvind Adiga is a writer by profession as well as a well known journalist.

69.

Ans. (d) : BRICS is an acronym for the grouping of the world's leading emerging economies namely Brazil, Russia, India, China and South Africa. Originally the first four were grouped as BRIC and South Africa was invited to join BRIC in December 2010, after which the group adopted the acronym BRICS. Hence South Africa was the last country to join BRICS. During the sixth BRICS Summit in Fortaleza (2014) the leaders signed the Agreement Establishing the New development Bank (NDB) as BRICS bank. BRICS and NDB both are headquartered in Shanghai.

70.

Ans. (b): The highest post office in the world is located in Hikkim village of Himachal Pradesh. It is situated at an elevation of 4400 meter (14,400 ft). India has the largest postal network with around 1,56,000 branches in the world.

71.

Ans. (d) : A periscope's basic purpose is to allow a person to see objects above the water while the ship remains submerged in water. It is primarily used in military submarines. The periscope works on the Law of Reflection.

72.

Ans. (d) : Asian Games are known as Asiad. Asian Games have been organized twice in India. The first Asian Games were organized in 1951 in New Delhi, India. Again our country hosted these games in 1982.

73.

Ans. (c):	
Sports	Cups & Trophy
Football	Nixan Gold Cup, Durand Cup, Santosh Trophy
Cricket	Ashes, Reliance Cup, C.K. Naidu Trophy
Badminton	Thomas Cup, Agarwal Cup, Chadha Cup
Lawn Tennis	French Open, U.S Open Australian open, Wimbledon.

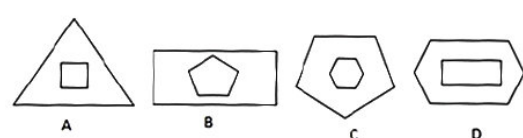
74.

Ans.(c) : Muharam festival is also known as peerla panduga. It is an important festival in the state of Telangana. Muharam is a festival marked by processions.

75.

Ans. (b) : Ghoomer is a traditional folk dance of Rajasthan, not Kerala. The dance is mainly performed by veiled women who wear flowing dresses called Ghaghara.

PRACTICE SET-8

1. **What is the scientific name of India's national bird, the Indian peacock?**
 (a) Nelumbo nucifera Gaertn
 (b) Prosopis cineraria
 (c) Pavo cristatus
 (d) Strigiformes
2. **What types of waste products are stored in Old Xylem?**
 (a) Uric acid
 (b) Resins and gums
 (c) Ammonia, urea and amino acids
 (d) Growth promoting substances
3. **Anthrax is caused by a type of –**
 (a) Bacteria (b) Fungi
 (c) Protozoa (d) Virus
4. **An adult human urine consists of :**
 (a) 85% water, 2.0% urea and 2.0% creatinine
 (b) 95% water, 2.0% urea and 2.0% ammonia
 (c) 85% water, 2.5% urea and 2.5% ammonia
 (d) 95% water, 2.5% urea and 2.5% other waste products
5. **Youngones of crocodile is called:**
 (a) Codling (b) Gosling
 (c) Fingerlings (d) Hatchling
6. **What is the process of adopting a permanent structure, shape and action to form permanent tissues?**
 (a) Differentiation (b) Integration
 (c) Decomposition (d) Mitigation
7. **..... is an important metal required to make amalgam.**
 (a) aluminium (b) mercury
 (d) iron (d) tungsten
8. **According to Mendeleev, the properties of elements are the periodic function of their:**
 (a) atomic masses
 (b) atomic number
 (c) reactivity of elements
 (d) atomic radius
9. **Which of the following has the highest boiling point?**
 (a) NaCl (b) LiCl
 (c) CaO (d) CaCl₂
10. **Who introduced the word 'mole' in chemistry?**
 (a) A Lavoisier (b) Amido Avogadro
 (c) Wilhelm Ostwald (d) John Dalton
11. **A common transformer operates on**
 (a) Alternating current
 (b) Direct current
 (c) Both alternating and direct current
 (d) Pulsed direct current
12. **The wave length is usually indicated in the Greek Letter-**
 (a) Gamma (b) Lambda
 (c) bita (d) Alpha
13. **Force / mass =**
 (a) momentum (b) acceleration
 (c) displacement (d) velocity
14. **A vector quantity has both magnitude and direction, whereas a scalar quantity has only magnitude and no direction. Which of the following is a vector quantity?**
 (a) Work (b) Speed
 (c) Displacement (d) Energy
15. **Which of the following pairs does not have the same S.I. units?**
 (a) Speed and Velocity
 (b) Work and Energy
 (c) Force and Pressure
 (d) Displacement and distance
16. **Select the option that is related to the third term in the same way as the second term is related to the first term.**
Tongue : Taste :: Lungs : ?
 (a) Respiration (b) Perspiration
 (c) Cognition (d) Circulation
17. **Select the option in which the numbers are related in the same way as are the numbers in the given sets**
(343, 36, 13), (64, 16, 8), (27, 25, 8)
 (a) (28, 25, 8) (b) (81, 27, 12)
 (c) (216, 64, 14) (d) (63, 37, 14)
18. **In a certain code language, 'QZDH' is written as '51', 'PLMQ' is written as '54'. What is the code for 'DNRB' in that code language?**
 (a) 37 (b) 33
 (c) 34 (d) 36
19. **In a certain code language, POSITIVE is written as KQHKGKEG. How will NATIONAL will be written as in that language?**
 (a) MCGKLPZN (b) MCGKOCPL
 (c) MCKGPLZN (d) MCGKLPCO
20. **Four sets of letters are given out of which three are alike in some way and one is inconsistent. Select the incompatible.**
 (a) BYXC (b) SHGT
 (c) HRSI (d) LONM
21. **Among the four figures listed, three of them follow a common rule and one does not. Select the odd one.**

 (a) A (b) B
 (c) C (d) D
22. **Select the number from among the given options that can replace the question mark (?) and continue the given series.**
6, 27, 128, 629, ?
 (a) 3131 (b) 2121
 (c) 3130 (d) 2120

23. Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

E12JZ, M16RH, U20ZP, C24HX?

- (a) P28KF (b) K29FP
(c) P31FK (d) K28PF
24. If '+' stands for division, '-' stands for addition, '×' stands for subtraction and '÷' stands for multiplication then what will be the value of the following expression?

$$\frac{[(15 \times 10) - (3/5)] + (12 - 8)}{1}$$

- (a) 1 (b) 0
(c) 10 (d) 2
25. B's mother is the daughter of F. C is the son of F and D, G is the son of C and E. D is the mother of R. How is F related to G?

- (a) Father's mother (b) Brother
(c) Father's father (d) Mother's father

26. Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statements.

Statements:

Some pencils are lanterns

Some lanterns are rubbers

Some candies are pencils.

Conclusions:

(I) Some candies are lanterns

(II) Some rubbers are candies

(III) All pencils are rubbers

- (a) Only conclusion II follows
(b) Either conclusion I or III follows
(c) None of the conclusions follow
(d) Only conclusion I follows
27. Consider the given statements to be true and decide which of the conclusions logically follow(s) from the statements.

Statements:

All the helicopters are carriers.

Some bikes are carriers.

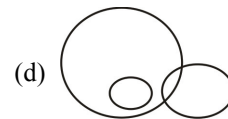
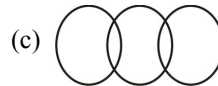
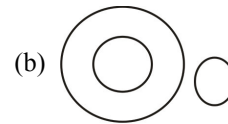
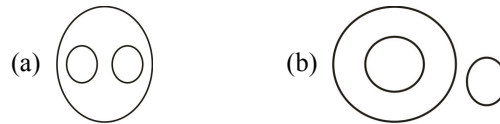
Conclusions:

1. All the helicopters are bikes

2. Some bikes are helicopters

- (a) Neither conclusion 1 nor 2 follows
(b) Only conclusion 2 follows
(c) Only conclusion 1 follows
(d) Both conclusions 1 and 2 follow
28. One evening, Prateek and Pranil were talking to each other face to face on a terrace. If Prateek's shadow was exactly on the body of Pranil, in which direction was Pranil facing?
- (a) North (b) East
(c) South (d) West

29. Select the Venn diagram that best represents the relationship between the following classes. Birds, Ostriches, Bats



30. Seven students A, B, C, D, E, F and G take a series of test. No two students get the same marks. A always scores more than B. G always scores more than A. Each time either C scores the highest and E scores the least or D scores the highest and F or B scores the least.

If D is ranked sixth and B is ranked fifth according to their marks, then which of the following can be true?

- (a) F is ranked third or fourth
(b) A is ranked second or seven
(c) G is ranked first or fourth
(d) E is ranked fourth or third
31. Four letter clusters have been given, out of which three are alike in some manner and one is different. Select the odd one.

- (a) ACBD (b) IKJL
(c) EGFH (d) MNPO

32. Eight friends, A, B, C, D, E, F, G and H are sitting around a square table. Four of them are sitting at four corners of the table and are facing the center. The other four are sitting at the middle of each of the four sides and are facing opposite to the center. E is facing the center and is not an immediate neighbor of G. A is facing center and is sitting at the third position from the right of G. D is sitting to the immediate right of B. B is facing the center while C is not an immediate neighbor of A. There is only one person sitting between G and H.

Who among the following sits to the immediate right of F?

- (a) A (b) D
(c) G (d) E
33. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements :

Nurses marry only tall men

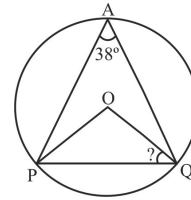
Ankit is very tall.

Conclusion:

- I. Ankit was married to a nurse
II. Ankit was not married to a nurse.
(a) Either I or II follows.
(b) Only conclusion I follows
(c) Both, I and II follow
(d) Only conclusion II follows

34. Question:
What is the value of $14\$20*8\#4$?
Statements:
1. \$ implies -, * implies +, # implies ÷
2. $14\$20*8 = 25$

- (a) Both statements 1 and 2 are sufficient
 (b) Statement 1 alone is sufficient while statement 2 alone is insufficient
 (c) Neither statement 1 or 2 is sufficient
 (d) Statement 2 alone is sufficient while statement 1 alone is insufficient
35. **Statement :**
 A leading school in Mumbai has increased its fees by 150% from the next academic year.
Assumptions :
 1. Students may change school due to more fees.
 2. The school may still have the same demand among the students.
 (a) Either assumption 1 or 2 is implicit.
 (b) Only assumption 2 is implicit.
 (c) Only assumption 1 is implicit.
 (d) Both assumptions 1 and 2 are implicit.
36. When a number n is divided by 5, the remainder is 2. When n^2 is divided by 5, the remainder will be:
 (a) 3 (b) 1 (c) 4 (d) 0
37. $(\sqrt{3} + \sqrt{11})^2$ is a/an
 (a) Natural number (b) Whole number
 (c) Irrational number (d) Rational number
38. $56 \div \frac{1}{3} \{15 + 12 - (9 + 6 - \overline{5+7})\} = ?$
 (a) 9 (b) 8 (c) 12 (d) 7
39. The number $0.124\overline{64}$ in the form $\frac{p}{q}$ is equal to:
 (a) $\frac{117}{1950}$ (b) $\frac{17}{950}$ (c) $\frac{67}{4999}$ (d) $\frac{617}{4950}$
40. What is the HCF of 148 and 370?
 (a) 148 (b) 37
 (c) 74 (d) 2
41. Divide ₹169 in the ratio 2 : 5 : 6 the rupees in the respective ratios are given by:
 (a) 26, 66, 77 (b) 26, 65, 78
 (c) 25, 67, 78 (d) 26, 70, 73
42. Veer spends 15% of his monthly income on the house rent and 60% of the rest on household expenditure. If he saves ₹2210, what is his monthly income ?
 (a) ₹ 6500 (b) ₹ 7500
 (c) ₹ 8000 (d) ₹ 7000
43. Find the area of the circular path, which is formed around a circle of circumference 440 m and whose width is 7 m.
 (a) 3856 sq.m. (b) 3234 sq.m.
 (c) 3900 sq.m. (d) 3204 sq.m.
44. P and Q can complete a work in 12 days and 16 days respectively. They work together for 4 days. How much of the work is left?
 (a) $\frac{3}{4}$ (b) $\frac{7}{12}$
 (c) $\frac{5}{12}$ (d) $\frac{6}{7}$
45. A person reaches his office 1 minute before at a speed of 42 km/h, while that person traveling at a speed of 36 km/h reaches the office with a delay of 3 minutes. How much distance does a person travel (in km)?
 (a) 12.9 (b) 16.8
 (c) 15.4 (d) 18.2
46. If the simple interest on a certain sum for 15 months at 7.5% per annum exceeds the simple interest on the same sum for 8 months at 12.5% per annum. by ₹ 32.50, then find the sum.
 (a) ₹ 3000 (b) ₹ 3060
 (c) ₹ 3120 (d) ₹ 2900
47. An amount of ₹100 was invested for two years at the rate of 10% compound interest per annum. If the rate of interest is increased to 20% for the same period, how much extra money will get the investor as interest.
 (a) ₹23/- (b) ₹20/-
 (c) ₹22/- (d) ₹24/-
48. A man purchased 20 dozen mangoes for ₹1,000. Out of these, 40 mangoes were rotten and could not be sold. At what rate per dozen should he sell the remaining mangoes to make a profit of 30%?
 (a) ₹78 (b) ₹80
 (c) ₹72 (d) ₹70
49. Pens are bought at the rate of 8 for ₹ 40 and sold at 6 for ₹ 40. Find the loss or profit %.
 (a) Profit of 40% (b) Profit of 33.33%
 (c) Loss of 30% (d) Profit of 20%
50. If $a(a+b+c) = 45$; $b(a+b+c) = 75$ and $c(a+b+c) = 105$ then find the value of $a^2 + b^2 + c^2$.
 (a) 83 (b) 225
 (c) 625 (d) 90
51. In the given figure, PO and OQ are the radius of the circumcircle of the triangle APQ. If $\angle PAQ = 38^\circ$, then what will be the $\angle PQO$?



- (a) 52° (b) 76°
 (c) 112° (d) 104°

52. Calculate the variance from the following data: 3, 6, 5, 2, 4
 (a) 2.5 (b) 2.2
 (c) 2 (d) 3
53. If $\sqrt{0.003 \times 0.3 \times p} = 0.3 \times 0.03 \times \sqrt{q}$, then find the value of p/q is:
 (a) 0.9 (b) 0.0009
 (c) 0.09 (d) 0.009
54. Ten months ago, Tiyasha's age was 2.5 times of Rishi's age, who is 15 months older than Shravan's. After 30 months from now, 16 times of Shravan's age will be 7 times of Tiyasha's age. What is the sum of the present ages of Tiyasha, Rishi and Shravan?
 (a) 30 years 9 months (b) 31 years 9 months
 (c) 31 years 3 months (d) 31 years 11 months
55. There are three pipes connected to a tank. First pipe can fill the tank in 30 minutes and the second pipe can fill the tank in 45 minutes while the third pipe is to empty the tank. If it takes 27 minutes to fill the tank when all three pipes are opened. In what time the third pipe will empty the tank?
 (a) 54 minutes (b) 52 minutes
 (c) 50 minutes (d) 56 minutes

56. The first textile mill in India was established at Fort Gloster near in 1818.
 (a) Madras (b) Ahmedabad
 (c) Bombay (d) Calcutta
57. Tulugama is a:
 (a) Punishment given to criminals by Jahangir
 (b) Water conservation method used by Akbar
 (c) Military strategy used by Babur
 (d) Tax imposed by Jahangir
58. Which native Indian dynasty issued their own coins with portraits of their rulers on them?
 (a) The Peshwa Dynasty
 (b) The Rashtrakuta Dynasty
 (c) The Satavahana Dynasty
 (d) The Pandya Dynasty
59. Which of the following does not indicate the meaning of the word 'Republic' mentioned in the preamble?
 (a) The head of the state is elected directly or indirectly for a certain period.
 (b) Political sovereignty lies in the people and not in one person.
 (c) All government offices are open to every citizen without any discrimination even in the absence of any privileged class.
 (d) At the highest post of the country where the head of state is a hereditary king.
60. The quorum required in the Rajya Sabha is:
 (a) 50 (b) 125
 (c) 100 (d) 25
61. Who can remove the Chief Election Commissioner of India from his post?
 (a) Both house of Parliament
 (b) Central council of minister
 (c) President of India
 (d) Chief Justice of India
62. When the main rivers flow parallel to each other and the tributaries join them at right angles, such a pattern is called _____ drainage pattern.
 (a) trellis (b) centripetal
 (c) radial (d) dendritic
63. The intervention by the monetary authority of a country in the money market to keep the money supply stable against external shocks is called _____.
 (a) Speculative demand (b) Reserve deposit
 (c) Sterilisation (d) Statutory liquidity
64. What is non-tax revenue?
 (a) Any liabilities for the government
 (b) Recurring income earned by the government from sources other than taxes
 (c) Financial help in the form of grants, gifts from foreign governments and international organisations
 (d) Income earned by the government through the public sector units only
65. What is the name of the world's most prestigious English language literary award?
 (a) Best Translated book award
 (b) Commonwealth writer Award
 (c) Man Booker Award
 (d) Booker Award
66. In December 2018, the United Nations declared 7th June as:
 (a) World Food Safety Day
 (b) World Organic Food Day
 (c) World Healthy Food Day
 (d) World No Hunger Day
67. Malala has penned a book on refugee girls titled:
 (a) Women Deprivation (b) We are Displaced
 (c) We are Deprived (d) We are exploited
68. The International Criminal Police Commission (ICPC), predecessor to INTERPOL was founded at _____ in 1923.
 (a) New York (b) Geneva
 (c) Washington (d) Vienna
69. Peter's Square is located in which of the following country?
 (a) Athens (b) Berlin
 (c) Washington (d) Vatican City
70. The International Atomic Energy Agency (IAEA) was established in:
 (a) 1966 (b) 1967
 (c) 1955 (d) 1957
71. The suggestion of organising Asian Games was first made at the _____.
 (a) Conference of Asian Countries, New Delhi in 1947
 (b) Conference of Asian Countries, New Delhi in 1956
 (c) Conference of Asian Countries, New Delhi in 1952.
 (d) Conference of Asian Countries, New Delhi in 1943
72. The record of being India's youngest Chess grandmaster is recorded in which of the following?
 (a) D. Gukesh (b) V. anand
 (c) G.N. Gopal (d) Parimarjan Negi
73. The Nabakalebara festival is observed at the Jagannath Temple, Odisha. In this festival, new idols are made from neem loges and are replaced during the _____.
 (a) Paryushana (b) Maun Agiyaras
 (c) Adhik Masa (d) Dasveh Patshah
74. Which of the following dance forms is correctly matched with the state to which it is associated?
 (a) Lavani- Kerala
 (b) Dandiya- Uttar Pradesh
 (c) Gaur- Chhattisgarh
 (d) Ghoomar- Gujarat
75. Pawl Kut is the greatest of all the festivals celebrated in the state of
 (a) Meghalaya (b) Kerala
 (c) Goa (d) Mizoram

SOLUTION : PRACTICE SET- 8

ANSWER KEY

1. (c)	7. (b)	13. (b)	19. (a)	25. (c)	31. (d)	37. (c)	43. (b)	49. (b)	55. (a)	61. (a)	67. (b)	73. (c)
2. (b)	8. (a)	14. (c)	20. (c)	26. (c)	32. (d)	38. (d)	44. (c)	50. (a)	56. (d)	62. (a)	68. (d)	74. (c)
3. (a)	9. (c)	15. (c)	21. (d)	27. (a)	33. (a)	39. (d)	45. (b)	51. (a)	57. (c)	63. (c)	69. (d)	75. (d)
4. (d)	10. (c)	16. (a)	22. (c)	28. (d)	34. (b)	40. (c)	46. (c)	52. (c)	58. (c)	64. (b)	70. (d)	
5. (d)	11. (a)	17. (c)	23. (d)	29. (b)	35. (a)	41. (b)	47. (a)	53. (c)	59. (d)	65. (c)	71. (a)	
6. (a)	12. (b)	18. (c)	24. (a)	30. (a)	36. (c)	42. (a)	48. (a)	54. (c)	60. (d)	66. (a)	72. (a)	

SOLUTION

1.

Ans. (c) : The scientific name of India's national bird, the Indian peacock is *Pavo cristatus*. The scientific name of national flower is *Nelumbo Nucifera Gaertn* (Lotus) and scientific name of national animal is *Panthera tigris* (Tiger).

2.

Ans. (b) : Resin and gums are the two wastes product which are stored in old xylem in plants.

3.

Ans. (a) Anthrax is caused by a spore-forming bacterium. It mainly affects animals. Humans can become infected through contact with an infected animal or by inhaling spores.

→ It is rare but serious bacterial disease.

4.

Ans.(d) : An adult human urine consists of 95% water, 2.5% urea and 2.5% other waste products.

5.

Ans : (d) A crocodile baby is called a hatchling. A codfish baby is called codling, a goose baby is called gosling while a fish baby is called fingerling.

6

Ans: (a) The process of adopting a permanent structure, shape and action to form permanent tissue is called differentiation. The body of an organism grows through continuous differentiation process.

7.

Ans. (b) Mercury is an important metal required to make amalgam.

8.

Ans. (a) : Mendeleev's periodic law states that the properties of elements are the periodic function of their relative atomic masses.

9.

Ans. (c) : In the given options CaO has the highest boiling point because showin highest ionic nature.

10.

Ans. (c) Friedrich Wilhelm Ostwald (1853–1932) was a German chemist. He received the Nobel Prize in Chemistry in 1909 for his work on chemical equilibrium and reaction velocity. In 1896, the word 'mole' was mentioned in chemistry by him. Mole is a Latin word, which means 'heap'. In 1967 AD mole was accepted as a unit. Molar mass is used to convert grams of a substance into moles and is mostly used in chemistry.

11.

Ans. (a) : A common transformer operates on alternating current because if it operate on DC then there are no any flux cut between the winding therefore no e.m.f. produced in the core. Therefore a common transformer only operate of AC.

12

Ans.(b) Wavelength is usually denoted by the Greek letters lambda (λ). It is equal to the speed (V) of wave in a medium divided by its frequency (f).

$$\lambda = V/f$$

13.

Ans : (b) Acceleration - The rate of change of velocity is called acceleration. Its SI unit is m/s^2 , and it is a vector quantity.

Acceleration = change in velocity/time and

Force (f) = mass (m) × acceleration (a)

Then Acceleration = force/mass

$$\text{i.e., } a = \frac{f}{m}$$

14.

Ans : (c) Vector Quantity– The physical quantities which need both magnitude and direction for their complete description are called 'vectors' or 'vector quantities'. Displacement, velocity, force, etc. are all vector quantities.

15.

Ans : (c) The Newton is the SI unit of force defined as the force is the external factor that produces an acceleration of one meter per second square in an object of one kilogram.

F = mass × acceleration

F = m × a

$$= 1 \text{ kg} \times 1 \text{ m/s}^2 = 1 \text{ N}$$

Whereas the unit of Pressure in the SI system is the Pascal (Pa), defined as a force of one Newton per square meter.

$$1 \text{ Pascal (Pa)} = 1 \text{ N/m}^2$$

16.

Ans. (a) : Just as, taste is taken by the tongue. In the same way the respiration takes place through the lungs.

17.

Ans. (c) : In the given number sets-

Just as,

$$(343, 36, 13) \rightarrow [(7)^3, (6)^2, 13] \rightarrow 7 + 6 = 13$$

$$(64, 16, 8) \rightarrow [(4)^3, (4)^2, 8] \rightarrow 4 + 4 = 8$$

$$(27, 25, 8) \rightarrow [(3)^3, (5)^2, 8] \rightarrow 3 + 5 = 8$$

Similarly, in the set of numbers given in option (c)

$$(216, 64, 14) \rightarrow [(6)^3, (8)^2, 14] \rightarrow 6 + 8 = 14$$

Hence, option (c) is the corresponding set of numbers given in the question.

18.

Ans. (c) : Just as,

$$QZDH \Rightarrow (17 + 26 + 4 + 8) - 4 = 51$$

And, $PLMQ \Rightarrow (16+12+13+17)-4 = 54$

Similarly,

$$DNRB \Rightarrow (4+14+18+2)-4 = 34$$

19.

Ans. (a) : Just as,

P $\xrightarrow{\text{Opposite letter}}$ K

O $\xrightarrow{+2}$ Q

S $\xrightarrow{\text{Opposite letter}}$ H

I $\xrightarrow{+2}$ K

T $\xrightarrow{\text{Opposite letter}}$ G

I $\xrightarrow{+2}$ K

V $\xrightarrow{\text{Opposite letter}}$ E

E $\xrightarrow{+2}$ G

Hence, NATIONAL will be written as 'MCGKLPZN' in that language.

20.

Ans. (c) : In given options, option (c) is odd because

H \rightarrow R (not opposite)

S \rightarrow I (not opposite)

Whereas,

B \rightarrow Y, X \rightarrow C, S \rightarrow H, G \rightarrow T, L \rightarrow O, N \rightarrow M

All are the opposite except option (c).

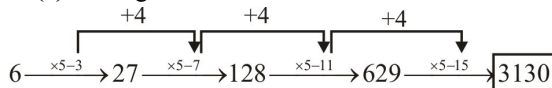
21.

Ans. (d) : In the given figures in options (a) (b), and (c) the number of sides in outer figure is one less than the number of sides in inner figure, while in option (d) figure do not follow the common rule.

Hence, option (d) is odd one.

22.

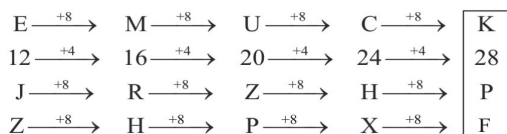
Ans. (c) : The given number series is as follows-



Hence, ? = 3130.

23.

Ans. (d) : The given series is as follows :-



24.

Ans. (a) : Given that,

$$\frac{[(15 \times 10) - (3/5)] + (12 - 8)}{1}$$

$+ = \div$

$- = +$

$\times = -$

$/ = \times$

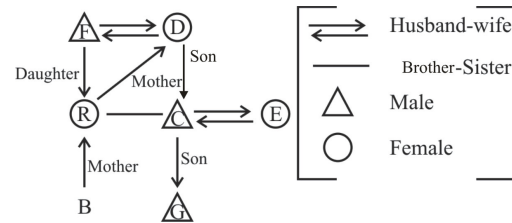
On changing the signs,

$$\frac{[(15 - 10) + (3 \times 5)] \div (12 + 8) \times 1}{[5 + 15] \div 20}$$

$$= \frac{20}{20} = 1$$

25.

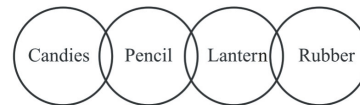
Ans. (c) : According to the question,



Hence, It is clear from above that F is father's father of G.

26.

Ans. (c) : According to the statement the Venn diagram is as follows-

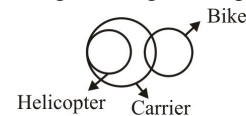


- Conclusion :
 I. (x)
 II. (x)
 III. (x)

Hence, it is clear from above that 'None of the conclusions follow'.

27.

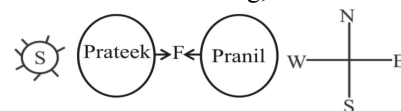
Ans. (a) : On making the diagram as per the statement.



Hence, neither conclusion 1 nor 2 follows.

28.

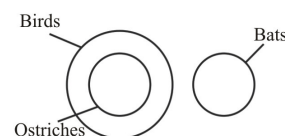
Ans. (d) : At the time of evening,



Hence, the face of Pranil is in the west direction.

29.

Ans. (b) : The above Venn diagram is for Birds, Ostriches and Bats.



Ostriches come under birds while bats come under mammals. Hence, option (b) will be correct.

30.

Ans. (a) : $A > B$ (i)

$G > A$ (ii)

$C > F/B > E$ (iii)

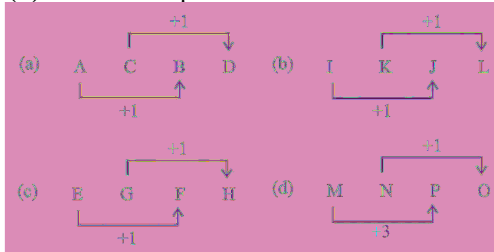
Arranging the order of rank according to question-

$$C > G > F/A > A/F > B > D > E$$

Hence it is clear that F is ranked third or fourth

31.

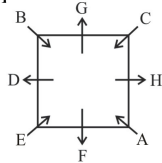
Ans. (d) : From the options –



Hence, it is clear that option 'd' is different among all.

32.

Ans. (d) : The correct order of sitting of the eight friends around the square table is as follows :



Hence, it is clear from above diagram that E sits to the immediate right of F.

33.

Ans. (a) : Either conclusion I or conclusion II follows because in conclusion I Ankit was married to a nurse it is given in the statement that Ankit is very tall and nurses marry only tall men. Hence it is true, but in conclusion II a negative fact is given. Thus either conclusion I or II will be true.

34.

Ans : (b) It is given that,

\$ → -
* → +
→ ÷

$$\begin{aligned} \therefore 14\$20*8 &= 14 - 20 + 8 \div 4 \\ &= 14 - 20 + 2 \\ &= 16 - 20 \\ &= -4 \end{aligned}$$

Hence, $14\$20*8 \neq 25$

Hence, to answer the question statement 1 is sufficient whereas statement 2 is insufficient.

35.

Ans. (a) : According to the above statement either assumption I or assumption II is implicit in the statement.

36.

Ans. (c) : Number = Divisor × Quotient + Remainder

According to question,

$$n = 5 \times q + 2$$

On squaring both the sides,

$$n^2 = 25q^2 + 4 + 20q$$

On dividing by 5 –

$$\frac{n^2}{5} = 5q^2 + \frac{4}{5} + 4q \quad \text{or } n^2 = 5(5q^2 + 4q) + 4$$

Hence, required remainder will be 4.

37.

Ans. (c) :

$$(\sqrt{3} + \sqrt{11})^2 = 3 + 11 + 2 \times \sqrt{3} \times \sqrt{11}$$

$$(\sqrt{3} + \sqrt{11})^2 = 14 + 2\sqrt{33}$$

Therefore $(\sqrt{3} + \sqrt{11})^2$ is an irrational number

38.

Ans : (d)

$$\begin{aligned} &56 \div \frac{1}{3} \{15 + 12 - (9 + 6 - \overline{5+7})\} \\ &= 56 \div \frac{1}{3} \{15 + 12 - (15 - 12)\} \\ &= 56 \div \frac{1}{3} \{15 + 12 - 3\} \\ &= 56 \div \frac{1}{3} \{24\} \\ &= 56 \div \frac{1}{3} \times 24 \\ &= 56 \div 8 \\ &= \frac{56}{8} = 7 \end{aligned}$$

39.

Ans. (d) : $0.124\overline{64}$

$$= \frac{12464 - 124}{99000}$$

$$= \frac{12340}{99000} = \frac{617}{4950}$$

40.

Ans. (c) On finding HCF of 148 and 370,

$$148 = 74 \times 2$$

$$370 = 74 \times 5$$

Hence, the required HCF = 74

41.

Ans : (b) First share = $\frac{169 \times 2}{13} = 26$

Second share = $\frac{169 \times 5}{13} = 65$

Third share = $\frac{169 \times 6}{13} = 78$

Divided amount = 26, 65, 78

42.

Ans : (a) Let the monthly income of Veer = ₹x
According to the question,

$$\frac{(100-15)}{100} \text{ of } \frac{(100-60)}{100} \text{ of } x = 2210$$

$$x \times \frac{85}{100} \times \frac{40}{100} = 2210$$

$$x = \frac{2210 \times 100 \times 100}{85 \times 40} = ₹6500$$

43.

Ans : (b) Circumference of a circle = $2\pi r$

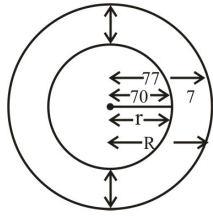
$$2\pi r = 440$$

$$2 \times \frac{22}{7} \times r = 440$$

$$r = \frac{440 \times 7}{2 \times 22}$$

$$r = 70 \text{ m}$$

Let r be the radius of the circle and the radius of the circle with circular path is R.



$$\begin{aligned} \text{Area of circular track} &= \pi(R^2 - r^2) \\ &= \pi[(77)^2 - (70)^2] \\ &= \pi[5929 - 4900] \\ &= \pi \times 1029 \\ &= \frac{22}{7} \times 1029 \\ &= 3234 \text{ square meter} \end{aligned}$$

44.

Ans : (c) One day work of P = $\frac{1}{12}$ part

One day work of Q = $\frac{1}{16}$ part

$$\begin{aligned} \text{Four days work of (P + Q)} &= \left(\frac{1}{12} + \frac{1}{16}\right) \times 4 \\ &= \frac{(4+3)}{48} \times 4 = \frac{7}{48} \times 4 = \frac{7}{12} \text{ part} \end{aligned}$$

$$\begin{aligned} \text{Remaining work} &= 1 - \frac{7}{12} \\ &= \boxed{\frac{5}{12} \text{ part}} \end{aligned}$$

45.

Ans : (b) Let the time taken by man to reach the office = t hours

According to the question,-

$$\begin{aligned} 42 \times \left(t - \frac{1}{60}\right) &= 36 \times \left(t + \frac{3}{60}\right) \\ \Rightarrow 42t - \frac{42}{60} &= 36t + \frac{108}{60} \end{aligned}$$

$$42t - 36t = \frac{108}{60} + \frac{42}{60}$$

$$6t = \frac{15}{6}$$

$$t = \frac{5}{12}$$

Distance = Speed \times Time

$$\begin{aligned} &= 36 \times \left(\frac{5}{12} + \frac{3}{60}\right) \\ &= 36 \times \frac{28}{60} = \frac{6 \times 28}{10} = \frac{168}{10} \end{aligned}$$

$$\boxed{\text{Distance} = 16.8 \text{ km}}$$

46.

Ans : (c) Suppose that Amount is ₹ P

$$\frac{P \times 7.5 \times 15}{100 \times 12} - \frac{P \times 12.5 \times 8}{100 \times 12} = 32.50$$

$$\begin{aligned} \frac{P}{100 \times 12} (112.5 - 100) &= 32.50 \\ P \times 12.5 &= 32.50 \times 100 \times 12 \\ P \times 125 &= 325 \times 100 \times 12 \end{aligned}$$

$$\therefore P = ₹ 3120$$

47.

Ans. (a) : According to the question,

Extra interest =

$$\begin{aligned} &100 \left[\left(1 + \frac{20}{100}\right)^2 - 1 \right] - 100 \left[\left(1 + \frac{10}{100}\right)^2 - 1 \right] \\ &= 100 \left[\frac{6}{5} \times \frac{6}{5} - 1 \right] - 100 \left[\frac{11}{10} \times \frac{11}{10} - 1 \right] \\ &= 100 \left[\frac{36 - 25}{25} \right] - 100 \left[\frac{121 - 100}{100} \right] \\ &= 4 \times 11 - 21 \\ &= 44 - 21 \\ &= ₹ 23 \end{aligned}$$

48.

Ans. (a) : Cost price of 20 dozen mangoes = ₹ 1000

$$20 \text{ dozens} = 20 \times 12 = 240 \text{ mangoes}$$

Remaining mangoes = 240 - 40 = 200

Selling price of 1 mango at 30% profit

$$= \frac{1000}{200} \times \frac{130}{100} = \frac{13}{2}$$

Selling price of 1 dozen mango at 30% profit

$$= \frac{13}{2} \times 12 = ₹ 78$$

49.

Ans : (b) The cost price of a pen = $\frac{40}{8} = ₹ 5$

The selling price of a pen = $\frac{40}{6} = ₹ \frac{20}{3}$

$$\therefore \text{Profit \%} = \frac{\left(\frac{20}{3} - 5\right)}{5} \times 100 = \frac{5}{3 \times 5} \times 100 = 33.33\%$$

50.

Ans : (a) a (a + b + c) = 45

.....(i)

b (a + b + c) = 75

.....(ii)

c (a + b + c) = 105

.....(iii)

From equation (i) and (ii),

$$\frac{a}{b} = \frac{3}{5}$$

.....(iv)

From equation (ii) and (iii),

$$\frac{b}{c} = \frac{5}{7}$$

.....(v)

From equation (iv) and (v),

$$a : b : c = 3 : 5 : 7$$

From equation (i),

$$3k(3 + 5 + 7) = 45$$

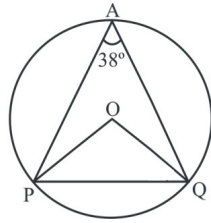
$$45k^2 = 45$$

$$k^2 = 1$$

$$k = 1$$

$$\begin{aligned} \therefore a^2 + b^2 + c^2 &= 3^2 + 5^2 + 7^2 \\ &= 9 + 25 + 49 \\ &= 83 \end{aligned}$$

51.
Ans. (a) :



Given,
 $\angle PAQ = 38^\circ$
In triangle POQ, $OP = OQ$, $\angle PQO = \angle QPO$

$\therefore \angle POQ = 2 \times \angle PAQ$ { \because From theorem }
 $\angle POQ = 2 \times 38^\circ$
 $\angle POQ = 76^\circ$

\therefore In $\triangle POQ$,
 $\angle PQO + \angle QPO + \angle POQ = 180^\circ$
 $2\angle PQO + 76^\circ = 180^\circ$
 $\angle PQO = 52^\circ$

52.

Ans. (c) : Variance = $\frac{(x_i - \bar{x})^2}{N}$

$$\text{Mean } (\bar{x}) = \frac{20}{5} = 4$$

$$\frac{(x_i - \bar{x})^2}{N} = \frac{(3-4)^2 + (6-4)^2 + (5-4)^2 + (2-4)^2 + (4-4)^2}{5}$$

$$= \frac{(-1)^2 + (2)^2 + (1)^2 + (-2)^2 + (0)^2}{5}$$

$$= \frac{1+4+1+4}{5}$$

$$= \frac{10}{5} = 2$$

53.

Ans. (c) : $\sqrt{0.003 \times 0.3 \times p} = 0.3 \times 0.03 \times \sqrt{q}$

$$\sqrt{\frac{p}{q}} = \frac{0.3 \times 0.03}{\sqrt{0.003 \times 0.3}}$$

On squaring of both sides,

$$\frac{p}{q} = \frac{0.09 \times 0.0009}{0.003 \times 0.3}$$

$$\frac{p}{q} = \frac{0.000081}{0.0009}$$

$$\frac{p}{q} = 0.09$$

54.

Ans : (c) Before 10 months,

Let the age of Shravan = x months

\therefore Age of Rishi = $(x + 15)$ months
Age of Tiyaasha = $(x + 15) \times 2.5 = (2.5x + 37.5)$ months
In present,

Age of Shravan = $(x + 10)$ months

Age of Rishi = $(x + 25)$ months

Age of Tiyaasha = $(2.5x + 47.5)$ months

According to the question,

After 30 months,

$$(x + 10 + 30) \times 16 = (2.5x + 47.5 + 30) \times 7$$

$$(x + 40) \times 16 = (2.5x + 77.5) \times 7$$

$$16x + 640 = 17.5x + 542.5$$

$$1.5x = 97.5$$

$$x = 65$$

Therefore, Present age of Shravan = $(x+10) = 75$ months

Present age of Rishi = $(x + 25) = 90$ months

Present age of Tiyaasha = $(2.5x + 47.5) = 210$ months

Sum of present age of all people = $75+90+210$
 $= 375$ months

375 months = 31 years 3 months

55.

Ans : (a) Time taken to fill the tank if three pipes are opened = 27 minute

Suppose third pipe empty the tank in x minute

$$\text{So, } \frac{1}{30} + \frac{1}{45} - \frac{1}{x} = \frac{1}{27}$$

$$\frac{1}{x} = \frac{1}{30} + \frac{1}{45} - \frac{1}{27}$$

$$= \frac{9+6-10}{270}$$

$$= \frac{15-10}{270}$$

$$= \frac{5}{270}$$

$$\frac{1}{x} = \frac{1}{54}$$

$$\boxed{x = 54}$$

Hence third pipe will empty the tank in 54 minutes.

56.

Ans. (d) : The first textile mill in India was established in 1818 at Fort Gloster near Kolkata (Calcutta) but this mill could not be successful. After this in the year 1854 first successful cotton mill was opened by Cowasjee Namabhoj Davar in Mumbai. Since then, the way for the development of cotton textile industry in India has been paved. Mumbai, Solapur, Pune, Ahmedabad, Surat etc are the important centres of cotton textile industry.

57.

Ans. (c) : The First Battle of Panipat was fought between the invading forces of Babur and the Lodi Empire, which took place on 21 April 1526. The Mughal Emperor Babur won in this battle. The new war tactics introduced by Babur known as tulugama which used in this battle. Tulugama meant dividing the whole army into various units, viz. the Left, the Right and the Centre. The Left and Right divisions were further subdivided into Forward and Rear divisions.

58.

Ans. (c) : The Satavahanas issued coins with portraits of their rulers on them. Satavahana's were also the one to issue lead coins. Other than this they also issued silver, copper, bronze coins. This dynasty was founded by Simuka, with its capital Pratihstana.

59.

Ans. (d): Republic indicates that, any person from the general public can occupy the highest post of the country. In option (d) the word republic does not indicate its meaning. A 'Republic' is a state in which supreme power is held by the people and their elected representatives. It has an elected head of the state rather than a monarch i.e. there is absence of hereditary element. Rest of the options are correct regarding 'Republic'.

60.

Ans. (d): The total number of members of the Rajya Sabha is 250 and members are mandatory to complete the quorum $1/10^{\text{th}}$ of total members of the house. Consequently, the presence of 25 members is mandatory to complete the quorum. 55 members are required for the quorum in the Lok Sabha.

61.

Ans. (a): The Chief Election Commissioner is removed from his post on the same grounds from which the Supreme Court Judge is removed. That is it is necessary to pass a resolution by a two third majority in both Houses of Parliament.

62.

Ans. (a) : Trellis drainage develops in folded topography where hard and soft rocks exist parallel to each other. Such a pattern is formed when the primary tributaries of the main river flow parallel to each other and secondary tributaries join them at right angles. E.g. The rivers in the upper part of the Himalayan region; Indus, Ganga and Brahmaputra.

63.

Ans. (c): The intervention of monetary authority of a country in the money market to keep the money supply stable against external shocks is called sterilisation.

64.

Ans. (b): Non-tax revenue is the recurring income that is earned by the government from sources other than taxes. The revenue receipts that are not generated by taxing the public e.g. income from interest, dividend, fees, fines, etc.

65.

Ans. (c): The 50- year -old booker prize for English languages fiction is among the world's most prestigious literary award. The prize was launched in 1969 with sponsorship from leading British grocery wholesale, booker. It was renamed 'Man Booker Prize' in 2002 when the Man group hedge fund took over sponsorship.

66.

Ans. (a): The first-ever World Food Safety Day was adopted by the United Nations General Assembly in December 2018. In this direction, World Health Organisation (WHO) in collaboration with the Food and Agriculture Organization (FAO) of the United Nations decided to celebrate 7th June as the First Food Safety Day since 7th June 2019. The theme for 2021 is "Safe food today for a healthy tomorrow" the theme for world food safety day 2023 is food standard save lives.

67.

Ans. (b) : We are Displaced (My journey and stories from Refugee Girls Around the World) book has been authored by Nobel Peace Prize winner Malala Yousafzai. The book introduced the people behind the statistics and news stories about the millions of people displaced world wide.

68.

Ans. (d) : International Criminal Police Commission (ICPC) was established in 1923 in Vienna. Now it is headquartered in Lyon, France. In 1956 the ICPC ratified a new constitution under which it was renamed the International Criminal Police Cooperation and Crime Central. It is the world's largest International Police Organization with 194 member countries.

69.

Ans. (d): St. Peter's Square is a large plaza, located directly in front of St. Peter's Basilica in the Vatican City. The Vatican city is the smallest independent state in the world and residence of the spiritual leadership of the Roman Catholic Church. It is situated in Europe continent. Its territory is surrounded by the Italian capital city Rome. Its capital is Vatican City and currency is Euro.

70.

Ans. (d) : The International Atomic Energy Agency (IAEA) was created in 1957 in response to the deep fears and expectations generated by the discoveries and diverse uses of nuclear technology. Its headquarters is in Vienna, Austria. IAEA has 173 members and India is also a member of it. Rafael Mariano Grossi is the director General of IAEA (2021). IAEA's 67th general conference approved by acclamation his re-appointment to serve a second four-year term of office starting 3 December, 2023.

71.

Ans. (a) In March 1947, Jawaharlal Nehru hosted the Asian Relations conference held in New Delhi- a meeting with a prospect to bring the possibility of Asian Games under the attention of participating countries.

Note: Asian Games were regulated by the Asian Games Federation from 1951 to 1978, Since 1982 Olympic Council of Asia regulates it.

72.

Ans. (a) : At the time when question was asked D. Gukesh at the age of 12 years 7 months and 17 days became the second youngest Grandmaster of the world & India's youngest Grandmaster. At present Abhimanyu Mishra is the World's youngest Grandmaster at the age of 12 years 4 months and 25 days.

73.

Ans.(c) : The Nabakalebara festival is observed at the Jagannath Temple, Odisha. In this festival new idols are made from neem logs and are replaced during the Adhik Masa. Gajapati Ramachandra Deba is considered as the founder of the Nabakalebara festival.

74.

Ans. (c) : Famous Dances and their concerned states are as follow:

State	Dances
Kerala	Kathakali, Mohiniattam
Uttar Pradesh	Charkula, Kathak, Nautanki
Chhattisgarh	Gaur Maria, Danda
Gujarat	Garba, Dandiya Ras, Tippani
Rajasthan	Ghoomar, Kalbelia, Chari
Maharashtra	Lavani

75.

Ans. (d) : Pawl Kut is the greatest of all the festivals celebrated in the state of Mizoram. Once all the harvests are over, this harvest festival is celebrated with great fun. The festival is usually celebrated either in the month of December or January.

PRACTICE SET-9

- Host of the red rot disease of plant is:**
(a) Wheat (b) Rice
(c) Sugarcane (d) Cotton
- The hormone secreted in plants due to which its stem bends towards sunlight is called-**
(a) Gibberellin (b) Cytokinin
(c) Ascorbic acid (d) Auxin
- Leprosy is also known as :**
(a) Angina (b) Hansen's disease
(c) Gaucher disease (d) Hodgkin disease
- Which part of the brain regulates breathing?**
(a) Mid brain (b) Fore brain
(c) Medulla (d) Cerebellum
- What is Lemur?**
(a) A bone in the human body
(b) One type of developed cancer
(c) A simple machine
(d) An animal found in Madagascar
- Phloem works in plants:**
(a) Flow of food
(b) To support stem
(c) Circulation of minerals
(d) Flow of water
- Which of the following metals forms a green colour coating due to corrosion?**
(a) Iron (b) Silver
(c) Copper (d) Zinc
- Which of the following elements could not find a definite position in Mendeleev's periodic table?**
(a) sulphur (b) nitrogen
(c) oxygen (d) hydrogen
- Corrosion is a type of:**
(a) Displacement reaction
(b) double displacement reaction
(c) oxidation reaction
(d) decomposition reaction
- Which of the following elements has only one letter in its symbol?**
(a) Copper (b) Carbon
(c) Chlorine (d) calcium
- Tunnel diode is a**
(a) High resistivity p-n junction diode
(b) Slow switching device
(c) Amplifier device
(d) Highly doped p-n junction diode
- Why can not the sound is heard on the Moon?**
(a) No sound on the Moon.
(b) Because there is no water on the Moon.
(c) There is no atmosphere on the Moon and sound cannot travel without medium.
(d) People who go to the moon become deaf.
- The Law of Gravitation was given by_____.**
(a) Galileo Galilei (b) Isaac Newton
(c) Albert Einstein (d) Charles Darwin
- How is power interpreted?**
(a) Work done in energy transfer
(b) Force charged to increase load
(c) Working rate or energy transfer rate
(d) Work done in a minute
- Ohm-m is unit of.....?**
(a) Resistivity (b) Electric current
(c) Charge (d) Resistance
- 'Cold' is related to 'Refrigerator' in the same way as 'Hot' is related to '_____'.
(a) Air conditioner (b) Fire
(c) Grinder (d) Oven**
- Select the option that is related to the fifth number in the same way as the fourth number is related to the third number and the second number is related to the first number.
21 : 2 :: 85 : 40 :: 30 : ?
(a) 8 (b) 3
(c) 0 (d) 6**
- In a certain coded language "ARCHITECT" has been written as 32051011227522. Then in same language "MANAGER" would be written as.
(a) 1531537918 (b) 1311473718
(c) 1531639720 (d) 1311963720**
- In a certain code language,
'We can sing' is coded as 'pd ns ca'.
'sing new songs' is coded as 'io uv ca',
'can join new' is coded as 'km uv pd',
(Note: All codes are two letter codes only)
What is the probable code for 'we join' in the given code language?
(a) ns (b) km ns
(c) pd uv (d) uv km**
- In each of the number-pairs, the second number is obtained by performing a certain mathematical operation on the first number. Three of the following pairs follow the same pattern and thus form a group. Select the number-pair that does NOT belong to that group.
(a) 14 : 198 (b) 18 : 325
(c) 22 : 485 (d) 20 : 401**
- The second alphanumeric-cluster is obtained by changing the first alphanumeric-cluster following a certain operation and logic. The same pattern is followed in three of the following four pairs. In which of the following pairs is the pattern NOT followed?
(a) DL5:HP25 (b) LR9:PU55
(c) PJ3:TN15 (d) HP7:LT35**
- Select the number that can replace the question mark (?) in the following series.
5, 16, 29, 46, 65, 88, ?
(a) 116 (b) 107
(c) 117 (d) 113**
- Which of the following terms will replace the question mark (?) in the given series to make it logically complete?
TGB 6, VED 18, XCF 30, ZAH 42, BYJ 54
(a) YLB 60 (b) YBL 66
(c) DAL 60 (d) DWL 66**

24. If '+' is replaced by '-', '×' is replaced by '+' and '-' is replaced by '×', then $28 + (5 \times 7) - \frac{9}{6}$, will be equal to :

- (a) 8 (b) 15
(c) 10 (d) 20

25. 1. X is the father of Y and Z
2. P is the mother of Q
3. Q is the sister of Y

What is the relation between X and P?

- (a) X and P are father and daughter
(b) X and P are husband and wife
(c) X and P are brother and sister
(d) X and P are mother and father

26. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true. Even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

- (A) Some scarfs are shawls.
(B) Some shawls are mufflers.

Conclusions:

- I. Some scarfs are mufflers.
II. Some mufflers are shawls.
(a) Only conclusion II follows
(b) Neither conclusion I nor II follows.
(c) Only conclusion I follows.
(d) Both conclusions I and II follow.

27. Read the given statement and conclusion carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known fact, decide which of the given conclusions logically follows.

Statement-

1. No bag is a poem
2. Some books are bags.

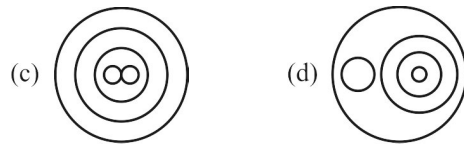
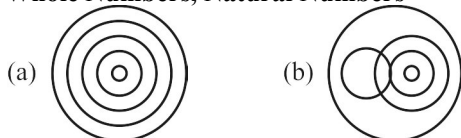
Conclusions:

1. Some books are not poems.
2. Some poems are bags.
(a) Only conclusion 2 follows.
(b) Only conclusion 1 follows
(c) Both conclusions 1 and 2 follows
(d) Neither conclusion 1 nor 2 follows

28. Mamta and Nandini are playing chess in the morning. If Nandini is looking towards the sunrise while she is playing, in which direction is Mamta looking?

- (a) East (b) South
(c) West (d) North

29. Select the Venn diagram that best represents the relationship between the following classes. Real Numbers, Rational Numbers, Integers, Whole Numbers, Natural Numbers



30. There are five trucks A, B, C, D and E having different colours, i.e., blue, green, orange, red and brown not necessarily in that order. They are running on five different highways, i.e., H1, H2, H3, H4 and H5, not in the same order. A is on H4 and is not blue or brown. B is green and is not running on H3 or H5. C is blue and is not on H1. D is running on H1 and is not orange or brown. E is not running on H5 or H2. On which highway is E running?

- (a) H2 (b) H5
(c) H3 (d) H4

31. In each of the number-pairs, the second number is obtained by performing a certain mathematical operation on the first number. Three of the following pairs follow the same pattern and thus form a group. Select the number-pair that does NOT belong to that group.

- (a) 21 : 420 (b) 15 : 208
(c) 17 : 272 (d) 25 : 600

32. Five friends Amit, Bablu, Chirag, Deepak and Eklavya, each having different occupations Advocate, Boxer, Coach, Doctor and Engineer are sitting around a circular table facing the centre.

1. Bablu is a Boxer and Deepak is a Doctor.
2. Amit sits second to the right of Chirag, who is a Coach.
3. The Boxer will never sit immediately next to the Coach.
4. The Doctor and Boxer are immediate neighbours of each other.

Who sits to the immediate right of Chirag?

- (a) Eklavya (b) Deepak
(c) Amit (d) Bablu

33. Statement:
Naina sees Sunita and appreciates her beauty

Conclusion:

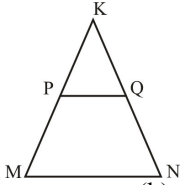
- I. Sunita is more beautiful than Naina
II. Naina is impressed by Sunita's dressing style.
(a) Both the conclusion follow
(b) Only conclusion II follows
(c) Only conclusion I follows
(d) Neither I nor II follows.

34. Question:
Can you make an overall assessment of current level of the stock market index today?

Statement:

- I. Today the stock market index has reached below the lowest level of the last 3 years.
II. During the previous year, the index fluctuated between 30, 360 and 28, 225.
III. The stock market index touched low of 27, 125 in the last 3 years.

Choose the correct option in the following.

- (a) statements I, II and III all are insufficient
 (b) Both statements I and III are sufficient
 (c) Both statements II and III are sufficient
 (d) Both statement I and II are sufficient
35. **Argument: The BEST bus travels company has decided to increase its fare by 10%. Inference :**
 1. Passengers may opt for other buses costing less than the BEST bus travels company.
 2. The demand for the buses by passengers may remain unchanged even after the fare hike.
 (a) Both 1 and 2 are implicit
 (b) Only assumption 2 is implicit
 (c) Only assumption 1 is implicit
 (d) Neither 1 nor 2 is implicit
36. Which of the following square roots is irrational?
 (a) 21025 (b) 18025
 (c) 13225 (d) 15625
37. $63 - (-3) (-2 -8 -4) \div 3$ of $\{ 5 + (-2) (-1) \} = ?$
 (a) -60 (b) 60
 (c) 65 (d) 61
38. How many numbers of the first 100 positive integers are divisible by 3 or 4 without a remainder?
 (a) 50 (b) 5
 (c) 58 (d) 85
39. Simplify $1.45 + 0.312 - 1.11\bar{2}$.
 (a) $\frac{13}{20}$ (b) $\frac{374}{495}$
 (c) $\frac{589}{900}$ (d) $\frac{163}{300}$
40. 50 pens, 80 pencils and 65 scales were distributed among some students and found that five out of each item were not distributed. Find the number of students.
 (a) 5 (b) 20
 (c) 15 (d) 10
41. The ratio of the sum of money Arun and Ahaan had is 9 : 5. If Arun gives ₹12 from his share to Ahaan, then the ratio will change to 4 : 3. How much money did Arun have initially?
 (a) ₹144 (b) ₹126
 (c) ₹108 (d) ₹90
42. If 28% of a number is 20, then what is the value of 49% of the same number?
 (a) 45.5 (b) 42
 (c) 38.5 (d) 35
43. The perimeters of five squares are 24 cm, 32 cm, 40 cm, 76 cm and 80 cm respectively. The perimeter of another square whose area is equal to the sum of the areas of these squares will be :
 (a) 128 cm (b) 100 cm
 (c) 124 cm (d) 120 cm
44. A can complete a piece of work alone in 20 days. B can do it alone in 15 days and C can complete it alone in 18 days. B and C started the work together but both were forced to leave after 4 days. The remaining work was done by A in:
 (a) 12 day (b) $14\frac{2}{45}$ day
 (c) $9\frac{2}{45}$ day (d) $10\frac{2}{9}$ day
45. A bus covers four successive 12 km stretches at 20 kmph, 40 kmph, 60 kmph and 120 kmph respectively. Its average speed (in kmph) over this distance is :
 (a) 40 (b) 50
 (c) $\frac{200}{9}$ (d) $\frac{100}{9}$
46. A sum of money was invested at the rate of 7.5% simple interest per annum for 4 years. If the investments were for 5 years, the interest earned would have been ₹ 375 more. What was the initial sum invested?
 (a) ₹4,500 (b) ₹5,000
 (c) ₹3,750 (d) ₹4,750
47. Amrit borrowed some amount at 10% per annum on simple interest for 1 year, Abhishek borrowed the same amount at the same rate on compound interest (compounded semi-annually) for the same period. If Abhishek paid ₹50 more than Amrit as interest what amount did each of them borrow :
 (a) ₹20,010 (b) ₹19,950
 (c) ₹20,050 (d) ₹20,000
48. Vikas buy 5 bananas for ₹4 and sells 4 bananas for ₹5. Find his profit%.
 (a) 55.56% (b) 53.25%
 (c) 45.50% (d) 56.25%
49. A shopkeeper marks his goods at a price so that allowing a discount of 20%, he still makes a profit of 8%. Find the marked price of an article which costs him ₹500.
 (a) ₹765 (b) ₹875
 (c) ₹575 (d) ₹675
50. $\frac{(a-b)^3 + (b-c)^3 + (c-a)^3}{3(a-b)(b-c)(c-a)} = ?$
 What is the value of above expression?
 (a) 1 (b) 4
 (c) 0 (d) 2
51. In the given ΔKMN , PQ is parallel to MN. If $\frac{KP}{PM} = \frac{4}{13}$ and $KN = 20.4$ cm, find KQ

 (a) 3.6 cm (b) 5.1 cm
 (c) 8.2 cm (d) 4.8 cm
52. What will be the range of first 7 prime number?
 (a) 15 (b) 8.3 (c) 9 (d) 17
53. If $\sqrt{50} + \sqrt{128} = \sqrt{N}$ then what is the value of N?
 (a) 26 (b) 390
 (c) 338 (d) 182

54. Seven children with the same birth date were born in 7 successive years. The sum of the ages of the eldest three children is 63 years. How many years will be the sum of the ages of the youngest three children?
 (a) 57 (b) 54
 (c) 51 (d) 60
55. Pipes A, B and C are attached to an empty cistern. The first two can fill the cistern in 4 and 10 hours, respectively, the third can drain the filled cistern, in 6 hours. If all the three pipes are opened simultaneously when the cistern is half-filled, how many hours will be needed to fill the cistern?
 (a) $\frac{30}{11}$ (b) $\frac{60}{11}$
 (c) $\frac{120}{11}$ (d) $\frac{90}{11}$
56. What is an aquifer?
 (a) Pockets of freshwater trapped in sandy beds in a desert
 (b) Water that flows through natural channels in a estuary
 (c) Sheets of frozen water found in rocky caves at high altitudes
 (d) Water stored underground between layers of hard rock
57. In which year was the William Hunter Commission formed to review the progress of education in India?
 (a) 1882 (b) 1910
 (c) 1801 (d) 1810
58. Who among the following was honoured with the title 'Khan-i-Khanan'?
 (a) Akbar (b) Sher Shah Suri
 (c) Bairam Khan (d) Humayun
59. Bhukti, Bhoga, Visaya, Vithi and Mandal were:
 (a) Administrative divisions in the Gupta period
 (b) Great saints of the Mauryan period
 (c) Rituals in Aswamedha Yagna
 (d) Ministers in Chandragupta's durbar
60. A person can acquire Indian citizenship by naturalization if the person is ordinarily a resident of India for _____ years.
 (a) 9 (b) 15
 (c) 5 (d) 12
61. During a no-confidence motion against his own government, the Prime Minister of India cannot participate in voting, if he-
 (a) Is a Rajya Sabha Member.
 (b) Is prohibited by opposing parties of the Lok Sabha.
 (c) Is in a majority
 (d) Is a member of the Lok Sabha.
62. Which Indian state has 'KOKBOROK' as one of its official language ?
 (a) Himachal Pradesh (b) Goa
 (c) Tripura (d) West Bengal
63. Which earthquake waves involve transverse displacement?
 (a) P-Waves (b) L-Waves
 (c) S-Waves (d) Rayleigh surface Waves
64. Black soil, found in the Deccan Traps is considered highly suitable for the cultivation of _____ crops.
 (a) Coffee (b) Tea
 (c) Cotton (d) Wheat
65. Which of the following is not an example of 'fiat' money in India?
 (a) ₹5000 note (b) ₹100 note
 (c) ₹1 coin (d) ₹1,000 cheque
66. What is the method of taxation where taxes also increases with taxable income increases?
 (a) Aggressive tax
 (b) Decreasing progressive tax
 (c) Progressive tax
 (d) Retrograde tax
67. Who is known as India's 'Waterman', who won the prestigious Stockholm Water Prize in 2015?
 (a) Dr. Rajendra Singh
 (b) Chandi Prasad Bhatt
 (c) Dr. AK Banerjee
 (d) Sunder Lal Bahuguna
68. Which day is observed as World Hunger Day every year?
 (a) May 25 (b) May 26
 (c) May 29 (d) May 28
69. The book titled 'No spin' is the autobiography of _____.
 (a) Anil Kumble (b) Shane Warne
 (c) Muttiah Muralitharan (d) Salim Ali
70. Where is the headquarters of SAARC Development Fund (SDF) established by SAARC nations?
 (a) Kathmandu, Nepal (b) Dhaka, Bangladesh
 (c) Thimphu, Bhutan (d) Mumbai, India
71. In which of the following city is Indira Gandhi Memorial Tulip garden situated?
 (a) Chandigarh (b) Mysore
 (c) Srinagar (d) Darjeeling
72. When did the Central Industrial Security Force come into existence in India?
 (a) 1970 (b) 1989
 (c) 1990 (d) 1969
73. Which of the following trophies is associated with hockey?
 (a) Santosh Trophy (b) Ranji Trophy
 (c) Subroto Cup (d) Bombay Gold Cup
74. In volleyball, spike is also known with the name of ?
 (a) Open (b) Protection
 (c) Drop (d) Smash
75. Vesak, the festival that is observed on the full-moon day of the lunar month of Vaisakha, which falls in April or May, is the festival for which religion?
 (a) Jainism (b) Buddhism
 (c) Jews (d) Sikhism

SOLUTION : PRACTICE SET- 9

ANSWER KEY

1. (c)	7. (c)	13. (b)	19. (b)	25. (b)	31. (b)	37. (d)	43. (c)	49. (d)	55. (a)	61. (a)	67. (a)	73. (d)
2. (d)	8. (d)	14. (c)	20. (a)	26. (a)	32. (a)	38. (a)	44. (d)	50. (a)	56. (d)	62. (c)	68. (d)	74. (d)
3. (b)	9. (c)	15. (a)	21. (b)	27. (b)	33. (d)	39. (c)	45. (a)	51. (d)	57. (a)	63. (c)	69. (b)	75. (b)
4. (c)	10. (b)	16. (d)	22. (d)	28. (c)	34. (b)	40. (c)	46. (b)	52. (a)	58. (c)	64. (c)	70. (c)	
5. (d)	11. (d)	17. (c)	23. (d)	29. (a)	35. (a)	41. (c)	47. (d)	53. (c)	59. (a)	65. (d)	71. (c)	
6. (a)	12. (c)	18. (c)	24. (c)	30. (c)	36. (b)	42. (d)	48. (d)	54. (c)	60. (d)	66. (c)	72. (d)	

SOLUTION

1.

Ans. (c) : Red rot is one of the oldest known diseases of sugarcane. Red rot of sugarcane disease is caused by *Glomerella tucumanensis*. The first external evidences of disease are the drooping, withering, and finally yellowing of the upper leaves.

2.

Ans. (d) : Auxin is a plant hormone that produces a curving of the plant stem tip toward the light, a plant movement known as phototropism. Auxins promote stem elongation, inhibit growth of lateral buds. They are produced in the stem, buds, and root tips. They have similarity in functional affect with IAA (indole-3-acetic acid) Tropism reactions of shoot and roots in plant related to directional external stimulus like gravitation, sunlight etc influence by concentration of auxins.

3.

Ans : (b) Leprosy is a communicable disease, it is also called 'Hansen's disease'. It is caused by a bacterium called *Mycobacterium leprae*. This disease affects the skin, nerves, fingers and paws. Leprosy is curable with multidrug therapy.

4.

Ans : (c) The medulla is the lowest part of the brain column. It is situated between the pons on the top and the spinal cord on the bottom. The medulla has coordination centres of heart pulsation rate and intensity, diameter of blood vessels, breathing rate, food ingestion, coughing, sneezing, hiccups, tongue movements, etc. that regulate these responses of human.

5.

Ans : (d) Lemur is a member of the Primates group found only on the island of Madagascar. Of the 101 species of Lemurs, 80 percent are on the verge of extinction.

6.

Ans : (a) Phloem or bast is found in root, stem and leaves of plants. It carries the food prepared by the leaves to different parts of the plants. It is storing tissue that provides mechanical storage to plants.

7.

Ans.(c) : Copper metal when exposed to air turns green in colour due to corrosion. thus when copper vessels are exposed to air in moist air for sometime the metal reacts with gases and moisture present in the air to form a mixture of copper carbonate and copper hydroxide $[(CuCO_3). Cu(OH)_2]$.

8.

Ans : (d) In Mendeleev's periodic table, hydrogen is placed at two places due to their similar positive properties with alkali metals in the first group (I-group)

and their similar negative-electronegative properties with halogens in the seventh group (VII-group). But placing hydrogen in both groups (first and seventh) is defective.

9.

Ans. (c) : Corrosion is a process through which metals in manufactured states return to their natural oxidation states. This process is a reduction-oxidation reaction in which the metal is being oxidized by its surroundings, often the oxygen in air. This reaction is both spontaneous and electrochemically favoured.

10.

Ans. (b) Name of elements		Indication
Copper	–	Cu
Carbon	–	C
Chlorine	–	Cl
Calcium	–	Ca

Hence, carbon element has only one letter in its symbol.

11.

Ans : (d) The tunnel diode is a highly doped carries concentration p-n junction diode in which the electric current decreases as the voltage increases. In tunnel diode electric current is caused by "tunneling". The tunnel diode is a very fast switching device which is used in high-frequency oscillators, computers and amplifiers.



Symbol of tunnel diode

12.

Ans. (c) Sound is mechanical waves whose transmission requires medium (solid, fluid, gas). Since there is no transmission of sound due to vacuum on the moon. That is, no sound is heard there.

13.

Ans : (b) The universal law of gravitation was given by Sir Issac Newton. According to this law, the attractive force between any two objects in the universe is directly proportional to the product of their masses and inversely proportional to the square of distance between them.

$$\Rightarrow F = \frac{Gm_1m_2}{r^2}$$

Where G is the universal gravitational constant and its value is $6.67 \times 10^{-11} \text{ Nm}^2/\text{kg}^2$

14.

Ans : (c) Power is defined as the rate of doing work or the rate of transfer of energy.

15.

Ans. (a) The S.I. unit of electrical resistivity is Ohm-meter.

Resistivity is the resistance offered by an object per unit length and per unit cross-sectional area at a specified temperature.

The Ohm (symbol : Ω) is the S.I. unit of electrical resistance, named in honor of German physicist Georg Simon Ohm.

16.

Ans. (d) : Just as, a refrigerator is used to cool a thing, in the same way oven is used to heat something.

17.

Ans. (c) :

$$\begin{array}{ccc} 21 : 2 :: 85 : 40 :: 30 : 0 \\ \boxed{} \uparrow \quad \boxed{} \uparrow \quad \boxed{} \uparrow \\ 2 \times 1 = 2 \quad 8 \times 5 = 40 \quad 3 \times 0 = 0 \end{array}$$

Hence, ? = 0

18.

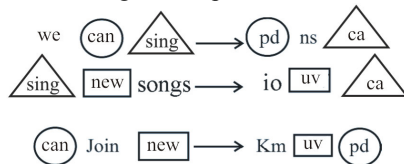
Ans. (c) : Just as,

Same as,

A $\xrightarrow{+2}$ 3	M $\xrightarrow{+2}$ 13	15	
R $\xrightarrow{+2}$ 20	A $\xrightarrow{+2}$ 3		
C $\xrightarrow{+2}$ 5	N $\xrightarrow{+2}$ 14		16
H $\xrightarrow{+2}$ 10	A $\xrightarrow{+2}$ 3		3
I $\xrightarrow{+2}$ 11	G $\xrightarrow{+2}$ 7		9
T $\xrightarrow{+2}$ 22	E $\xrightarrow{+2}$ 5		7
E $\xrightarrow{+2}$ 7	R $\xrightarrow{+2}$ 18		20
C $\xrightarrow{+2}$ 5			
T $\xrightarrow{+2}$ 22			

19.

Ans. (b) : According to the question,



So, 'we Join' will be coded as km ns.

20.

Ans. (a) : From the given options,

- (a) $(14)^2 + 1 = 197 \neq 198$
- (b) $(18)^2 + 1 = 325$
- (c) $(22)^2 + 1 = 485$
- (d) $(20)^2 + 1 = 401$

Hence, option (a) is odd one.

21.

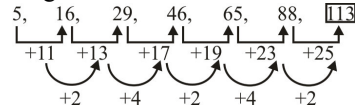
Ans. (b) : From options-

(a)	D L 5 ↓+4 ↓+4 ↓×5 H P 25	(b)	L R 9 ↓+4 ↓+3 ↓×6+1 P U 55
(c)	P J 3 ↓+4 ↓+4 ↓×5 T N 15	(d)	H P 7 ↓+4 ↓+4 ↓×5 L T 35

Hence option (b) is different from the others.

22.

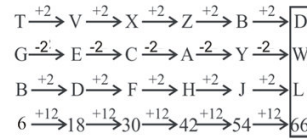
Ans. (d) : The given number series is as follows-



Hence, 113 will come in the place of (?)

23.

Ans. (d) : The given series is as follows-



24.

Ans. (c) : Given,

$$28 + (5 \times 7) - \frac{9}{6} = ?$$

$$+ \rightarrow -, \quad \times \rightarrow +, \quad - \rightarrow \times$$

According to the question, on changing signs,

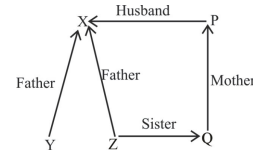
$$= 28 - (5 + 7) \times \frac{9}{6}$$

$$= 28 - 12 \times \frac{9}{6}$$

$$= 28 - 18 = 10$$

25.

Ans. (b) On drawing blood relation diagram according to the question,



It is clear from the above diagram that X is husband of P.

26.

Ans. (a) : On making Venn diagram as per question,



- Conclusions- (i). (×)
(ii). (√)

Hence, only conclusion II follows.

27.

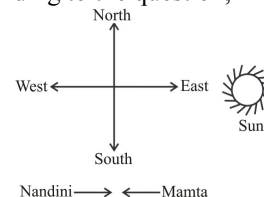
Ans. (b) : According to statement making the Venn diagram-



It is clear that only conclusion (I) follows.

28.

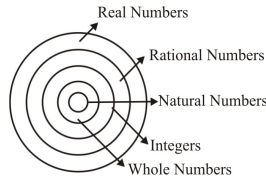
Ans. (c) : According to the question,



If Nandini is looking East, then Mamta is looking towards the West direction because both are sitting face to face.

29.

Ans. (a) :



Hence, the Venn diagram of option (a) best represent the relationship between the given classes.

30.

Ans. (c) :

Highway	Person	Colour
H ₁	D	Red
H ₂	B	Green
H ₃	E	Brown
H ₄	A	Orange
H ₅	C	Blue

Hence it is clear from the chart that E is running on highway H₃

31.

Ans. (b) : From the given options,

- (a) 21 : 420
 $\Rightarrow 21^2 - 21 \Rightarrow 441 - 21 = 420$
 (b) 15 : 208
 $\Rightarrow 15^2 - 15 \Rightarrow 225 - 15 = 210 \neq 208$
 (c) 17 : 272
 $\Rightarrow 17^2 - 17 \Rightarrow 289 - 17 = 272$
 (d) 25 : 600
 $\Rightarrow 25^2 - 25 \Rightarrow 625 - 25 = 600$

Hence, option (b) is different from others.

32.

Ans. (a) : Correct order of sitting is as follows :



Hence, Eklavya is sitting immediate right of Chirag.

33.

Ans. (d) Naina sees Sunita and appreciates her beauty. It does not conclude that Sunita is more beautiful than Naina. It may be that Naina is also beautiful as Sunita and it also does not conclude that Naina is impressed by Sunita's dressing style. So, neither conclusion I nor II follows the statement.

34.

Ans. (b) : Through the statements (I) and (III) the current level of the stock market index can be evaluated overall, so both statements (I) and (III) are sufficient.

35.

Ans. (a) : It is clear from the logic that by increasing the fare by 10%, the bus travel company BEST, passengers can go by buses with low fares or they can go by the same bus even if the number of passengers is very high that means the number of passengers may remain the same. Hence it is clear both the predictions are implicit in the statement. Hence option (a) will be right.

36.

Ans. (b) : $\sqrt{21025} = \sqrt{5 \times 5 \times 29 \times 29}$
 $= 145$ (Rational number)
 $\sqrt{18025} = \sqrt{5 \times 5 \times 7 \times 103}$
 $= 134.257$ (Irrational number)
 $\sqrt{13225} = \sqrt{5 \times 5 \times 23 \times 23}$
 $= 5 \times 23 = 115$ (Rational number)
 $\sqrt{15625} = \sqrt{5 \times 5 \times 5 \times 5 \times 5 \times 5}$
 $= 5 \times 5 \times 5 = 125$ (Rational number)

Hence, it is clear that the square root of 18025 is irrational number.

37.

Ans : (d) $63 - (-3) (-2 - 8 - 4) \div 3$ of $\{ 5 + (-2) (-1) \}$
 $= 63 - (-3) (-14) \div 3 \times \{ 5 + 2 \}$
 $= 63 - (-3) (-14) \div 3 \times 7$
 $= 63 - (-3) (-14) \div 21$
 $= 63 - 42 \div 21$
 $= 63 - 2$
 $= 61$

38.

Ans. (a) : Total number of positive integers which is divisible by 3 = $\frac{100}{3} = 33$

Total number of positive integers which is divisible by 4 = $\frac{100}{4} = 25$

Total number of positive integers which is divisible by 12 = $\frac{100}{12} = 8$

Hence, the total number of positive integers which is divisible by 3 or 4.

$= (33 + 25 - 8) = 50$

39.

Ans. (c) : From question,

$1.45 + 0.31\bar{2} - 1.11\bar{2}$
 $= 1 + \frac{45}{99} + 0 + \frac{312 - 3}{990} - \left(1 + \frac{112 - 11}{900} \right)$
 $= 1 + \frac{5}{11} + \frac{309}{990} - \left(1 + \frac{101}{900} \right)$
 $= 1 + \frac{5}{11} + \frac{103}{330} - \frac{101}{900} - 1$
 $= \frac{5}{11} + \frac{103}{330} - \frac{101}{900}$
 $= \frac{4500 + 3090 - 1111}{9900}$
 $= \frac{6479}{9900}$
 $= \frac{589}{900}$

40.

Ans : (c) According to the question,
 $50 - 5 = 45$
 $80 - 5 = 75$
 $65 - 5 = 60$

So, the required number of students = HCF of 45, 75 and 60.

$$45 = 3 \times 3 \times 5$$

$$75 = 3 \times 5 \times 5$$

$$60 = 2 \times 2 \times 3 \times 5$$

So, HCF = $3 \times 5 = 15$

41.

Ans. (c) : Let the sum of money Arun and Ahaan be ₹9x and ₹5x respectively.

According to the question,

$$\frac{9x - 12}{5x + 12} = \frac{4}{3}$$

$$27x - 36 = 20x + 48$$

$$7x = 48 + 36$$

$$7x = 84$$

$$x = \frac{84}{7} \Rightarrow \boxed{x = 12}$$

Hence the money with Arun = 9x
 $= 9 \times 12 = ₹108$

42.

Ans. (d) : Let, the number be x.

According to the question-

$$x \times \frac{28}{100} = 20$$

$$x = \frac{20 \times 25}{7}$$

Now, the value of 49% of the number x.

$$= \frac{20 \times 25}{7} \times \frac{49}{100} = 35$$

43.

Ans. (c) : The perimeters of five squares are 24 cm, 32 cm, 40 cm, 76 cm and 80 cm respectively.

Perimeter = 4 × side

$$a_1 = 6, a_2 = 8, a_3 = 10, a_4 = 19, a_5 = 20$$

$$\text{Area} = (\text{Side})^2$$

Sum of area of all squares

$$= (6)^2 + (8)^2 + (10)^2 + (19)^2 + (20)^2 = 36 + 64 + 100 + 361 + 400$$

$$\text{Area} = 961 \text{ cm}^2$$

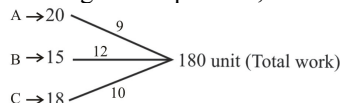
$$(\text{Side})^2 = \text{Area}$$

$$\text{Side} = \sqrt{961} = 31$$

Perimeter = 4 × side = 4 × 31 = 124 cm

44.

Ans. (d) : According to the question,



According to the question,

(B+C)'s 4 day's work = $4 \times (10 + 12) = 4 \times 22 = 88$ unit

Remaining work = $180 - 88 = 92$ unit

Time taken by A to complete remaining work

$$= \frac{92}{9} = 10 \frac{2}{9} \text{ days}$$

45.

$$\begin{aligned} \text{Ans. (a) : Average Speed} &= \frac{\text{Total Distance}}{\text{Total Time}} \\ &= \frac{12 + 12 + 12 + 12}{\frac{12}{20} + \frac{12}{40} + \frac{12}{60} + \frac{12}{120}} = \frac{48}{0.6 + 0.3 + 0.2 + 0.1} \\ &= \frac{48}{1.2} = 40 \text{ km/h} \end{aligned}$$

46.

Ans : (b) Let the principal amount is ₹x.

According to the question,

$$\frac{x \times 7.5 \times 5}{100} - \frac{x \times 7.5 \times 4}{100} = 375$$

$$\left\{ \therefore \text{simple interest} = \frac{P \times R \times T}{100} \right\}$$

$$\Rightarrow \frac{x \times 7.5 \times 1}{100} = 375$$

$$x = \frac{375 \times 100}{7.5}$$

$$x = 50 \times 100 = ₹5000$$

Hence the amount invested will be ₹5000.

47.

Ans. (d) : Let principal = ₹P

Time for simple interest Time for compound interest

Rate = 10% yearly or 5% Half yearly

Time = 1 year

Time = 1 year = 2 Half yearly

According to the question –

$$50 = P \left[\left(1 + \frac{5}{100} \right)^2 - 1 \right] - \frac{P \times 10 \times 1}{100}$$

$$50 = P \left[\frac{21}{20} \times \frac{21}{20} - 1 \right] - \frac{P}{10}$$

$$50 = P \left[\frac{441 - 400}{400} \right] - \frac{P}{10}$$

$$50 = P \left[\frac{41}{400} - \frac{1}{10} \right]$$

$$50 = P \left[\frac{41 - 40}{400} \right]$$

or, $P = 50 \times 400 = ₹20,000$

48.

Ans : (d) : ∴ Cost price of 5 bananas = ₹4

$$\therefore \text{Cost price of 1 banana} = ₹ \frac{4}{5}$$

Selling price of 4 bananas = ₹5

$$\text{Selling price of 1 banana} = ₹ \frac{5}{4}$$

Profit = Selling price – Cost price

$$= \frac{5}{4} - \frac{4}{5} = \frac{25-16}{20}$$

$$\text{Profit} = \frac{9}{20}$$

$$\text{Hence, Profit\%} = \frac{9}{20} \times 100 \times \frac{5}{4} = \frac{225}{4} = 56.25\%$$

49.

Ans. (d) : Given- Cost price = ₹ 500

Discount = 20%

Profit = 8%

$$\frac{\text{Marked price}}{\text{Cost price}} = \frac{100 + \text{Profit\%}}{100 - \text{Discount\%}}$$

$$\frac{\text{Marked price}}{500} = \frac{100 + 8}{100 - 20}$$

$$\text{Marked price} = \frac{108}{80} \times 500$$

$$\text{Marked price} = ₹ 675$$

50.

Ans : (a)

$$\frac{(a-b)^3 + (b-c)^3 + (c-a)^3}{3(a-b)(b-c)(c-a)} = ?$$

Let $a - b = A$

$b - c = B$

$c - a = C$

$$\text{so } A + B + C = a - b + b - c + c - a = 0$$

$$\therefore A^3 + B^3 + C^3 = 3ABC$$

or

$$\text{Formula- } (a-b)^3 + (b-c)^3 + (c-a)^3 = 3(a-b)(b-c)(c-a)$$

so

$$\begin{aligned} &= \frac{3(a-b)(b-c)(c-a)}{3(a-b)(b-c)(c-a)} \\ &= 1 \end{aligned}$$

51.

Ans. (d) : The parallel line divides the intersecting transversals passing through the parallel line in equal proportion.

$\therefore PQ \parallel MN$ and KM and KN are transversals.

$$\text{then, } \frac{KP}{PM} = \frac{KQ}{QN}$$

$$\frac{4}{13} = \frac{x}{(20.4 - x)}$$

$$4(20.4 - x) = 13x$$

$$81.6 - 4x = 13x$$

$$81.6 = 13x + 4x$$

$$81.6 = 17x$$

$$x = \frac{81.6}{17}$$

$$x = 4.8$$

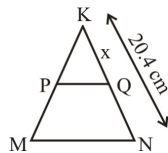
$$\text{Hence, } KQ = 4.8 \text{ cm}$$

52.

Ans : (a) First 7 prime number = 2, 3, 5, 7, 11, 13, 17

Range = maximum number - minimum number

$$\text{Range} = 17 - 2 = 15$$



53.

Ans : (c) Given,

$$\sqrt{50} + \sqrt{128} = \sqrt{N}$$

$$\sqrt{25 \times 2} + \sqrt{64 \times 2} = \sqrt{N}$$

$$5\sqrt{2} + 8\sqrt{2} = \sqrt{N}$$

$$13\sqrt{2} = \sqrt{N}$$

Squaring on both side,

$$(13\sqrt{2})^2 = (\sqrt{N})^2$$

$$169 \times 2 = N$$

$$338 = N$$

$$\boxed{N = 338}$$

54.

Ans. (c) : Let the age of all seven children = $x, (x + 1), (x + 2), (x + 3), (x + 4), (x + 5), (x + 6)$ years respectively.

From question,

Sum of ages of eldest three children

$$= (x+4) + (x+5) + (x+6)$$

$$63 = 3x + 15$$

$$3x = 48$$

$$x = 16$$

Sum of ages of youngest three children

$$= x + (x + 1) + (x + 2) = 3x + 3$$

On putting the value of x ,

$$= 16 \times 3 + 3 = 51 \text{ years}$$

55.

Ans : (a) Filled part of the cistern in 1 hour.

$$= \frac{1}{4} + \frac{1}{10} - \frac{1}{6}$$

$$= \frac{15 + 6 - 10}{60} = \frac{11}{60} \text{ part}$$

Time taken to fill whole cistern = $\frac{60}{11}$ hour

\therefore Time taken to fill half-filled cistern

$$= \frac{60}{2 \times 11} = \frac{30}{11} \text{ hours}$$

56.

Ans. (d) : An aquifer is a body of porous rock or sediment saturated with groundwater. Groundwater enters an aquifer as precipitation seeps through the soil. It can move through the aquifer and resurface through springs and wells.

57.

Ans. (a): Hunter Commission of 1882 was presided by Sir William Hunter. This commission was appointed by Viceroy Lord Rippon (1880-1884) in 1882 AD with objective to look into the complaints of the non-implementation of the Wood's Despatch of 1854. There were 8 Indian members in this commission. Hunter commission was constituted on 3rd April 1882.

58.

Ans. (c) : Bairam Khan was an important military commander, and later commander-in-chief of the Mughal army, a powerful statesman and regent at the court of the Mughal Emperors, Humayun and Akbar. He was also the guardian, chief mentor, adviser, teacher and the most trusted ally of Akbar. Akbar honored him as Khan-i-Khanan, which means "King of Kings".

59.

Ans. (a) : In Gupta Empire, there were various names of Empire "Rajya", "Rashtra", "Desha", "Mandala", "Prithvi" and "Avani". The Empire was divided into provinces called as Bhukti, Bhoga and Pradesha. Provinces further divided into "Vishayas" and "Vishaya" further divided into "Nagaras" and "Nagaras" were divided into villages. "Vithi" was a part of "Vishaya".

60.

Ans. (d): Citizenship of India by naturalization can be acquired by a foreigner (not illegal migrant) who is ordinarily resident in India for twelve years (throughout the period of twelve months immediately preceding the date of application and for eleven years in the aggregate fourteen years preceding the twelve months).

61.

Ans. (a): According to Article 75 (3) of the Indian Constitution, the council of ministers is collectively responsible to the Lok Sabha, that is, the council of minister can remain in office only if a majority is elected in this house. The cabinet, including the Prime Minister, has to resign when a motion of no confidence is passed against it. Only members of Lok Sabha can participate in the motion of no confidence, so the Prime Minister cannot participate in voting if he is a Rajya Sabha member.

62.

Ans.(c) : Kokborok was declared an official language of the state of Tripura, India by the state government in the year 1979. Consequently the language has been taught in schools of Tripura from primary level to the higher secondary stage since the 1980s.

63.

Ans. (c) : S-Waves (S stands for secondary or shear or shake) also known as transverse waves, because particle motions are transverse to the direction of movement of the wavefront, or perpendicular to the ray. These waves involve shearing and rotation of the material as the wave passes through it, but do not change its volume.

64.

Ans. (c) : The Black soil also known as Regur soil is considered highly suitable for cultivation of cotton crops, therefore it is also known as cotton soil. This soil is mainly found in Deccan trap. It is rich in humus and contains a high percentage of phosphoric acid, phosphorus and ammonia.

65.

Ans. (d): Fiat money is a type of currency that is declared legal tender by a government but has not intrinsic or fixed value and is not backed by any tangible asset such as gold or silver. Bank cheque does not come under fiat money.

66.

Ans. (c): The method of taxation in which amount of tax also increases with the increases in amount of taxation money is called progressive tax.

67.

Ans.(a) : Rajendra Singh is a conservationist and known as the waterman of India. He won prestigious Stockholm Water Prize in 2015 for reviving the traditional techniques of storing water in Rajasthan.

68.

Ans. (d): World Hunger Day is observed globally on 28 May every year. The objective of this day is to raise awareness about more than 820 million people living in chronic hunger worldwide. It is observed since 2011 to not only spread awareness about the malaise of chronic hunger but also to solve hunger and poverty through sustainable undertakings.

69.

Ans. (b): 'No Spin' is a autobiography of former Australian Cricketer Shane Warne. In this book, Warne tells about his life challenges, life and cricket events. He is second highest wicket taker (708) after M. Murlitharan (800) in test match.

70.

Ans. (c) : The SAARC Development Fund (SDF) was established in 2005. It is the umbrella financial institution of the South Asian Association for Regional Cooperation (SAARC). The SDF Secretariat based in Thimphu, Bhutan undertakes and implements projects and programmes under three windows: Social, Economic and Infrastructure in fulfillment of the greater developmental goals of the SAARC region.

71.

Ans. (c): Indira Gandhi Memorial Tulip garden is located in Srinagar, Jammu and Kashmir, India. It is spread over an area of about 30 hectares and is situated on the foothills of Zabarwan Range with an overview of Dal lake. It is Asia's largest Tulip garden with a new high-tech cold storage facility for safekeeping of delicate tulip bulbs.

72.

Ans. (d) : The Central Industrial Security Force (CISF) is a Central Armed Police Forces in India. It was set up under an Act of the Parliament of India on 10 March 1969 to provide integrated security cover to certain sensitive public sector undertakings. The CISF is governed by the Union Ministry of Home Affairs, and its headquarter is in New Delhi.

73.

Ans. (d) : Bombay Gold Cup is associated with Hockey whereas Subroto Cup, Santosh Trophy is associated with football and Ranji Trophy is associated with Cricket.

74.

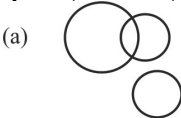

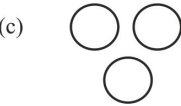
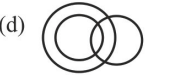
Ans. (d) : In Volleyball Spiking is the off play where a player slams the ball sharply down-wards over the net & into the opposite court, making it difficult for the opposing team to recover the ball. In Volleyball, spike is also known with the name Smash.

75.

Ans. (b) : Vesak is the festival that is observed on the full-moon day of the lunar month of Vaisakha, which falls in April or May, it is the festival of Buddhists. Vesak is also known as Buddha Jayanti, Buddha Purnima and Buddha Day.

PRACTICE SET-10

- What is English ivy?**
 - A famous football league
 - A purple colored flower
 - A common poisonous plant in USA
 - A type of English tea
- What does phototropism mean?**
 - Movement of plants towards light.
 - Specialised protoplasm from which arises a cilia.
 - Union between unequal gametes.
 - Movement of plants towards water and moisture.
- The cause of Hepatitis A is a:**
 - Bacteria
 - Mosquito bite
 - Protozoa
 - Virus
- Pons is a part of human:**
 - Kidney
 - Adrenal gland
 - Brain
 - Heart
- Fishes have chambered heart.**
 - Three
 - Two
 - One
 - Four
- One is produced from base events in protein synthesis.**
 - DNA copy
 - RNA copy
 - mRNA copy
 - DNA and RNA copies
- Biogas is an excellent fuel as it contains up to 75%**
 - Methane
 - Sulphide
 - Oxygen
 - Hydrogen
- According to Henry Moseley, which of the following properties of an element is a more fundamental property than its atomic mass?**
 - Atomic density
 - Atomic size
 - Atomic number
 - Atomic radii
- Which of the following element is more reactive than copper ?**
 - Zinc
 - Gold
 - Silver
 - Platinum
- Which of the following is the non-metallic form of mineral?**
 - Bauxite
 - Lead
 - Mica
 - Silver
- Who invented mobile phone?**
 - Joseph Wilson
 - Edwin Land
 - Martin Cooper
 - John Lloyd Wright
- What is the frequency of ultrasonic waves?**
 - 20 Hertz to 20 kHz
 - Less than 20 Hertz
 - More than 20 kHz
 - No bandwidth defined
- The force of gravity on an object is called.**
 - weight
 - momentum
 - stress
 - impulse
- Rate of doing work is called?**
 - Energy
 - Velocity
 - Power
 - Force
- What is the S.I. unit of wavelength?**
 - Hertz
 - Kilogram
 - Second
 - Meter
- 'Painting' is related to 'Brush' in the same way as 'Letter' is related to '.....'.**
 - Post-Office
 - Writer
 - Ink
 - Pen
- Identify missing number.**
676 : 841 :: 324 :
 - 484
 - 361
 - 441
 - 400
- If in a certain code language A is written as 1 and AIR is written as 28 then how will AIRCRAFT be written in that language?**
 - 76
 - 78
 - 82
 - 80
- In a certain code language.**
'Space Thee Bliss' is written as 'is jk th'.
'Bliss Youth Last' is written as 'th cu wn'.
'River Last God' is written as 'cu gd ap'.
'Bliss Thee Bad' is written as 'jk th if'.
How will 'Bliss Thee Youth' be written in that language?
 - th cu wn
 - jk cu wn
 - th jk gd
 - th jk wn
- The second number in each of the number-pairs is obtained by performing certain mathematical operations on the first number. Three of the following four number-pairs follow pattern and thus form a group. Select the number-pair that does NOT belong to that group.**
 - 14 : 197
 - 19 : 363
 - 17 : 290
 - 13 : 170
- P 3 R I M J 3 Q % W @ / N \$ E 5 X Y 1# 8**
Using the above series, find the word that does not belong to the group given below.
P I 3, W N 5, % / 5, M Q @
 - M Q @
 - P I 3
 - W N 5
 - % / 5
- Which of the following numbers will replace the question mark (?) in the given series?**
7, 18, 34, 72, 142, ?
 - 228
 - 288
 - 282
 - 298
- Which of the following terms will replace the question mark (?) in the given series to make it logically complete ?**
TRK52, AYR46, HFY40, OMF34, ?
 - UTN30
 - VTM30
 - VTM28
 - VTN28
- If '<' means '-', '>' means '+', '&' means '×', and '@' means '÷', then what would be the value of the following expression?**
119 < 56 @ 4 > 23 & 2
 - 202
 - 231
 - 151
 - 191

25. W and X are brothers. S is the son of X and Q. R is married to U and is the brother of Q. T and V are the children of U. P is the mother of Q and Y is the mother of X. How is T related to S?
 (a) Mother's brother
 (b) Mother's brother's son
 (c) Paternal Uncle
 (d) Father's brother's son
26. Read the given statements and conclusions carefully and decide which of the conclusions logically follow from the statements.
Statements:
 1. Some flats are expensive.
 2. Some expensive are villas.
Conclusions:
 1. Some villas are expensive.
 2. No flat is villa.
 3. Some villa are flat.
 4. All villas are expensive.
 (a) Only conclusion 1 follows
 (b) Only conclusion 4 follows
 (c) Only conclusion 1 and 3 follows
 (d) Only conclusion 3 follows
27. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.
Statements:
 (a) Some girls are boys.
 (b) No boys are lazy.
Conclusions:
 (I) Some girls are lazy.
 (II) Some girls are not lazy.
 (a) Either I or II follows
 (b) Both I and II follows
 (c) Only conclusion I follows
 (d) Only conclusion II follows
28. Town F is to the north of Town M. Town B is to the west of Town M. Town C is to the east of Town M. Town D is to the south of Town C. What is the position of Town F with respect to Town D?
 (a) South-East (b) South-West
 (c) North-East (d) North-West
29. Select the Venn diagram that best represents the relationship between the following classes. Sports, Cricket, Cockroach
- (a)  (b) 
- (c)  (d) 
30. There are five books - Biology, Chemistry, History, Maths and Physics - stacked vertically on a shelf. The colours of their covers, (not necessarily in the given order), are black, blue, red, white and yellow. The Chemistry book and the yellow book are at the extremes. The

Physics book is not in the middle. The blue book and the Biology book are separated by two books. The Maths book is white and is not the second from either end. The cover of the black book is biology. The blue book is a neighbour of the red Physics book. Which of the following is one of the possible combination?

- (a) Chemistry - Blue - Number 1 from the left
 (b) Physics - Red- Number 3 from the left
 (c) Chemistry - Yellow - Number 5 from the left
 (d) Maths - White - Number 4 from the left
31. In each of the number-pair, the second number is obtained by performing a certain mathematical operation on the first number. Three of the following pairs follow the same pattern and thus form a group. Select the number-pair that does NOT belong to that group.
 (a) 22 : 133 (b) 14 : 85
 (c) 16 : 97 (d) 18 : 107
32. Refer to the following letter series and answer the question that follows.
 (Left) E B Y T E R D C S W E R F V Y H N E
 CS R F C A R W (Right)
 If every odd placed letter in the above series is dropped, which letter would appear at the seventh place from the left?
 (a) H (b) V (c) Y (d) F
33. **Statement:**
 Ramu said to Shamu, "Don't you see the board of 'No parking'. Do not park the vehicle here."
Conclusion:
 I. Ramu knows the meaning of 'No parking sign'
 II. Shamu do not follow the traffic rules.
 (a) Neither conclusion I nor II logical
 (b) Both I and II are logical
 (c) Only conclusion I is logical
 (d) Only conclusion II is logical
34. When did Mr. Y purchase his car ?
Statements:
 1. Certainly before 18th August but not before 15th August.
 2. Certainly after 16th August but not after 19th August.
 (a) Statement 1 alone is sufficient while statement 2 alone is insufficient
 (b) Statement 2 alone is sufficient while statement 1 alone is insufficient.
 (c) Both statement 1 and 2 are sufficient
 (d) Either statement 1 or 2 is sufficient
35. **Argument: Public smoking is an offence under the law.**
Inference :
 1. Smoking is injurious to the health of the person who smokes.
 2. Smoking is injurious even to others health in the public places.
 (a) Both 1 and 2 are implicit
 (b) Neither 1 nor 2 is implicit
 (c) Only assumption 2 is implicit
 (d) Only assumption 1 is implicit

36. How many numbers between 1 and 700 are completely divisible by 17?
 (a) 42 (b) 41
 (c) 45 (d) 46
37. If the cube of a number is subtracted from $(153)^2$ the result gives 1457. Find the number.
 (a) 18 (b) 16
 (c) 28 (d) 24
38. Simplify:
 $25+15-(51)+(4 \times 15 \text{ of } 17) \div 20 + \overline{6-2} = ?$
 (a) 45 (b) 44
 (c) -44 (d) -45
39. 1.236576576 ... can be written in the form of:
 (a) $\frac{125334}{99000}$ (b) $\frac{123534}{99000}$
 (c) $\frac{123534}{99900}$ (d) $\frac{125434}{99900}$
40. The largest number which divides 55, 72 and 123 leaving the remainders 3, 7 and 6 respectively is:
 (a) 13 (b) 66
 (c) 26 (d) 117
41. $8 : 4 :: 3.2 : x$ and $3 : 6 :: 6 : y$. What is the ratio of x to y ?
 (a) 3 : 8 (b) 2 : 15
 (c) 4 : 19 (d) 1 : 3
42. What percentage is 15 minutes of $1\frac{1}{2}$ days?
 (a) 10% (b) $\frac{5}{6}\%$
 (c) $\frac{25}{36}\%$ (d) $41\frac{2}{3}\%$
43. If the length of the diagonal of a square is 20 cm, then what is its perimeter?
 (a) $40\sqrt{2}$ cm (b) $40\sqrt{2}$ m
 (c) 0 cm (d) $\sqrt{2}$ cm
44. A can do a work in 10 days, B in 15 days and C in 20 days. A and B worked together for 4 days and then C replaced A. In how many days the entire work was finished?
 (a) 16 days (b) $48/7$ days
 (c) $42/7$ days (d) $18/7$ days
45. A man travels a distance of 30 km at a speed of 6 km/h and completes the remaining distance 40 km in 5 hours. Find his average speed during the whole journey:
 (a) 7 km/hr (b) 8 km/hr
 (c) $6\frac{4}{11}$ km/hr (d) 5 km/hr
46. A sum of ₹1000 amounts to ₹1140 in 2 years at simple interest. If the interest rate is increased by 4%, the original sum would amount to:
 (a) ₹1,160 (b) ₹1,180
 (c) ₹1,220 (d) ₹1,200
47. An amount was deposited for 7 years at 8% simple interest rate of the matured amount was invested in a scheme with an annual rate of 10% compound interest, thereby earning an interest of ₹1638 in 2 years. Find the principal amount.
 (a) ₹6200 (b) ₹5000
 (c) ₹7500 (d) ₹8000
48. John buy four old tractors for ₹2 lacs. He spent total of ₹3 lacs in maintenance and repairing. If he already sells one tractor out of four tractors for ₹1 lacs, then in order to get total 40% profit, what will be the average selling price of the all remaining 3 tractors?
 (a) ₹ 1.5 lacs (b) ₹ 1.2 lacs
 (c) ₹ 2 lacs (d) ₹ 2.3 lacs
49. Reema buys a car for ₹75000. She spends ₹10000 on its repairing. Later she sold this car to Cheeru at 15% profit. Cheeru sold it to Ritu at 10% profit. What sum of money was spend by Ritu to buy the car?
 (a) ₹1,02,575 (b) ₹1,05,752
 (c) ₹1,02,252 (d) ₹1,07,525
50. If $x^2 - 4x + 1 = 0$, what is the value of $x^2 + \frac{1}{x^2}$?
 (a) 14 (b) 15
 (c) 18 (d) 16
51. The lengths of the three sides of a triangle are 8 cm, 13 cm and 15 cm respectively. What will be the ratio of their altitudes?
 (a) 195 : 120 : 104 (b) 15 : 13 : 8
 (c) 28 : 23 : 21 (d) 104 : 195 : 120
52. Sakshi attended to the following number of clients at the front desk during her internship for 15 days :
 18, 20, 16, 17, 32, 12, 6, 16, 12, 13, 17, 28, 24, 45, 17.
 Find the average of the mode and median of the given data.
 (a) 19.5 (b) 34
 (c) 18.25 (d) 17
53. Value of the square root of $\frac{36.1}{102.4}$ is:
 (a) $\frac{61}{340}$ (b) $\frac{19}{32}$
 (c) $\frac{19}{34}$ (d) $\frac{19}{31}$
54. The age of A and B are in the ratio of 5 : 3. After 5 years the ratio of their ages will be 10 : 7. What is the difference between present ages of A and B (in years)?
 (a) 5 (b) 6
 (c) 4 (d) 3

55. Pipes A, B and C are attached to an empty cistern. The first two can fill the cistern in 4 and 10 hours, respectively, the third can drain the filled, cistern, in 6 hours. If all the three pipes are opened simultaneously when the cistern is three-fifth filled, how many hours will be needed to fill the cistern?
- (a) $\frac{36}{11}$ (b) $\frac{48}{11}$
(c) $\frac{60}{11}$ (d) $\frac{24}{11}$
56. 'A Nation in Making' a book written by ____.
- (a) Vallabhbhai Patel
(b) Surendranath Banerjee
(c) M.G. Ranade
(d) G.K. Gokhale
57. Which one of the following pairs is not correctly matched (with important foreign travellers and the ruler of dynasty during whose they come to india).
- (a) Ralph fitch-Akbar
(b) Abdur Razzak-Dev Rai II
(c) John Judan-Shah Jahan
(d) Marco polo-Pandya Empire
58. According to Chola Rock edicts, the land grants made to Gurukula's was known as ____.
- (a) Brahmadeya (b) Vellanvagai
(c) Pallichchhandam (d) Shalabhoga
59. In which year Article 21-A has been included through the 86th Amendment of the Constitution of India, under which the provision of free and compulsory education for all children between the age of 6 to 14 years is considered as a fundamental right?
- (a) 2002 (b) 2008
(c) 2010 (d) 2004
60. Who presides over the first meeting of a newly constituted Lok Sabha?
- (a) Protem Speaker (b) President
(c) Prime Minister (d) Speaker
61. Which freedom fighter is remembered for his efforts in achieving the official language of India as Hindi?
- (a) Purshottam Das Tandon
(b) Munishwar Dutt Upadhayay
(c) Mahavir Tyagi
(d) Ram Manohar Lohia
62. Which is main factor which provides rainfall in winter to north-west part of country?
- (a) Western disturbance
(b) South west monsoon
(c) South east monsoon
(d) Eastern disturbance
63. Safflower, Shisam, Khair, Arjun and Mulberry are the main trees of which vegetation?
- (a) Mangrove Forests
(b) Montane Forests
(c) Tropical Evergreen Forests
(d) Tropical Deciduous Forests
64. Which formula is used to calculate M3 (i.e. measure of money supply)?
- (a) $M3 = M1 + \text{Total deposits with post office}$
(b) $M3 = M1 + \text{Total deposits with post office excluding National Saving Certificate}$
(c) $M3 = CU + DD + \text{Net time deposits of commercial banks}$
(d) $M3 = M2 + \text{Saving deposits with post office}$
65. ____ of trade refers to the type of goods and services of export and imports of a country.
- (a) Composition (b) Gain
(c) Volume (d) Value
66. For excellence in the field of medical services, which of the following awards is given ?
- (a) Daly Memorial Award
(b) Dhanvantari Award
(c) Shanti Swarup Bhatnagar Award
(d) Borlaug Award
67. National Technology Day is observed every year to commemorate:
- (a) Pokhran II (b) Operation Blue Star
(c) Operation Meghdoot (d) Mangalyaan
68. Who is the author of the book 'Republic'?
- (a) Plato (b) John Ruskin
(c) TS Eliot (d) Leo Tolstoy
69. Which country is NOT a member of OPEC?
- (a) Algeria (b) Venezuela
(c) Nigeria (d) Kenya
70. Which village in Shivamogga district of Karnataka uses Sanskrit in everyday conversation?
- (a) Jhiri (b) Ganoda
(c) Mattur (d) Shyamsundarpur
71. Which of the following is a surface-to-air missile?
- (a) Brahmos (b) Trishul
(c) K-15 Sagarika (d) Agni
72. Which of the following country other than India has Field Hockey as its National Sport?
- (a) Mongolia (b) Pakistan
(c) Nepal (d) Bangladesh
73. Who among the following was the first woman to win Wimbledon title successfully nine times?
- (a) Martina Navratilova (b) Monica Seles
(c) Chris Evert (d) Steffi Graf
74. Anthurium festival is celebrated to promote farmers, flowers and horticulture in ____.
- (a) Nagaland (b) Assam
(c) Mizoram (d) Arunachal Pradesh
75. Which of the following is the classical dance form of erstwhile Andhra Pradesh?
- (a) Kuchipudi (b) Kathak
(c) Bharatnatyam (d) Kathakali

SOLUTION : PRACTICE SET- 10

ANSWER KEY

1. (c)	7. (a)	13. (a)	19. (d)	25. (b)	31. (d)	37. (c)	43. (a)	49. (d)	55. (d)	61. (a)	67. (a)	73. (a)
2. (a)	8. (c)	14. (c)	20. (b)	26. (a)	32. (b)	38. (b)	44. (b)	50. (a)	56. (b)	62. (a)	68. (a)	74. (c)
3. (d)	9. (a)	15. (d)	21. (d)	27. (a)	33. (b)	39. (c)	45. (a)	51. (a)	57. (c)	63. (d)	69. (d)	75. (a)
4. (c)	10. (c)	16. (d)	22. (b)	28. (d)	34. (c)	40. (a)	46. (c)	52. (d)	58. (d)	64. (c)	70. (c)	
5. (b)	11. (c)	17. (c)	23. (c)	29. (b)	35. (c)	41. (b)	47. (b)	53. (b)	59. (a)	65. (a)	71. (b)	
6. (c)	12. (c)	18. (a)	24. (c)	30. (a)	36. (b)	42. (c)	48. (c)	54. (b)	60. (a)	66. (b)	72. (b)	

SOLUTION

1.

Ans : (c) English ivy is a poisonous plant found in the USA. It is quite famous for its ability to produce urushiol, a skin irritant substance causes agonizing, itching rashes.

2.

Ans. (a) Phototropism is the phenomenon by which the plant bends in the direction of external stimulus sunlight.

3.

Ans.(d) Hepatitis A is an inflammation of the liver caused by the Hepatitis A virus (HAV). The virus is primarily spread when an uninfected person ingests food or water that is contaminated with the faeces of an infected person.

4.

Ans.(c) Pons is a portion of the brainstem. It is located above the medulla oblongata and below the midbrain. It is approximately 2.5 cm long, it serves several important functions. It is a bridge between various parts of the nervous system, including the cerebellum and cerebrum.

5.

Ans. (b) Vertebrate fishes classified as lower vertebrate in which two chambered heart is present. Fishes are the aquatic and cold-blooded animals with a two-chambered heart. Two chambered heart has one auricle and one ventricle is found in fishes.

6.

Ans : (c) One mRNA is formed from base events in protein analysis. These are the functional molecules of RNA in which the signal information for protein synthesis is transferred from genes of DNA by 'Transcription'. The mRNA molecules were termed by Francois Jacob and Monad in 1961. m-RNA is known as messenger R.N.A .

7.

Ans. (a) : Biogas is an excellent fuel as it contains 75% Methane along with other gases like carbon dioxide, hydrogen and hydrogen sulphide. It is an excellent fuel because it burns without smoke, leaves no residue like ash in wood, charcoal and coal burning.

8.

Ans. (c) : According to 'Henry Mosley' atomic number is more fundamental property than atomic mass. Atomic number is defined as number of protons present in the nucleus of an atom.

9.

Ans.(a) : Zinc has the ability to displace iron, copper from their respective salt solutions and therefore is more reactive than copper. Chemical reactivity in the periodic table decreases from left to right and, for metals, rises as you proceed down the group.

10.

Ans. (c) : Minerals are defined as naturally occurring substances that have a crystalline structure.

Minerals are basically of two types.

(1) Metallic Minerals → They exhibit luster in their appearance and consist of metals in their chemical composition

Ex→ bauxite, lead, Silver etc.

(2) Non - metallic minerals → They either show a non-metallic luster in their appearance. Extractable metals are not present in their chemical composition

Ex→ Mica, Limestone, Gypsum etc.

11.

Ans : (c) The mobile phone was invented by Motorola's senior engineer Martin Cooper.

12.

Ans.(c) Ultrasonic waves are waves above 20000Hertz frequency. Human ears cannot hear this but can hear from some animals like dogs, cats, bats etc. Use of ultrasonic waves are—

- 1- Signal sending
- 2- Detecting the depth of the sea
- 3- Cleaning the components of precious clothes, airplanes and watches
- 4- In destroying harmful bacteria from inside the milk
- 5- Treatment of arthritis and detection of brain tumors

13.

Ans : (a) The force of gravity on an object is called a weight.

∴ $w = mg$

According to Newton's law of gravitational force.

$$F = G \frac{m_1 \times m_2}{d^2}$$

where G = universal gravitational constant

$$G = 6.673 \times 10^{-11} \text{ N-m}^2/\text{kg}^2$$

14.

Ans : (c) Power is defined as rate of doing work in other words the work done per second or energy transfer rate is called as power. It turns out that: Power = Force × Velocity. The SI unit of power is Joule per second or watt.

15.

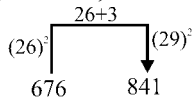
Ans. (d) Wavelength is the distance between two successive crests or troughs of a wave. It is always measured in the direction of the propagation of wave. The SI unit of wavelength is meter (m).

16.

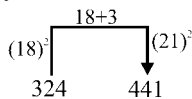
Ans. (d) : Just as, by 'brush' we do 'painting' work. Similarly, by 'pen' we do letter 'writing' work.

17.

Ans. (c) : Just as,



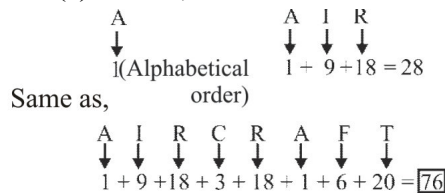
Similarly,



Hence, the missing number will be $(21)^2 = 441$.

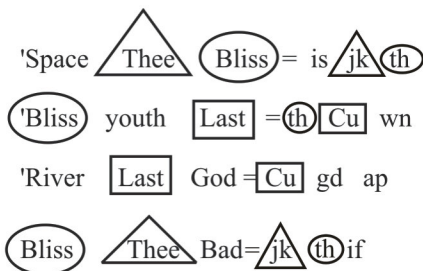
18.

Ans. (a) : Just as,



19.

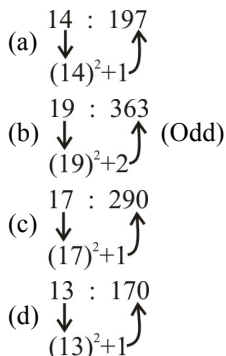
Ans. (d) : According to the question,



Hence, Bliss Thee Youth will be written as 'th jk wn'.

20.

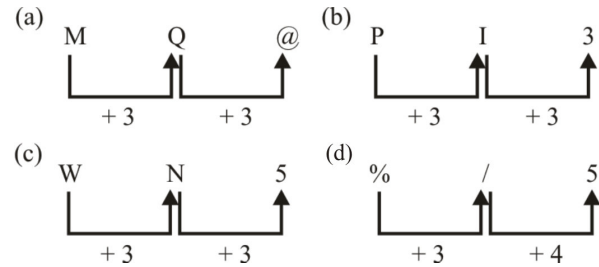
Ans. (b) : From options-



Hence, option (b) is odd one.

21.

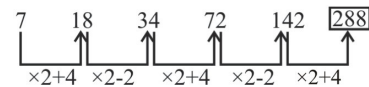
Ans. (d) : From the given options,



It is clear that option (d) is different from all others.

22.

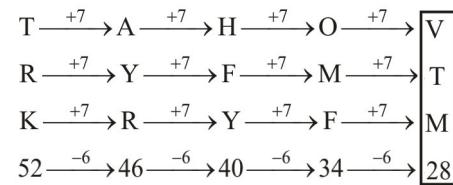
Ans. (b) : The given series is as follows-



Hence, $? = 288$

23.

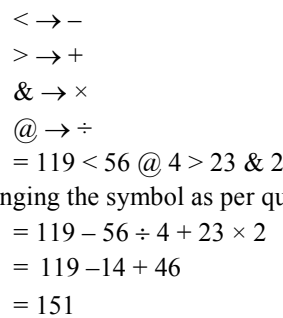
Ans. (c) : The given series is as follows -



Hence, $? = VTM28$

24.

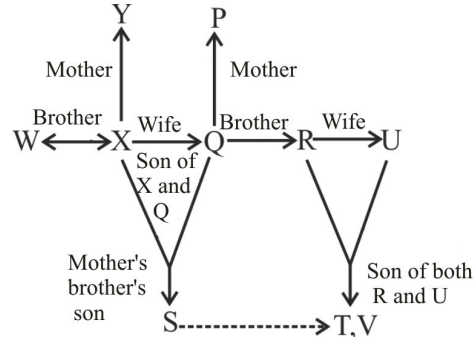
Ans. (c) : Given,



On changing the symbol as per question,

25.

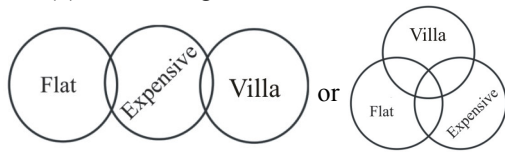
Ans. (b) On drawing blood relation diagram according to the question,



Hence, it is clear from above diagram that T is mother's brother's son of S.

26.

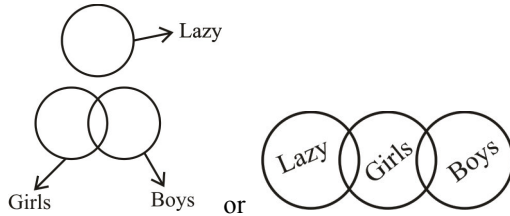
Ans. (a) : According to the statements –



It is clear from the Venn diagram that only conclusion I follows.

27.

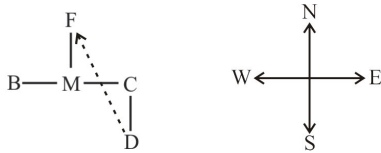
Ans. (a) : On making Venn diagram,



So, Either I or II follows.

28.

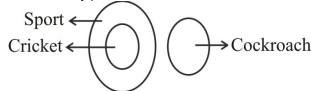
Ans. (d) : According to the question,



Hence, it is clear that position of town F is North-west with respect to town D.

29.

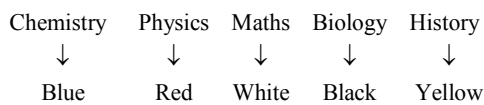
Ans. (b) : The Venn diagram that represents the best relation between the given classes:



Cricket comes under the Sport, while Cockroach is a type of insect. Hence, option (b) is correct.

30.

Ans. (a) : According to the question, the order and colour of the books will be as follows-



Hence the fact given in option (a) will be correct.

31.

Ans. (d) : From options-

- (a) $22 \times 6 + 1 = 133$
- (b) $14 \times 6 + 1 = 85$
- (c) $16 \times 6 + 1 = 97$
- (d) $18 \times 6 + 1 = 109 \neq 107$

Hence, option (d) is different from other options.

32.

Ans. (b) : Given -

(Left) E B Y T E R D C S W E R F V Y H
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
 N E C S R F C A R W (Right)
 17 18 19 20 21 22 23 24 25 26

After dropping the odd place letter-

B T R C W R V H E S F A W
 1 2 3 4 5 6 7th

Hence, it is clear from above 7th letter will appear as V.

33.

Ans : (b) ∴ In the statement Ramu is refusing Shamu to park the car in 'No Parking' that means Ramu knows the meaning of 'No parking sign'. That is, conclusion I is logical and Shamu parked the vehicle in 'No Parking' that means conclusion II is also logical. Hence, both conclusion I and II are logical.

34.

Ans : (c) :

Statement 1 → 15 16 17

Statement 2 → 17 18 19

Hence, both statements are sufficient to answer the question.

35.

Ans. (c) : It is stated in the argument that public smoking is a legal offense while it is not mentioned that smoking is harmful to the health of the person while smoking in public places will also affect the health of other people. Hence it is clear that only inference (2) is contained in the argument.

36.

Ans. (b) : Numbers between 1 and 700 which are exactly divisible by 17.

17, 34697.

$$l = a + (n-1) \times d$$

$$697 = 17 + (n-1) \times 17$$

$$680 = (n-1) \times 17$$

$$40 = n - 1$$

$$n = 41$$

Hence, required number (n) = 41

37.

Ans : (c) Let the number be x.

According to the question,

$$(153)^2 - x^3 = 1457$$

$$x^3 = (153)^2 - 1457$$

$$x^3 = 23409 - 1457$$

$$x^3 = 21952$$

$$\therefore x = \sqrt[3]{21952} = \sqrt[3]{28 \times 28 \times 28} = 28$$

38.

Ans : (b) From the given expression,

$$25 + 15 - (51) + (4 \times 15 \text{ of } 17) \div 20 + \frac{6-2}{2}$$

$$\Rightarrow 25 + 15 - 51 + \left(\frac{4 \times 15 \times 17}{20} \right) + 4$$

$$\Rightarrow 40 - 51 + 51 + 4 = 44$$

39.

Ans. (c) : 1.236576576

$$= 1 + 0.236\overline{576}$$

$$= 1 + \frac{236576 - 236}{999000}$$

$$= \frac{1235340}{999000} = \frac{123534}{99900}$$

40.

Ans. (a) : According to the question,

$$55 - 3 = 52$$

$$72 - 7 = 65$$

$$123 - 6 = 117$$

$$\text{HCF of } 52, 65 \text{ and } 117 = 13$$

Hence the required largest number = 13

41.

Ans. (b) : $8 : 4 :: 3.2 : x$ and $3 : 6 :: 6 : y$

$$8 \times x = 4 \times 3.2$$

$$3 \times y = 6 \times 6$$

$$x = 1.6$$

$$y = 12$$

Then,

$$\frac{x}{y} = \frac{1.6}{12} = \frac{16}{120} = \frac{2}{15}$$

$$\therefore x : y = 2 : 15$$

42.

Ans. (c) Number of minutes in days = $\frac{3}{2} \times 24 \times 60$
 $= 36 \times 60$ min.

$$\text{So, the required \%} = \frac{15}{36 \times 60} \times 100 = \frac{25}{36} \%$$

43.

Ans. (a) : Diagonal of square = side $\times \sqrt{2}$

$$20 = \text{side} \times \sqrt{2}$$

$$\text{Side} = \frac{20 \times \sqrt{2}}{\sqrt{2} \times \sqrt{2}}$$

$$\text{Side} = 10\sqrt{2}$$

$$\text{Perimeter of square} = 4 \times \text{side}$$

$$= 4 \times 10\sqrt{2} = 40\sqrt{2} \text{ cm}$$

44.

Ans : (b) 1 day work of A and B = $\frac{1}{10} + \frac{1}{15} = \frac{1}{6}$ part

$$\therefore 4 \text{ days work of A and B} = \frac{4}{6} = \frac{2}{3} \text{ part}$$

$$\text{Remaining work} = 1 - \frac{2}{3} = \frac{1}{3} \text{ part}$$

$$1 \text{ day work of B and C} = \frac{1}{15} + \frac{1}{20} = \frac{7}{60} \text{ part}$$

$$\therefore \text{Time taken by B and C to complete } \frac{1}{3} \text{ part of work}$$

$$= 1 \times \frac{60}{7} \times \frac{1}{3} = \frac{20}{7} \text{ days}$$

$$\text{Total time} = \frac{20}{7} + 4 = \frac{48}{7} \text{ days}$$

45.

Ans. (a) : Time taken by man to cover a distance of 30

$$\text{km at a speed of } 6 \text{ km/h} = \frac{30}{6} = 5 \text{ hours}$$

$$\text{Average speed} = \frac{\text{Total distance}}{\text{Total time}}$$

$$= \frac{30 + 40}{5 + 5}$$

$$= \frac{70}{10}$$

$$= 7 \text{ km/hr.}$$

46.

Ans. (c) : Principal amount = ₹1000

Time = 2 years

$$\text{Interest} = 1140 - 1000 = 140$$

Rate = ?

$$\text{Simple Interest} = \frac{P \times T \times R}{100}$$

$$140 = \frac{1000 \times 2 \times R}{100}$$

$$\text{Rate} = 7\%$$

After the increase of 4% in rate-

$$\text{Simple Interest} = \frac{1000 \times 2 \times 11}{100} = 220$$

$$\text{Principal amount} = 1000 + 220 = ₹1220$$

47.

Ans : (b) Let, Principal = ₹ P

$$\text{Simple interest} = P \times \frac{8}{100} \times 7 = \frac{56P}{100}$$

$$\text{Amount} = P + \frac{56P}{100} = \frac{156P}{100}$$

As per the question,

Compound interest = ₹ 1638

$$1638 = \frac{156P}{100} \left[\left(1 + \frac{10}{100} \right)^2 - 1 \right]$$

$$\frac{1638 \times 100}{156P} = \frac{21}{100}$$

$$P = \frac{1638 \times 100 \times 100}{156 \times 21}$$

$$P = ₹ 5000$$

48.

Ans : (c) Total cost price of all 4 tractors = $2 + 3 = ₹5$ lacs

To earn 40% profit, the selling price of the tractor

$$= \frac{5 \times 140}{100} = ₹7 \text{ lacs}$$

∴ One tractor is sold for ₹1 lacs

∴ Average selling price of remaining the tractors

$$= \frac{7 - 1}{3} = ₹2 \text{ lacs}$$

49.

Ans : (d) Price of the car bought by Reema = ₹75000

Repairing expense = ₹10000

Total cost = ₹85000

$$\text{Selling price of car (to Cheeru)} = 85000 \times \frac{115}{100} = ₹97750$$

Cost price of Cheeru = ₹97750

$$\begin{aligned}\text{Selling price of Cheeru (to Ritu)} &= 97750 \times \frac{110}{100} \\ &= ₹107525\end{aligned}$$

Hence, the sum of money spent by Ritu to buy the car = ₹107525

50.

Ans. (a) : $x^2 - 4x + 1 = 0$

$$x - 4 + \frac{1}{x} = 0 \text{ [On dividing by } x \text{ in both sides]}$$

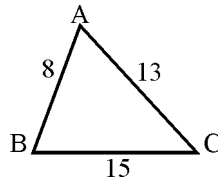
$$x + \frac{1}{x} = 4 \quad (\text{On squaring on both sides})$$

$$x^2 + \frac{1}{x^2} = 4^2 - 2$$

$$x^2 + \frac{1}{x^2} = 14$$

51.

Ans : (a)



Ratio of altitudes

$$\begin{aligned}&= \frac{1}{8} : \frac{1}{13} : \frac{1}{15} \\ &= 15 \times 13 : 8 \times 15 : 13 \times 8 \\ &= 195 : 120 : 104\end{aligned}$$

52.

Ans. (d) : 18, 20, 16, 17, 32, 12, 6, 16, 12, 13, 17, 28, 24, 45, 17

On writing the data in ascending order

6, 12, 12, 13, 16, 16, 17, 17, 17, 18, 20, 24, 28, 32, 45

Mode = 17 (has come 3 times)

$$\text{Median} = \left(\frac{n+1}{2} \right)^{\text{th}} \text{ term}$$

$$\left(\frac{15+1}{2} \right)^{\text{th}} \text{ term} = 8^{\text{th}} \text{ term} = 17$$

$$\text{Average} = \frac{\text{Mode} + \text{Median}}{2} = \frac{17+17}{2} = 17$$

53.

Ans. (b) : $\sqrt{\frac{36.1}{102.4}} = \sqrt{\frac{361}{1024}}$

$$\sqrt{\frac{(19)^2}{(32)^2}} = \frac{19}{32}$$

54.

Ans. (b) : Let the present age of A and B is $5x$ and $3x$ respectively.

As per question,

$$\frac{5x+5}{3x+5} = \frac{10}{7}$$

$$35x + 35 = 30x + 50$$

$$5x = 15$$

$$x = 3$$

Present age of A = $5x = 5 \times 3 = 15$

Present age of B = $3x = 3 \times 3 = 9$

Difference between present age of A and B = $15 - 9 = 6$ years

55.

Ans : (d) A, B and C will fill the cistern in 1 hour

$$= \frac{1}{4} + \frac{1}{10} - \frac{1}{6} = \frac{15+6-10}{60} = \frac{11}{60} \text{ part}$$

∴ All three pipes will fill the cistern completely

$$= \frac{60}{11} \text{ hour}$$

Remaining empty part of cistern = $1 - \frac{3}{5} = \frac{2}{5}$ part

∴ Time taken to fill remaining empty part of

$$\text{cistern} = \frac{60}{11} \times \frac{2}{5} = \frac{24}{11} \text{ hour}$$

56.

Ans. (b) :

Famous Books

Writer

A Nation in Making - Surendranath Banerjee

Hind Swaraj - Mahatma Gandhi

India Divided - Rajendra Prasad

Unhappy India - Lala Lajpat Rai

Bharat Vibhajan - Vallabh Bhai Patel

Rise of the Maratha - M.G. Ranade

Power

57.

Ans. (c) : John Fryer, Peter Mundy, Tavernier & John Loyalt came to India during the reign of Shah Jahan. Rest all the options are correctly matched.

58.

Ans. (d) : According to Chola Rock edicts, the land grants made to Gurukula's was known as Shalabhoga. Brahmadeya was tax free land gift to Brahmans in the early medieval India. Vellanvagai, land of non-Brahmandeya or peasant property. Pallichchandam lands are those lands that are donated to Jain Institution.

59.

Ans. (a) : 86th Amendment Act of 2002 via Article 21A (Part III) seeks to make free and compulsory education a Fundamental Right for all children in the age group 6-14 years. The 86th CAA added the same provision in Fundamental duty as 11th Fundamental duty and in DPSP's substitutes Article 45 as well.

60.

Ans. (a) : The Protem speaker presides over the first sitting of the Lok Sabha and administers the oath of office to the newly elected MPs.

The duty of protem speaker is to conduct the vote for the Speaker and Deputy speaker. He also administers the floor test.

61.

Ans. (a): Purshottam Das Tandon is widely remembered for his efforts in achieving the official language of India status for Hindi. He was given the title of 'Rajarshi'. He was popularly known as 'UP Gandhi'. He was awarded Bharat Ratna in 1961.

62.

Ans. (a): Western disturbances are the cause of most winter and pre-monsoon season rainfall across north-west India. It has profound impact on climate and agriculture of India specially for Rabi-season crop.

63.

Ans. (d) : Tropical deciduous forests are the most common in India as they are found in a large parts of the country. Teak is the most dominant tree of this forest and others are bamboo, Sal, Shisham, Khair, Arjun, Mulberry etc.

64.

Ans. (c): $M_3 = CU + DD + \text{Net time deposits of Commercial Banks.}$

65.

Ans. (a): Composition of trade means a study of goods and services of imports and exports of a country. In other words, it tells about the commodities of imports and the commodities of exports of country.

66.

Ans.(b) : Award	Related field
Daly Manorial Award –	Research in Psychology
Dhanvantari Award –	In the field of Medical Services
Shanti Swarup –	Work in science & Technology
Bhatanagar Award	
Borlaug Award –	International agriculture and food production

67.

Ans. (a) India observes its National Technology Day on 11th May every year. The day, which was first observed on 11th May, 1999, aims to commemorate the scientific and technological achievements of Indian scientists, engineers. It is the day India successfully tested nuclear bombs in Pokhran on 11th May, 1998. On this day, India successfully test-fired its Shakti-1 nuclear missile in an operation called Pokhran-II, also code-named as Operation Shakti, which was led by late president Dr APJ Abdul Kalam. The day was named by the former Prime Minister Atal Bihari Vajpayee.

68.

Ans. (a) : 'The Republic' was authored by the great thinker Plato in 375 B.C . Plato is considered as the founder of western political philosophy. Plato was the founder of the platonist school of thought and academy. It was the first school of higher learning in the western world.

69.

Ans. (d) : OPEC is an acronym for the Organization of the Petroleum Exporting Countries. It is a permanent intergovernmental organization created at the Baghdad Conference in September, 1960 by Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. It has since 1965 been headquartered in Vienna, Austria. Currently it has 13 members. Kenya is not a member state of OPEC. OPEC is a cartel that aim to manage the supply of oil in the world market in an effort to set the price of oil in the world market.

70.

Ans. (c): Mattur is a village near the city of Shivamogga in Karnataka state, known for the usage Sanskrit for day-to-day communication, although the general language of the state is Kannada. It is a tiny hamlet on the banks of the perennial river Tunga. Sanskrit is the primary sacred language of Hinduism, and has been used as a philosophical language in the religions of Hinduism, Buddhism, and Jainism.

71.

Ans. (b): Trishul is a short range surface-to-air missile developed in India. It was developed by Defence Research and Development Organisation (DRDO). Its operational range is from 500 meters to 9 kilometers. (DRDO) was formed in 1985 and headquartered in DRDO Bhavan, New Delhi. Chairman of DRDO is G Satheesh Reddy and Avinash Chander was the first chairman of DRDO.

72.

Ans. (b) :	
Country	National Games / Sports
Mongolia	Mongolian Wrestling, Archery
Pakistan	Field Hockey
Nepal	Volleyball
Bangladesh	Kabaddi

73.

Ans. (a) : Among the following Martina Navratilova is the first woman to win Wimbledon title successfully nine times.

74.

Ans.(c) : The Anthurium festival is held to promote farmers, flowers and horticulture in Mizoram. The festival witnesses many visitors from across the nation and worldwide.

75.

Ans. (a) : Kuchipudi is the classical dance form of Andhra Pradesh. Eight classical dance forms of India are-

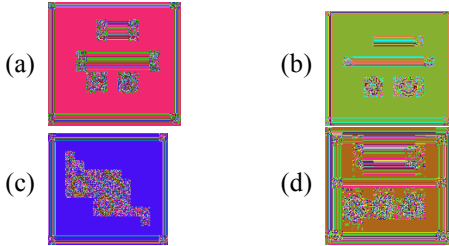
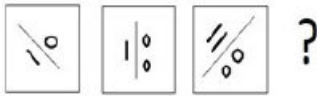
Classical Dance - States

1. Bharatanatyam - Tamil Nadu
2. Kathak - Northern India(UP)
3. Kathakali - Kerala
4. Kuchipudi - Andhra Pradesh
5. Manipuri - Manipur
6. Mohiniyattam - Kerala
7. Odissi - Odisha
8. Sattriya - Assam

PRACTICE SET-11

- Sugarcane is normally grown by**
(a) Layering (b) Cutting the stem
(c) Grafting (d) Seed
- The roots, stems and leaves of some plants grow new plants through process of**
(a) Fission
(b) Multiple fission
(c) Vegetative propagation
(d) Regeneration
- What is Melioidosis?**
(a) Red rashes on skin (b) Memory loss
(c) Infectious disease (d) Chronic joint pain
- Due to the presence of in our ear, which is a type of connective tissue, the ears can be folded -**
(a) Tendon (b) Bone
(c) Cartilage (d) Ligament
- How many chambers are present in heart of a fish?**
(a) One (b) Three
(c) Four (d) Two
- One reason why Mendel was successful in discovering the laws governing inheritance of traits was**
(a) he kept numerical count of the progeny
(b) he used his knowledge of evolutionary processes
(c) he used plants instead of animals
(d) he was trained in scientific methods
- Which of the following is an ore of thorium?**
(a) Pitchblende (b) Monazite
(c) Carnotite (d) Torbernite
- The pH of Saliva of a healthy Human mostly ranges from:**
(a) 5.2 to 6.1 (b) 6.2 to 7.6
(c) 4.1 to 5.2 (d) 7.7 to 9.2
- Which metal is used in electroplating on iron to protect it from corrosion and formation of rust?**
(a) Chromium (b) Zinc
(c) Rhodium (d) Tin
- Which of the following is added to make iron hard and strong?**
(a) Zinc (b) Copper
(c) Carbon (d) Sodium
- Who invented the fountain pen ?**
(a) Budersis (b) Lewis E. Waterman
(c) Dr. Lee D. Forest (d) Augsburg
- What is the effect of pressure on the speed of sound?**
(a) The speed of sound increases with increase in pressure and vice versa.
(b) The speed of sound decreases with increase in pressure and vice versa.
(c) The speed of sound is not affected by pressure.
(d) First the speed of sound increases with increase in pressure then starts decreasing though the pressure increases.
- The universal law of gravity applies to.....**
(a) Sun and planets (b) Earth and Sun
(c) Earth and Moon (d) Any pair of objects
- Name the physical quantity that is equal to the product of force and velocity.**
(a) Work (b) Energy
(c) Power (d) Acceleration
- Which one of these is a symbol of mole in S.I. unit ?**
(a) g (b) mol
(c) kg (d) mg
- In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.**
TPN : XTR
LSK : PWO
(a) MZC : DGQ (b) QGD : CMZ
(c) ZMC : DQG (d) DQG : ZMC
- Select the option that is related to the fifth number in the same way as the fourth number is related to the third number and the second number is related to the first number.**
7 : 42 :: 9 : 72 :: 11 : ?
(a) 108 (b) 102
(c) 110 (d) 121
- In a certain code language, 'DOVE' is written as 'PEFW' and 'CROW' is written as 'SDXP'. How will 'MYNA' be written in that language?**
(a) ZNBO (b) ZNOB
(c) ZMBO (d) ZNOB
- In a certain language:**
'Stairs going up' means 'QEW ADS ZCX'
'How many Stairs' means 'PIO LJK ADS'
'He is going' means 'QEW RYT FHG'
Which of the following options will mean 'up'?
(a) QEW (b) ZCX
(c) ADS (d) LJK
- Four options have been given out of which three are alike in some manner and one is different. Select the odd one -**
(a) (42, 15) (b) (51, 24)
(c) (32, 13) (d) (72, 45)
- Which of the following does NOT belong to similar group?**
A. Wet Soil B. Clay soil
C. Earth D. Plastic
(a) A (b) D
(c) B (d) C
- Which of the following numbers will replace the question mark (?) in the given number series ?**
87, 88, 80, 107, 43, ?
(a) 70 (b) 126
(c) 168 (d) 98

23. Select the pattern from among the given options that will come next in the following series.



24. Select the correct combination of mathematical signs that can sequentially replace the * and balance the given equation.

$$32 * 16 * 8 * 2 * 3 * 5 * 5$$

- (a) $-, +, \div, \times, =, +$ (b) $+, -, \div, \times, =, +$
 (c) $-, +, \div, =, \times, +$ (d) $-, +, \times, =, \div, +$

25. If

'A # B' means 'A is the father of B',
 'A \$ B' means 'A is the mother of B',
 'A @ B' means 'A is the husband of B',
 'A % B' means 'A is the wife of B',
 'A = B' means 'A is the brother of B'

then how is P related to V in the following expression?

$$P @ Q \$ U = R \% S \# V$$

- (a) Paternal grandfather
 (b) Maternal grandfather
 (c) Father's brother
 (d) Mother's brother
26. Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow (s) from the statements.

Statements :

- All jugs are cups
- All cups are espressos.
- Some jugs are saucers

Conclusions :

- Some espressos are saucers.
 - Some cups are jugs.
- (a) Only conclusion II follows
 (b) Only conclusions I follows
 (c) Both conclusions I and II follow
 (d) Either conclusion I or II follow

27. Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

All wires are switches.
 No switch is a pipe.
 All bulbs are pipes.

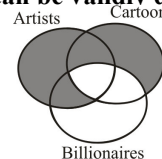
Conclusions:

- No wire is a pipe.
 - No bulb is a switch.
- (a) Neither conclusion I nor II follows
 (b) Both conclusions I and II follow
 (c) Only conclusion II follows
 (d) Only conclusion I follows

28. Satheesh starts from a bus-stand and travels 6 km towards the north. He then takes a right turn, travels 2 km, turns right and travels 11 km. He then takes a right turn and travels 5 km. He takes a final right turn, travels 3 km and stops at a junction. In which direction is the bus-stand with respect to the junction ? (All turns are 90° turns only.)

- (a) North-east (b) North
 (c) South-west (d) South

29. In the given Venn diagram, assuming that the shaded areas do not exist, determine which conclusion can be validly drawn?



- (a) All billionaires are artists
 (b) All cartoonists are artists
 (c) No artists are billionaires
 (d) All artists are cartoonists

30. On the basis of the given information answer the following question. Sahil and Manish play Ludo and Cricket. Manish and Salini play Cricket and Badminton. Raja, Tarun and Shalini play Badminton and Kabaddi. Shalini and Sahil play Badminton and Kabaddi. Who among the following plays Badminton, Cricket and Kabaddi but does not play Ludo?

- (a) Tarun (b) Shalini
 (c) Sahil (d) Manish

31. Choose the number - pair that is different from the other three.

- (a) 65 : 16 (b) 49 : 12
 (c) 62 : 15 (d) 33 : 8

32. Refer to the following letter series and answer the question that follows.

P L M O K I J N B H U Y G A V E C F T

How many such consonants are there in the above series, each of which is immediately preceded by a vowel and immediately followed by a vowel?

- (a) Two (b) Zero (c) One (d) Three

33. Statement:

The students who passed the exam said, "the exam paper was really difficult and lengthy."

Conclusion:

- Students are expecting low marks in results.
 - The question paper had many questions out of the course.
- (a) Only conclusion II follows.
 (b) Only conclusion I follows.
 (c) None of the conclusion follows.
 (d) Both the conclusions follow.

34. **Question:**
What is the color of Jasmine?
Statement:
I. Blue is called white, white is called red and red is called yellow
II. Yellow is called purple, purple is called black, white is called brown and brown is called orange.
(a) Either I or II is sufficient
(b) Both I and II together are not sufficient
(c) Only I is sufficient
(d) Only II is sufficient
35. **Argument**
Many people living in villages are settling in cities for better future.
Inference :
1. Government officers should have compulsory rural posting.
2. Transport facilities should be increased between cities and villages.
(a) Only conclusion 2 follows
(b) Neither 1 nor 2 follows
(c) Both 1 and 2 follows
(d) Only conclusion 1 follows
36. If pq is a two-digit number, then $pq - qp$ will be completely divisible by:
(a) 9 (b) 7
(c) 6 (d) 5
37. If the sum of five consecutive multiples of 2 is 660, then find the largest number.
(a) 162 (b) 130
(c) 125 (d) 136
38. $(-8) [36 \div \{7 - (-2)\}] \div (-4) \{19 - (-3) \times (-5)\} = ?$
(a) 2 (b) -4
(c) 4 (d) -2
39. If 0.41 is expressed as the vulgar fraction $\frac{41}{999 \dots 9(n \text{ times})}$. Find n.
(a) 1 (b) 3
(c) 4 (d) 2
40. The LCM of fractions is calculated as $\frac{\text{LCM of the numerators}}{\text{HCF of denomination}}$. Find the LCM of $\frac{5}{6}, \frac{6}{5}$, and $\frac{3}{2}$.
(a) 20 (b) 15
(c) 30 (d) 25
41. What is the compound ratio of 45 : 75, 3 : 5, 51 : 68 and 256 : 81?
(a) $\frac{64}{75}$ (b) $\frac{32}{45}$
(c) $\frac{128}{75}$ (d) $\frac{75}{32}$
42. The price of an article was reduced by 15% and it's daily sale increased by 25%. Find the net percentage effect on daily sale.
(a) 6.25% increase (b) 6.15% increase
(c) 6.1% increase (d) 6.35% increase
43. The length and the width of a rectangular plot of land are 10.5 m and 8 m, respectively. Find the cost of laying grass in the entire plot at ₹ 15.25 per square metre.
(a) ₹ 1,293 (b) ₹ 1,275
(c) ₹ 1,281 (d) ₹ 1,302
44. A can complete a piece of work in 35 days. B is 30% less efficient than A. C is 25% more efficient than B. B and C work together for 10 days. A alone will complete the remaining work in :
(a) 19 day (b) $19\frac{1}{4}$ day
(c) 20 day (d) 18 day
45. A car travels at a speed of 62 km/h for $2\frac{1}{2}$ hours and 68 km/h for $1\frac{1}{4}$ hours. What will be its average speed in total distance travelled?
(a) 65 (b) 64
(c) 63 (d) 61
46. A certain sum doubles itself in 8 years on simple interest per annum. Find the rate percentage of the interest.
(a) 11% (b) 12%
(c) 11.5% (d) 12.5%
47. The difference between the compound interest and the simple interest on a principal sum of ₹24,000 in 2 years at same rate of interest is ₹60. The rate of interest is:
(a) 6% (b) 7%
(c) 5% (d) 8%
48. The selling price of 32 items is equal to the cost price of 38 items. Find the profit percentage.
(a) 16.25% (b) 15.79%
(c) 18.75% (d) 19.25%
49. Atulit buys an old bicycle for Rs. 4,000 and spends Rs. 400 for its repairs. If he sells the bicycle for Rs. 5,000, his percentage gain is:
(a) $7\frac{13}{12}\%$ (b) $7\frac{13}{11}\%$
(c) $13\frac{1}{11}\%$ (d) $13\frac{7}{11}\%$
50. If $(a - 1/a) = 3/4$ then find the value of $(a^3 - 1/a^3)$
(a) 164/31 (b) 171/64
(c) 171/32 (d) 164/37
51. The lengths of the diagonals of a rhombus are 16 cm and 12 cm. The length of the side of the rhombus is:
(a) 10 cm (b) 8 cm
(c) 9 cm (d) 20 cm
52. What is the value of median, mode and mean of the given following numbers?
9, 8, 3, 5, 1, 9, 8, 2, 9
(a) 9, 9, 6 (b) 9, 6, 9
(c) 8, 9, 6 (d) 8, 5, 6
53. If $\frac{x}{\sqrt{243}} = \frac{\sqrt{2187}}{x}$, and x is positive, then what is the value of x ?
(a) 29 (b) 27
(c) 23 (d) 21
54. The age of A, B and C are in the ratio of 2:4:5 and the sum of their ages is 77. Find the ratio of the ages of A and B after 10 years.
(a) 10 : 17 (b) 12 : 19
(c) 13 : 18 (d) 11 : 14

55. Pipes A and B can fill an empty tank completely in 42 minutes and 56 minutes respectively. Pipe C alone can empty the full tank in 84 minutes. All the three pipes are opened together for 8 minutes and then C is closed. In how much time (in minutes) will A and B together fill the remaining part of the tank?
- (a) $17\frac{1}{7}$ (b) 16
(c) 18 (d) $18\frac{2}{7}$
56. Who was responsible for introducing Enfield rifles that used the greased cartridges which became the immediate reason of 1857 revolt?
- (a) Captain Hearsey (b) Henry Hardinge
(c) Lord William Bentinck (d) Francis Grant
57. Ali Quli Salim and Abu Talib were important poets during the reign of _____.
- (a) Aurangzeb (b) Jahangir
(c) Shah Jahan (d) Akbar
58. Vindhyashakti was the founder of the..... dynasty?
- (a) Vakataka (b) Kakatiya
(c) Pandava (d) Chola
59. In July 2022, the Supreme Court of India gave an order giving more power to the right to be forgotten, which has been acknowledged as a fact of the right to privacy by the top court in its 2017 landmark judgment; the new order is related to _____.
- (a) medical history
(b) print media
(c) phone calls
(d) search engines and internet
60. The quorum required for the constitution of the Lok Sabha meeting is _____ of the total members of the House-
- (a) Half (b) Two thirds
(c) Sixth (d) Tenth
61. The budget of a state under President's rule is presented before _____.
- (a) Lok Sabha
(b) Prime Minister of India
(c) Rajya Sabha
(d) President of India
62. Which one of the following is an example of Major Tectonic Plate?
- (a) Cocos Plate (b) Arabian Plate
(c) Pacific Plate (d) Nazca Plate
63. Which of the following minerals helps crops withstand pests?
- (a) Calcium, Potassium and Sodium
(b) Sodium, Calcium and Magnesium
(c) Potassium, Calcium and Magnesium
(d) Magnesium, Iron and Boron
64. The total liability of the monetary authority of the country (Reserve Bank of India) is called the _____.
- (a) Narrow and Broad Money
(b) Base Money
(c) Credit Reserve Ratio
(d) Currency Deposit Reserve
65. The addition to capital stock in an economy is measured by net investment or new capital formation, which is expressed as:
- (a) Net investment = Gross investment – depreciation
(b) Depreciation = Net investment + Government investment
(c) Net investment = Gross investment + depreciation
(d) Government investment = Net investment – depreciation
66. The 'Vyas Samman', a literary award was first awarded in the year _____.
- (a) 1991 (b) 1999
(c) 1989 (d) 1990
67. International day of Multilateralism and Diplomacy is celebrated on _____.
- (a) 24th April (b) 4th January
(c) 21st June (d) 3rd May
68. First translation of the Bhagavad Gita into English was done by:
- (a) William Jones (b) Charles Wilkins
(c) Max Muller (d) Colebrook
69. In which year was the International Labour Organisation (ILO) established?
- (a) 1921 (b) 1931
(c) 1919 (d) 1909
70. Where is the Golden temple of Dambulla located?
- (a) Amritsar (b) Sri Lanka
(c) Indonesia (d) Malaysia
71. What is the name of a tank manufactured in India?
- (a) Indra (b) Arjun
(c) Mahabali (d) Kailash
72. Who among the following was the first non-British President of the MCC (Malbourne Cricket Club)?
- (a) Ricky ponting (b) Stephen Fleaming
(c) Kumar Sangakara (d) Sachin Tendulkar
73. With which of the following sports is the term 'double fault' associated?
- (a) Tennis (b) Bridge
(c) Baseball (d) Golf
74. In different parts of the country, New Year is celebrated under different names. Match the following names with their respective states:
- | | |
|---------------------|-----------------|
| (A) Vishu | (1) Tamil Nadu |
| (B) Puthandu | (2) West Bengal |
| (C) Gudi Padwa | (3) Kerala |
| (D) Pohela Boishakh | (4) Maharashtra |
- | | | | |
|----------|----------|----------|----------|
| A | B | C | D |
| (a) 4 | 1 | 2 | 3 |
| (b) 2 | 3 | 4 | 1 |
| (c) 3 | 1 | 4 | 2 |
| (d) 2 | 4 | 1 | 3 |
75. 'Cheriyal' a style of painting that has been in news recently, is unique to which state?
- (a) Madhya Pradesh (b) Andhra Pradesh
(c) Telangana (d) Karnataka

SOLUTION : PRACTICE SET- 11

ANSWER KEY

1. (b)	7. (b)	13. (d)	19. (b)	25. (b)	31. (c)	37. (d)	43. (c)	49. (d)	55. (d)	61. (a)	67. (a)	73. (a)
2. (c)	8. (b)	14. (c)	20. (c)	26. (c)	32. (a)	38. (a)	44. (b)	50. (b)	56. (b)	62. (c)	68. (b)	74. (c)
3. (c)	9. (b)	15. (b)	21. (b)	27. (b)	33. (b)	39. (d)	45. (b)	51. (a)	57. (c)	63. (c)	69. (c)	75. (c)
4. (c)	10. (c)	16. (c)	22. (c)	28. (a)	34. (a)	40. (c)	46. (d)	52. (c)	58. (a)	64. (b)	70. (b)	
5. (d)	11. (b)	17. (c)	23. (d)	29. (d)	35. (b)	41. (a)	47. (c)	53. (b)	59. (d)	65. (a)	71. (b)	
6. (a)	12. (c)	18. (a)	24. (c)	30. (b)	36. (a)	42. (a)	48. (c)	54. (b)	60. (d)	66. (a)	72. (c)	

SOLUTION

1.

Ans : (b) Sugarcane is normally grown by cutting the stem. Sugarcane are usually propagated by the cutting method. The sections of the stalk of immature cane used for planting are known as seed cane. These are sown in field beds. Under favourable conditions, each bud germinates and produces a plant.

2.

Ans : (c) The roots, stems and leaves of some plants grow new plants through process of vegetative propagation. Vegetative reproduction involves the formation of new plants from roots, stems, and leaves. It is a form of asexual reproduction of a plant. Only one plant is involved and the offspring is identical to the parent. It mainly involves the mitosis, example: ginger, potato etc.

3.

Ans : (c) Melioidosis, also called Whitmore's disease, is an infectious disease that can infect humans or animals. The disease is caused by the bacterium *Burkholderia pseudomallei*. Infectious diseases are those diseases that are caused by some pathogenic microbes such as protozoa, fungi, bacteria, viruses, etc. Infectious diseases have the ability to transmit from one body to another. Malaria, typhoid, smallpox, influenza, etc. are examples of infectious diseases.

4.

Ans : (c) Cartilage is the flexible connective tissue found in the human body and other animals. It is made up of chondrocytes cells present in our marrow. Ear bone, nose bone, joints of bones around the spine are made of cartilage. The ears can be folded due to its elasticity.

5.

Ans : (d) The fish has two chambered heart. Fish's heart pumps only impure blood. Respiration takes place through gills and they are cold blooded animals.

6.

Ans. (a) : Mendel's laws of inheritance are known as 'Law of Dominance', 'Law of segregation' and 'Law of Independent Assortment'.

One reason why Mendel was successful in discovering the laws governing inheritance of trait was that he kept numerical count of the progeny.

7.

Ans. (b) : Thorium metal was discovered by Berzelius in 1828 AD from thorite ore. Monazite is its main ore. Thorium metal is obtained by heating thorium chloride with sodium in vacuum.

8.

Ans. (b) : The pH of saliva of a healthy human mostly ranges from 6.2 to 7.6. But it is naturally acidic in nature and average pH is 6.8.

9.

Ans. (b) : Zinc is used in electroplating on iron. Galvanization is the process of applying a protective zinc coating to steel or iron, to prevent rusting. The most common method is hot-dip galvanization, in which parts are submerged in a bath of molten zinc.

10.

Ans : (c) The strength of iron is less in pure form. Therefore, to make iron hard and strong and increase its strength, some amount of carbon is added to it. Steel i.e. is an alloy of iron and carbon. In which the amount of carbon is up to 1.5%.

11.

Ans : (b) The fountain pen is a device working on the theory of capillarity, invented in 1884 by the American inventor Lewis Edson Waterman. Waterman was also the founder of Waterman Pen Company based in New York.

12.

Ans : (c) Atmospheric pressure has no effect on sound speed. The speed of sound increases with increase in temperature. If the temperature of the medium increases by 1°C then the velocity of sound increases with 0.61 m/sec in that medium.

13.

Ans : (d) According to the universal law of gravitational force, due to the gravity of an object, the property of attracting other objects towards itself is

called gravity. Since this property of the object exists everywhere in the universe and never ends. Hence the universal law of gravity applies to any pair of objects. The value of universal gravitational constant (G) is $6.67 \times 10^{-11} \text{ Nm}^2/\text{kg}^2$

14.

Ans : (c) Power = work done/time
 Work done = Force \times displacement
 Velocity = displacement/time
 Power = Force \times displacement/time
 Power = Force \times velocity
 Power = F \times V

15.

Ans : (b) 'Mol' is the symbol of mole in S.I. unit. One mole is equal to 6.023×10^{23} atom.

$$\text{Number of moles (m)} = \frac{\text{Total mass}}{\text{Molecular mass}}$$

16.

Ans. (c) : Just as,

$$T \xrightarrow{+4} X$$

$$P \xrightarrow{+4} T$$

$$N \xrightarrow{+4} R$$

And,

$$L \xrightarrow{+4} P$$

$$S \xrightarrow{+4} W$$

$$K \xrightarrow{+4} O$$

Similarly, from option (c)-

$$Z \xrightarrow{+4} D$$

$$M \xrightarrow{+4} Q$$

$$C \xrightarrow{+4} G$$

17.

Ans. (c) : Just as,,

$$7 : 42 \Rightarrow 7^2 - 7 \Rightarrow 42$$

And $9 : 72 \Rightarrow 9^2 - 9 \Rightarrow 72$

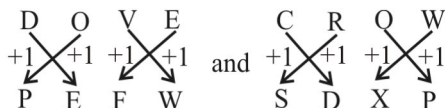
Same as,

$$11 : ? \Rightarrow 11^2 - 11 = 110$$

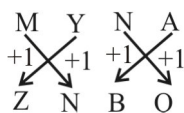
Hence, in place of the question mark the number will be 110.

18.

Ans. (a) : Such as



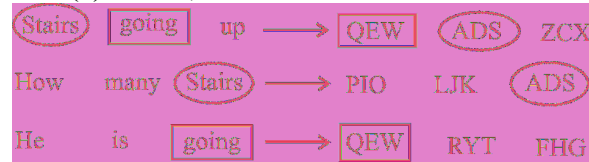
Similarly,



Hence, MYNA is coded as ZNBO.

19.

Ans. (b) : Given,



Hence, 'ZCX' will mean 'up'.

20.

Ans. (c) : From the given options,

(a) (42, 15) \Rightarrow is divisible by 3

(b) (51, 24) \Rightarrow is divisible by 3

(c) (32, 13) \Rightarrow is co-prime number

(d) (72, 45) \Rightarrow is divisible by 3

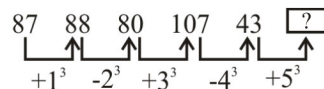
Hence, option (c) is inconsistent with the others.

21.

Ans. (b) : Plastic is not related to the given group. Because it is formed by artificial whereas remain three are been in natural form.

22.

Ans. (c) : The given series as follows:



$$? \Rightarrow 43 + (5)^3$$

$$\Rightarrow 43 + 125$$

$$\Rightarrow \boxed{168}$$

23.

Ans. (d) : Just as, the second pattern can be obtained by increasing one zero in the first pattern and rotating the pattern 45° clock-wise. Similarly by increasing the zero in the third pattern and rotating the pattern 45° clockwise, the option(d) pattern will be obtained.

24.

Ans. (c) : On putting the signs from option (c),

$$32 - 16 + 8 \div 2 = 3 \times 5 + 5$$

$$32 - 16 + 4 = 20$$

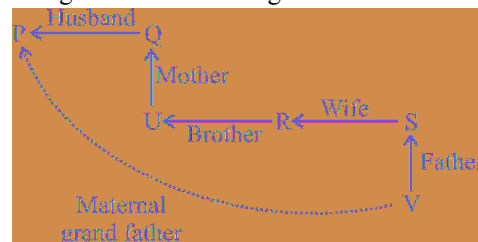
$$20 = 20$$

Hence, option (c) is correct.

25.

Ans. (b) : Expression $\rightarrow P @ Q \$ U = R \% S \# V$

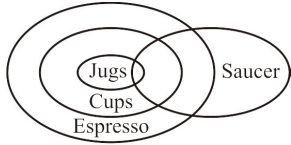
On drawing blood relation diagram-



Hence, it is clear from above figure that P is V's maternal grandfather.

26.

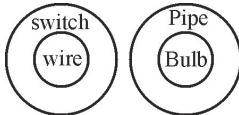
Ans. (c) : According to the statement, Venn diagram is as follows,



Conclusion: I. (✓), II. (✓)
Hence, both conclusions I and II follows.

27.

Ans. (b) : According to the statement Venn diagram is as follows,

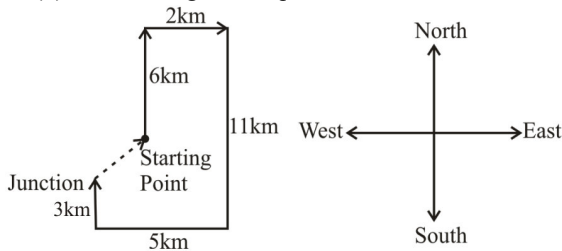


Conclusions: I - (✓)
II - (✓)

Hence, both conclusion I and II follows.

28.

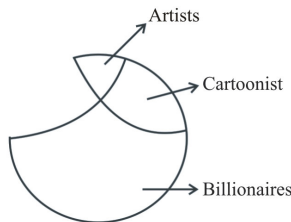
Ans.(a) : According to the question,



Hence, it is clear from diagram that bus-stand is in North-East direction with respect to the junction.

29.

Ans. (d) : In given Venn diagram assuming that shaded areas do not exist.



It is clear from the above diagram that the conclusion of option (d) "All artists are cartoonists" can be drawn.

30.

Ans. (b) :

	Ludo	Cricket	Badminton	Kabaddi
Sahil	✓	✓	✓	✓
Manish	✓	✓	✓	
Shalini		✓	✓	✓
Raja			✓	✓
Tarun			✓	✓

According to the above table Shalini plays Badminton, Cricket and Kabaddi but does not play Ludo.

31.

Ans. (c) : From the given options,

- (a) $65 : 16 \Rightarrow 16 \times 4 + 1 = 65$
- (b) $49 : 12 \Rightarrow 12 \times 4 + 1 = 49$
- (c) $62 : 15 \Rightarrow 15 \times 4 + 2 = 62$ (oddone)
- (d) $33 : 8 \Rightarrow 8 \times 4 + 1 = 33$

It is clear from the above that option (c) is different from other three options.

32.

Ans. (a) : Given,

P L M **OKI** N B H U Y G **A V E** C F T

There are two consonants that are immediately preceded by a vowel and immediately followed by a vowels.

33.

Ans : (b) According to the statement, the students who passed the exam described the exam's question as extremely difficult and long, which can lead to low marks in their results. The statement only talks about the question paper being difficult and lengthy, not the question paper having out of syllabus questions. Hence, only conclusion I follows the statement.

34.

Ans. (a) : Jasmine flower is white in color but according to statement I, white is called red and statement II white is called brown.
Hence, either I or II is sufficient.

35.

Ans. (b) : From the statement "Many people living in villages are settling in cities for better future". Neither conclusion I nor conclusion II follows.

36.

Ans. (a) : Let the two digit number $(pq) = 10x + y$

Then, $qp = 10y + x$

According to the question,

$$\begin{aligned} pq - qp &= 10x + y - (10y + x) \\ &= 10x + y - 10y - x \\ &= 9x - 9y \\ &= 9(x - y) \end{aligned}$$

Hence $pq - qp$ will be completely divisible by 9.

37.

Ans. (d) : Let five consecutive multiple of 2 – $2x, 2x+2, 2x+4, 2x+6, 2x+8$

According to the question,

$$\begin{aligned} 2x + 2x + 2 + 2x + 4 + 2x + 6 + 2x + 8 &= 660 \\ 10x + 20 &= 660 \\ 10x &= 640 \end{aligned}$$

$x = 64$

Hence, largest number = $2x + 8 = 2 \times 64 + 8 = 128 + 8 = 136$

38.

Ans : (a) From the given expression,
 $(-8)[36 \div \{7 - (-2)\}] \div (-4)\{19 - (-3) \times (-5)\}$
 $= (-8)[36 \div \{9\}] \div (-4)\{19 - 15\}$
 $= (-8)[4] \div (-16)$
 $= \frac{32}{16} = 2$

39.

Ans : (d) Let $\overline{0.41} = x$
 $0.414141 \dots = x$
 Multiplying by 100 in both sides,
 $100x = 41.4141 \dots$
 $100x = 41 + x$
 $99x = 41$
 $x = \frac{41}{99}$

Hence, it is clear that the number of digit 9 in denominator is twice. So $n = 2$.

40.

Ans. (c) :

LCM of fractions $\frac{\text{LCM of the numerators}}{\text{HCF of denominator}}$
 LCM of $\frac{5}{6}, \frac{6}{5}$ and $\frac{3}{2} = \frac{\text{LCM of 5, 6 and 3}}{\text{HCF of 6, 5 and 2}}$
 $= \frac{30}{1} = 30$

41.

Ans. (a) : 45 : 75, 3 : 5, 51 : 68, 256 : 81

Compound ratio = $\frac{\text{Product of 1}^{\text{st}} \text{ term}}{\text{Product of 2}^{\text{nd}} \text{ term}}$
 $= \frac{45 \times 3 \times 51 \times 256}{75 \times 5 \times 68 \times 81} = \frac{3 \times 1 \times 51 \times 64}{5 \times 5 \times 17 \times 27}$
 $= \frac{3 \times 3 \times 64}{5 \times 5 \times 27} = \frac{64}{75}$

42.

Ans. (a) : We know that

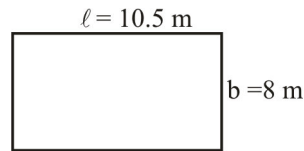
Net % effect = $\left(-x + y - \frac{xy}{100}\right)\%$

Where, $-x = \text{decrease}$
 $+y = \text{increase}$

$\therefore \text{Net \% effect} = -15 + 25 - \frac{15 \times 25}{100}$
 $= (10 - 3.75)\%$
 $= 6.25\% \text{ increase}$

43.

Ans. (c) :



Area of rectangular plot = $l \times b$
 $= 10.5 \times 8$
 $= 84 \text{ m}^2$

The cost of laying grass in the entire plot = 84×15.25
 $= ₹ 1281$

44.

Ans. (b) : Let the working efficiency of A = 100 unit
 Ratio of working efficiency of A, B and C

$A : B : C = 100 : 70 : 70 \times \frac{125}{100}$
 $= 100 : 70 : \frac{175}{2}$
 $= 200 : 140 : 175$

Ratio of time taken by A, B and C

$A : B : C = \frac{1}{200} : \frac{1}{140} : \frac{1}{175}$
 $A : B : C = 7 : 10 : 8$

Let the time taken by A, B and C to complete the work be $7x, 10x$ and $8x$ days respectively.

According to the question,

$7x = 35$
 $x = 5$

Hence time taken by B = $10 \times 5 = 50$ days

and time taken by C = $8 \times 5 = 40$ days

10 day's work of (B + C) = $10 \left(\frac{1}{50} + \frac{1}{40}\right)$
 $= 10 \left(\frac{4+5}{200}\right)$
 $= \frac{9}{20} \text{ part}$

Remaining work = $1 - \frac{9}{20} = \frac{11}{20} \text{ part}$

Time taken by A to do $\frac{1}{35}$ part of work = 1 days

Hence the time taken to complete $\frac{11}{20}$ part of work
 $= 35 \times \frac{11}{20} = \frac{77}{4} \text{ days}$
 $= 19\frac{1}{4} \text{ days}$

45.

Ans : (b) Total distance covered by car

$$= 62 \times \frac{5}{2} + 68 \times \frac{5}{4} \quad (\because \text{Distance} = \text{Speed} \times \text{Time})$$

$$= 31 \times 5 + 17 \times 5$$

$$= 155 + 85 = 240 \text{ km.}$$

$$\text{Average speed of car} = \frac{\text{Total Distance}}{\text{Total Time}}$$

$$= \frac{240}{5/2 + 5/4} \Rightarrow \frac{240 \times 4}{10 + 5}$$

$$= \frac{240 \times 4}{15} \Rightarrow 16 \times 4 = 64 \text{ Km./hr.}$$

46.

Ans. (d) : Given,

$$\text{Time (T)} = 8 \text{ Years}$$

$$\text{Rate (R)} = ?$$

Then,

$$(N-1) \times 100 = R \times T$$

$$(2-1) \times 100 = R \times 8$$

$$R = \frac{100}{8}$$

$$\text{Rate (R)} = 12.5\%$$

47.

Ans. (c) : Let principal = (P), Time = (t), Compound interest (CI) and simple interest (SI)

The difference between the compound interest and the simple interest of for two years-

$$\text{Difference} = \text{Principal} \left(\frac{\text{Rate}}{100} \right)^2$$

$$60 = 24000 \times \frac{(\text{Rate})^2}{10000}$$

$$(\text{Rate})^2 = 5 \times 5$$

$$R = 5\%$$

48.

Ans. (c) : Given,

$$32 \times \text{SP} = 38 \times \text{CP}$$

$$\Rightarrow \frac{\text{SP}}{\text{CP}} = \frac{38}{32}$$

$$\text{Hence, } P = 38 - 32$$

$$= 6$$

$$\text{Profit \%} = \frac{P \times 100}{\text{CP}}$$

$$= \frac{6 \times 100}{32}$$

$$\therefore P = \frac{75}{4}\% \text{ or } 18.75\%$$

49.

Ans. (d) : Cost price of the bicycle for Atulit = 4000 + 400 = ₹4400

Selling price of the bicycle = ₹5000

$$\text{Profit} = 5000 - 4400$$

$$= ₹600$$

$$\text{Profit \%} = \frac{600}{4400} \times 100$$

$$= \frac{600}{44}$$

$$= \frac{150}{11}$$

$$= 13\frac{7}{11}\%$$

50.

$$\text{Ans : (b) } a - \frac{1}{a} = \frac{3}{4}$$

By cubing both sides,

$$\left(a - \frac{1}{a} \right)^3 = \frac{27}{64}$$

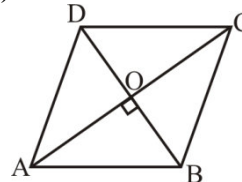
$$a^3 - \frac{1}{a^3} - 3 \left(a - \frac{1}{a} \right) = \frac{27}{64}$$

$$a^3 - \frac{1}{a^3} - 3 \times \frac{3}{4} = \frac{27}{64}$$

$$a^3 - \frac{1}{a^3} = \frac{27}{64} + \frac{9}{4} = \frac{171}{64}$$

51.

Ans. (a) :



$$AC = 16 \text{ cm,}$$

$$BD = 12 \text{ cm}$$

$$OA = \frac{16}{2}$$

$$OB = \frac{12}{2}$$

$$= 8 \text{ cm}$$

$$= 6 \text{ cm}$$

In right angled $\triangle AOB$

$$AB = \sqrt{8^2 + 6^2}$$

$$= \boxed{10 \text{ cm}}$$

52.

Ans : (c) Arranging the number in ascending order-

1, 2, 3, 5, 8, 8, 9, 9, 9

$n = 9$ (odd)

$$\text{Median} = \left(\frac{n+1}{2} \right)^{\text{th}} \text{ term} = \left(\frac{9+1}{2} \right)^{\text{th}} \text{ term}$$

$$= 5^{\text{th}} \text{ term} = 8$$

$$\text{Mean} = \frac{\text{sum of all numbers}}{\text{Total numbers}}$$

$$= \frac{9+8+3+5+1+9+8+2+9}{9} = \frac{54}{9} = 6$$

Mode = 9 (Most frequent)

Hence median, mode and mean is 8, 9, 6.

53.

Ans : (b) Given,

$$\frac{x}{\sqrt{243}} = \frac{\sqrt{2187}}{x}$$

$$\Rightarrow \frac{x}{\sqrt{9 \times 9 \times 3}} = \frac{\sqrt{3 \times 9 \times 9 \times 9}}{x}$$

$$\Rightarrow \frac{x}{9\sqrt{3}} = \frac{27\sqrt{3}}{x}$$

$$\Rightarrow x^2 = 27 \times 9 \times \sqrt{3} \times \sqrt{3}$$

$$x = \sqrt{27 \times 27} = 27$$

Hence, the value of x is 27.

54.

Ans : (b) Let the age of A = 2x years

Age of B = 4x years

Age of C = 5x years

According to the question,

$$2x + 4x + 5x = 77$$

$$11x = 77$$

$$x = 7$$

∴ Ratio of ages of A and B after 10 years

$$= 2x + 10 : 4x + 10$$

$$= 2 \times 7 + 10 : 4 \times 7 + 10$$

$$= 24 : 38$$

$$= 12 : 19$$

55.

Ans. (d) :

$$\begin{array}{l} A \rightarrow 42 \quad -4 \\ B \rightarrow 56 \quad -3 \\ C \rightarrow 84 \quad -2 \end{array} \quad \rightarrow \quad 84 \times 2 = 168 \text{ (Total work)}$$

Work done by (A+B+C) in 8 minutes = $8 \times (4+3-2) = 40$ unit

$$\text{Remaining work} = 168 - 40 = 128$$

$$\text{Required time} = \frac{128}{7} = 18 \frac{2}{7} \text{ minutes}$$

56.

Ans. (b) : Henry Hardinge, who was Governor General of India from 1844 to 1848, attempted to modernize the army's equipment. The enfield rifles that were introduced initially used the greased cartridges, due to which the sepoys mutiny broke out. Muslims had a belief that cartridge was greased with pig fat where Hindus believed that greased cartridge was made from cow fat.

57.

Ans. (c): Ali Quli Salim and Abu Talib were important poets during the reign of Shah Jahan. During Akbar's period, Faizi, Abul Fazal, Tulsidas and Raskhan were famous poet. During Jahangir time, Surdas, Bihari, Keshav das, Naqib khan and Mutamid restricted historiography.

58.

Ans. (a): Vindhyashakti was the founder of the Vakataka dynasty. The Vakataka dynasty was spread over the upper part of Madhya Pradesh and up to Berar (Andhra Pradesh). Vindhyashakti is mentioned in Vayu Purana and Ajanta Likh. The most powerful king of this dynasty was Pravar Sen I. Pravar Sen was the only ruler of this dynasty who assumed the title of Emperor.

59.

Ans. (d): On 18th July 2022, the Supreme Court of India gave an order giving more power to the right to be forgotten, which has been acknowledged as a fact of the right to privacy by the top court in its 2017 landmark judgment, the new order is related to 'search engines and internet'. Recognizing 'Right to be forgotten as part of right to privacy, the Supreme Court ordered its registry to work out a mechanism to remove personal details of litigants entangled in matrimonial litigation.

60.

Ans. (d): The quorum required to constitute a meeting of the Lok Sabha is the 1/10th of the total members of the house. According to Article 100 (3), quorum of Lok Sabha or Rajya Sabha is 1/10 of the total number of members. The same number is also necessary for the recognition of the main opposition party.

61.

Ans. (a) Article 356 of the Indian Constitution provides for President's rule. Accordingly, it should be known to the President that if the government of a state is not being run according to the Constitution, then he can impose President's rule. With the imposition of President's rule, the government and legislature of the state will be dissolved, the governor will govern as the representative of the President and all the legislative and financial functions of the state will be done by the Parliament of the Union. **Hence, the budget of the state under President's rule will be presented in the Lok Sabha.**

62.

Ans. (c) : The Earth's lithosphere is divided into 7 major and some minor plates. Young Fold Mountain ridges, Oceanic trenches and/or transform fault surround the major plates. Major plates include :- Antarctic plate, Pacific plate, North American plate, South American Plate, India-Australia-New Zealand plate, The Africa with the eastern Atlantic floor plate and Eurasia & the Adjacent oceanic plate whereas Cocos plate, Nazca plate, Arabian plates, Fuji plate & Caroline plate etc. are included in minor plates.

63.

Ans. (c) : The minerals like potassium(K), calcium (Ca), and magnesium (Mg) help crops withstand pests. Calcium in the plant is used to make calcium percale. Potassium plays a major role in insect and disease suppression. Nitrogen excess tends to produce weak, fast-growing plants that are very susceptible to insects and disease damage.

64.

Ans.(b) : The total liability of the monetary authority of the country, RBI, is called the base money or high-powered money.

65.

Ans. (a): New addition to capital stock in an economy is measured by net investment or new capital formation, which is expressed as

Net Investment = Gross investment – Depreciation

It is significant that, Gross Investment is the total expenditure done for buying capital goods or adding to the capital stock over a time period, without counting depreciation.

66.

Ans. (a) : The Vyas Samman is a literary award. It was first awarded in 1991 to Ram Vilas Sharma for his work 'Bharat Ki Pracheen Bhasha Parivar aur Hindi'. The award is annually given by the K.K. Birla Foundation and includes a cash payout of ₹ 4,00,000.

67.

Ans. (a) :

Date	Day
24 th April	– International day of Multilateralism and Diplomacy.
4 th January	– World Braille Day
21 st June	– International Yoga Day

68.

Ans. (b) : Charles Wilkins was a remarkable man and had a flair for languages. He came to India in the late 18th century and started his career as a printer and a clerk with the British East India Company. Soon enough, he was posted in Banaras, where he learnt Sanskrit and became the first ever individual to translate the Bhagavad Gita into English. He titled his work Bhagwat Geeta or the Dialogues of Krishna and Arjun. Fortunately, Wilkins knew the then Governor-General Warren Hastings, who was very impressed with his work and strongly recommended that the East India Company publish it in England.

69.

Ans. (c) : International Labour Organization (ILO) is a specialized agency of the United Nations. It is the only tripartite UN agency. Established in 1919 by the treaty of Versailles as an affiliated agency of the League of Nations. ILO brings together governments, employers and workers representative of 187 member states, to set labour standards, develop policies and devise programmes promoting decent work for all women and man. Its headquarters is situated in Geneva, Switzerland.

70.

Ans. (b): The Golden Temple of Dambulla also known as Dambulla cave temple is a World Heritage Site located in Sri Lanka. It symbolizes the great Buddhist Culture in ancient Sri Lanka.

71.

Ans. (b): Arjun is a tank manufactured in India. Arjun is the third generation main battle tank developed by the DRDO. It can achieve a maximum speed of 67 km/h.

72.

Ans. (c): Melbourne Cricket Club (MCC), former governing body of Cricket, founded in London in 1787. Former Sri Lankan international cricket player Sangakara became the first non-British President in the history of MCC.

73.

Ans. (a) : In the given options double fault is associated with Tennis. When the server commits any combination of two faults during one serving point is called double fault.

74.

Ans. (c) : State	New year celebration
Tamil Nadu	Puthandu
Kerala	Vishu
West Bengal	Pohela Boishakh
Maharashtra	Gudi Padwa

75.

Ans. (c) : Cherial scroll painting is a stylized version of Nakashi art, rich in the local motifs peculiar to the Telangana. They are at present made only in Hyderabad, Telangana.

State	Art Style
Bihar	– Madhubani Art
Maharashtra	– Warli painting
Odisha	– Pattachitra painting
Andhra Pradesh	– Kalamkari painting
Madhya Pradesh	– Gond painting
Rajasthan	– Phad painting, Mandana
West Bengal	– Kalighat painting
Gujarat	– Athiya

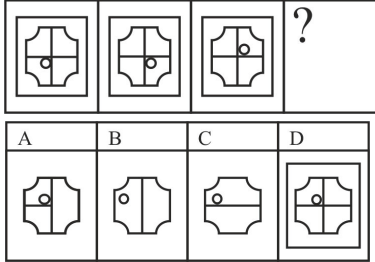
PRACTICE SET-12

1. The sound of a human voice is produced from the vocal cord by
 (a) Transfer (b) Bustle
 (c) Vibration (d) Movement
 2. Plant that does not grow by vegetative propagation:
 (a) Banana (b) Rose
 (c) Orange (d) Papaya
 3. Escherichia coli occurs in:
 (a) Intestine of man (b) Water
 (c) Milk (d) Soil
 4. Which of the following are connected by the ligament?
 (a) Muscle to bone (b) Bone to bone
 (c) Skin to muscle (d) Nerve to muscle
 5. Which of the following enzymes in the saliva breaks down starch which is a complex molecule to give simple sugar?
 (a) Salivary trypsin (b) Salivary amylase
 (c) Salivary lipase (d) Salivary pepsin
 6. Genes control traits through the activity of :
 (a) chromosomes (b) gametes
 (c) enzymes (d) hormones
 7. What happens when a metal reacts with oxygen?
 (a) nonmetal oxide (b) metallic hydroxide
 (c) Metallic oxide (d) Nonmetal hydroxide
 8. Where are metals placed in the modern periodic table?
 (a) upper row (b) right side
 (c) lower row (d) left
 9. Muriatic acid is scientifically known as:
 (a) Perchloric Acid (b) Hydrochloric Acid
 (c) Sulphuric Acid (d) Picric Acid
 10. Oxides of metals are usually
 (a) Basic
 (b) Less reactive amphoteric oxide
 (c) Neutral
 (d) Acidic
 11. To obtain in sharp signals from a dish antenna, the receiver of the dish antenna should be placed _____
 (a) in front of the dish at C
 (b) in front of the dish at F
 (c) in front of the dish between C and F
 (d) behind the dish
 12. Which of the following statements is true? The velocity of sound is
 (a) less in summer than winter
 (b) same in winter and summer
 (c) is not dependent on the weather
 (d) more in summer than winter
 13. If the distance between two particles increases, what is the effect on the force of gravitational between them?
 (a) increases (b) decreases
 (c) becomes zero (d) remains the same
 14. What is the energy exerted due to the position and shape taken by an object ?
 (a) latent energy (b) Potential energy
 (c) Kinetic energy (d) Electrical energy
 15. What is another name for coulomb / second ?
 (a) Joule (b) Ampere
 (c) Volt (d) Second
 16. In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.
 ABC : EFG
 PQR : TUV
 (a) XYZ : BCD (b) PKL : RSM
 (c) MNO : PQR (d) GHI : DEF
 17. Find the missing number to complete the given analogy.
 2 : 7 :: 11 : ? :: 23 : 37
 (a) 19 (b) 15
 (c) 21 (d) 17
 18. In a certain code language 'NATURE' is written as 'QYWSUC' and 'REASON' is written as 'UCDQRL'. How will 'LOTION' be written in that language?
 (a) OMWGRL (b) OLWFRK
 (c) NMVGQL (d) MNGVLQ
 19. In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The Correct combination of codes following the condition is your answer.

Number/Symbol	5	4	+	@	7	3	<	2	9	!	0	=
Code	B	S	R	T	U	P	D	Y	A	V	C	X
- Conditions:**
- (i) If the first element is a symbol and the last a number, the codes for these two are to be interchanged.
 - (ii) If the first element is an odd number and the last, an even number, the first and last elements are to be coded as \emptyset .
 - (iii) If both second third elements are either symbols or numbers, the third element is to be coded as the code for the second element.
- How will '5% = 3 ! 9' be coded?
 (a) \emptyset VEPC \emptyset (b) BVVPCX
 (c) XVEPCB (d) BVEPCX
20. Four number pairs have been given, out of which three are alike in some manner and one is different. Select the number pair that is different from the rest.
 (a) 19 : 361 (b) 23 : 539
 (c) 28 : 784 (d) 17 : 289
 21. Name of four birds are given below three of which related in some way and one is different. Select the different.
 (a) Vulture (b) Penguin
 (c) Emu (d) Ostrich

22. Select the number from the given options that can replace the question mark (?) below:
If 243 (222) 317, then 548 (?) 621
(a) 210 (b) 219
(c) 211 (d) 209

23. Which of the following option will replace the question mark in following series.



- (a) A (b) B
(c) D (d) C
24. If '>' meaning '+', '<' meaning '-', '+' meaning '÷', '^' meaning '×' and '-' meaning '=' then find the true given equations?
(a) $6 < 18 + 3 > 10 \wedge 3 - 32$
(b) $10 < 9 + 3 \wedge 6 > 5 - 47$
(c) $6 < 18 + 3 > 12 \wedge 3 - 48$
(d) $7 < 18 + 2 \wedge 12 > 3 - 2 < 100$

25. 'X is the mother of Y' is represented by 'X < Y'
'X is the husband of Y' is represented by 'X > Y'
'X is the sister of Y' is represented by 'X @ Y'
'X is the son of Y' is represented by 'X \$ Y'
Which of the following indicates the relationship 'R is the daughter of Q'?
(a) $Q > K @ R \$ H$ (b) $R @ H > K < Q$
(c) $Q < K @ H \$ R$ (d) $R @ H \$ K > Q$

26. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements :

- (i) All cups are bottles.
(ii) All bottles are pans

Conclusions

- (i) All cups are pans.
(ii) All bottles are cups
(iii) All pans are cups.
(iv) Some pans are bottles

- (a) Only conclusion II follows.
(b) Only conclusions I and IV follow.
(c) Only conclusions II and III follow.
(d) Only conclusions III follows
27. Three statements are given followed by three conclusions. Consider the statements and conclusions to be true even if they vary from commonly known facts and then decide which of the conclusions follow(s) from the given statements.

Statements :

1. All bags are books.
2. All books are copies.
3. No pen is a copy.

Conclusions :

I. Some books are pens.

II. No bag is a pen.

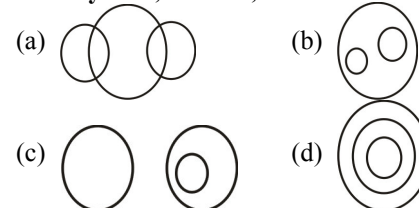
III. Some copies are bags.

- (a) Only conclusion III follows.
(b) Only conclusion II and III follow.
(c) Only conclusion II follows.
(d) None of the conclusions follows.

28. Dev walks 23 m towards the west from his hostel gate. He takes a left turn and walks 14 m. He takes a right turn and walks 63 m. He takes a left turn and walks 32 m. He takes a left turn again and walks 86 m. Again, he takes a left turn and walks 16 m to reach a canteen. How far and in which direction is the canteen from Dev's hostel gate? (All turns are 90 degree turns only)
(a) 30 m, North (b) 16 m, South
(c) 16 m, North (d) 30 m, South

29. Select the Venn diagram that best represents the relationship between the given set of classes.

Solar system, Planets, Universe



30. P, Q, R, S, T, U and V are students who have exams on different days of the same week, starting on Monday and ending on Sunday. No two students have exams on the same day. P's exam is on one of the days after Thursday. Q's exam is on the day immediately after P's exam. Three students have exams between Q and V. R has the exam on one of the days before V, but not on Monday. S has the exam immediately before T.
On which day does U have the exam?
(a) Monday (b) Friday
(c) Saturday (d) Tuesday

31. Four number-pairs have been given, out of which three are alike in some manner and one is different. Select the odd one.

- (a) 12 - 96 (b) 16 - 118
(c) 13 - 104 (d) 15 - 120

32. Refer to the following letter, symbol series and answer the question.

D & C N E ^ & G ^ Y % % @ G Y & I & * H K Z

How many consonants are there that are immediately preceded by a symbol ?

- (a) Five (b) Four
(c) Eight (d) Six

33. Statement:

Penguins are the most friendly among all creatures.

Conclusion:

I. No other creature is friendly

II. Penguin is much liked by humans.

- (a) Only conclusion I follows.
 (b) Neither I nor II follows.
 (c) Only conclusion II follows.
 (d) Both the conclusion follows.
34. **Question:**
What is code for 'late'?
Statement:
 1. In any code language "I was late" is written as "N wis le".
 2. "She is late" is written as "Se s le"
 (a) Either 1 or 2 is not sufficient
 (b) Statement 1 alone is sufficient
 (c) Statement 2 alone is sufficient
 (d) Statement 1 and 2 together are sufficient
35. **Argument:**
Due to severe cold wave, the government asked to shut down all the schools for one week in the region with immediate effect.
Assumptions:
 1. The cold wave may continue for one week.
 2. Concerned parents may not allow their children to attend the school after one week also.
 (a) Only assumption 2 is implicit
 (b) Neither 1 nor 2 is implicit
 (c) Only assumption 1 is implicit
 (d) Both 1 and 2 are implicit
36. The smallest positive number which must be added to the greatest number of 4 digits in order that the sum may be exactly divisible by 307 is:
 (a) 307 (b) 132 (c) 306 (d) 176
37. What is the unit digit of $[4523^{1632} \times 2224^{1632} \times 3225^{1632}]$
 (a) 1 (b) 0
 (c) 4 (d) 5
38. Solve the following.
 $\{38 - (60 \div 5 \times 16 - 8 \div 2 \div 3)\} = ?$
 (a) 30 (b) 29
 (c) 22 (d) 37
39. Which of these fractions cannot be reduced further?
 14/21, 33/43, 18/24, 41/82
 (a) 33/43 (b) 92/24
 (c) 18/24 (d) 41/82
40. If the LCM of $20x^3y^2$ and $10x^4y^4$ is $20x^4y^4$ find the HCF.
 (a) $10x^2y^2$ (b) $20x^3y^2$
 (c) $10x^3y^2$ (d) $20x^2y^2$
41. In a bag, the coins of 50 paise, 25 paise and 10 paise are in the ratio of 5:4:3. If the value of coins is ₹ 171. Find the number of each types of coins.
 (a) 200, 250, 150 (b) 225, 180, 135
 (c) 140, 150, 280 (d) 200, 360, 160
42. On a short occupation following expenditures occurs: 25% on purchase, 25% on employees' salary and 50% on maintenance. If the occupation pays ₹ 2,00,000, then what is its expenditure on maintenance?
 (a) ₹ 3,00,000 (b) ₹ 4,00,000
 (c) ₹ 2,00,000 (d) ₹ 2,50,000
43. The area of a rectangle is 396 cm^2 , and its length and breadth are in the ratio of 11:9. Find its perimeter:
 (a) 80 cm (b) 50 cm
 (c) 60 cm (d) 70 cm
44. P and Q can separately do a work in 6 and 8 days respectively with the help of R they complete the work in 3 days. If total wages is Rs. 3200 then what is the amount given to R?
 (a) Rs. 320 (b) Rs. 1200
 (c) Rs. 400 (d) Rs. 375
45. The speed of a car from A to B is 60 km/h and the speed of return is 40 km/h. Find the average speed of the car (in km/h).
 (a) 50 (b) 45
 (c) 48 (d) 52
46. Anil Kumar took a loan of ₹24,000 with simple interest for as many years as the rate of interest. If he paid ₹19,440 as interest at the end of the loan period, what was the rate of interest?
 (a) 8.5% (b) 10%
 (c) 8% (d) 9%
47. A certain sum of money earns, simple interest of ₹ 2,000 in two years at the rate of 10% p.a. if the interest on the same amount is compounded annually, then what will be the difference between the two types of interest?
 (a) ₹200 (b) ₹220
 (c) ₹100 (d) ₹120
48. A seller buys a certain number of bananas at the rate of 8 for ₹5 and sells them at the rate of 5 for ₹8. What will be his profit percentage?
 (a) 40% (b) 144%
 (c) 156% (d) 48%
49. Kaveri bought a toy for ₹ 280 and sold it for ₹ 315. How much profit did she get?
 (a) 17.5% (b) 12.5%
 (c) 16% (d) 15.25%
50. If $x^2 + ax + b$, when divided by $x - 4$, left a remainder of 32 and $x^2 + bx + a$, when divided by $x - 4$, left a remainder of 35, then $a + b = ?$
 (a) -7 (b) 23
 (c) -23 (d) 7
51. The sides of a parallelogram are $3x + 2$ and $5x + 4$. It has a perimeter of 44 cm and an area of 64 cm^2 . The value of the acute angle between its sides in degrees is:
 (a) Between 60° and 75°
 (b) Less than 30°
 (c) Between 30° and 60°
 (d) Greater than 75°
52. What will be the range, mode and median of the given following data?
 13, 14, 13, 12, 15, 21, 16, 18, 13
 (a) 9, 13, 14 (b) 6, 13, 14
 (c) 8, 13, 14 (d) 5, 13, 14
53. If $\sqrt{225} = 15$ then $(\sqrt{0.0000225})/15 =$
 (a) 0.0015 (b) 0.001
 (c) 0.0001 (d) 0.015

54. y years ago Mauma's age was $\frac{1}{5}^{\text{th}}$ of Saumi's age. After y years from now, Mouma's age will be $\frac{1}{4}^{\text{th}}$ of Saumi's age. What is the ratio of the present ages of Mauma and Saumi?
 (a) 16 : 25 (b) 4 : 5
 (c) 7 : 31 (d) 2 : 9
55. Two pipes P and Q fill a tank in 15 minutes and 20 minutes respectively. Both are opened but after 4 minute P is closed. In how much time tank is filled from the beginning?
 (a) 16 minutes
 (b) 16 minutes 20 sec.
 (c) 14 minutes 20 sec.
 (d) 14 minutes 40 sec.
56. _____ was the Dalawa of Travancore who led a revolt in 1808 was hanged in public.
 (a) Velu Thampi (b) Sir Thomas Munaro
 (c) Veera Pandya (d) Queen Chennamma
57. Where is the Raniji ki Baori or the 'Queen's Stepwell', the largest among the fifty step wells that were built to meet the need for water located?
 (a) Banswara in Rajasthan
 (b) Bundi in Rajasthan
 (c) Jaipur in Rajasthan
 (d) Jaisalmer in Rajasthan
58. Which of the following literature is not written in Sanskrit?
 (a) Tirukkural (b) Ratnavali
 (c) Rajatarangini (d) Meghdoot
59. Preventive detention is a part of which Article of Indian Constitution?
 (a) 25 (b) 22
 (c) 28 (d) 26
60. Which Article of the Indian Constitution states that "The Council of Ministers shall be collectively responsible to the House of the People"?
 (a) Article 80(4) (b) Article 75(2)
 (c) Article 75(1) (d) Article 75(3)
61. Under which amendment it was added in article 75 of the Indian Constitution that the total number of ministers including the Prime Minister in the Council of Ministers shall not exceed 15 percent of the total number of members of the Lok Sabha.
 (a) 93rd Constitutional Amendment Act, 2005
 (b) 91st Constitutional Amendment Act, 2003
 (c) 94th Constitutional Amendment Act, 2006
 (d) 92nd Constitutional Amendment Act, 2003
62. Which of the following fishing grounds is located on the confluence of the Labrador Current and Gulf Stream?
 (a) Falkland island
 (b) Oyashio fishing ground
 (c) Southwest African Coast
 (d) Newfoundland
63. Name the underground water channels developed during ancient times in which water drains using gravity via a slope for the purpose of irrigation.
 (a) Rivers (b) Tributaries
 (c) Tunnels (d) Qanats
64. Which of the following is a qualitative instrument of credit control used by the Reserve Bank of India?
 (a) Moral suasion
 (b) Open market operations
 (c) Repo rate
 (d) Bank rate
65. Which plan has been launched by Government of India in which cancer and Heart patients expenditure on disease could be reduced by which health checkup could be cheaper for needy person?
 (a) MAARC (Medical Help on cheapest cost)
 (b) AMRUT (affordable Medical and trustable transplant for treatment)
 (c) AYUSH MAN BHARAT (Your great security and make sure health)
 (d) Padha (appropriate and payable medical help)
66. How much money is given to Rajiv Gandhi khel Ratna Award winner?
 (a) 25 Lakh (b) 7.5 Lakh
 (c) 7 Lakh (d) 10 Lakh
67. When is International Dance Day celebrated?
 (a) 27th April (b) 29th April
 (c) 28th April (d) 30th April
68. Who wrote the book 'The Little Balance (La Bilancetta)' in 1586?
 (a) Carolus Linnaeus (b) Galileo Galilei
 (c) James Prescott (d) Archimedes
69. What is the name of the intergovernmental military alliance between 30 European and North American countries?
 (a) The International Military Collaboration
 (b) The International Military Fund
 (c) The North Atlantic Treaty Organization
 (d) The World Militia Organization
70. Where is the world's largest statue of Jesus Christ?
 (a) Brazil (b) Mexico
 (c) Italy (d) Peru
71. Which of the following causes a ballistic missile to fail due to a flaw in its precision?
 (a) Due to its shape
 (b) Due to air resistance
 (c) Due to projection angle
 (d) Due to metal
72. Sachin Tendulkar scored his 100th international cricket century against which team?
 (a) England (b) Australia
 (c) Bangladesh (d) Pakistan
73. Which of the following is NOT one of the Grand Slam tournaments of tennis?
 (a) French Open (b) Canadian Open
 (c) Wimbledon (d) Australian Open
74. In which of the following states is the festival 'Chapchar Kut' celebrated?
 (a) Meghalaya (b) Sikkim
 (c) Assam (d) Mizoram
75. Traditional weaving of Gujarat is known as
 (a) Tushar (b) Kanjivarm
 (c) Jamdani (d) Patola

SOLUTION : PRACTICE SET- 12

ANSWER KEY

1. (c)	7. (c)	13. (b)	19. (b)	25. (d)	31. (b)	37. (b)	43. (a)	49. (b)	55. (d)	61. (b)	67. (b)	73. (b)
2. (d)	8. (d)	14. (b)	20. (b)	26. (b)	32. (d)	38. (c)	44. (c)	50. (d)	56. (a)	62. (d)	68. (b)	74. (d)
3. (a)	9. (b)	15. (b)	21. (a)	27. (b)	33. (b)	39. (a)	45. (c)	51. (c)	57. (b)	63. (d)	69. (c)	75. (d)
4. (b)	10. (a)	16. (a)	22. (b)	28. (d)	34. (d)	40. (c)	46. (d)	52. (a)	58. (a)	64. (a)	70. (b)	
5. (b)	11. (b)	17. (a)	23. (c)	29. (d)	35. (c)	41. (b)	47. (c)	53. (c)	59. (b)	65. (c)	71. (b)	
6. (d)	12. (d)	18. (a)	24. (d)	30. (a)	36. (b)	42. (b)	48. (c)	54. (c)	60. (d)	66. (a)	72. (c)	

SOLUTION

1.

Ans : (c) The sound of a human voice is produced from the vocal cord by vibration. The rate of vibration determines the pitch of the voice. The thin voice of women is due to the higher pitch and the thick voice of men is due to the lower pitch.

2.

Ans : (d) Papaya does not grow by vegetative propagation. Banana, rose and orange are propagated vegetatively. Vegetative propagation or vegetative reproduction is the process of multiplication in which a portion of fragment of the plant body functions as propagates and develops into a new individual.

3.

Ans. (a) Escherichia coli occurs in the intestine of men. Symptoms of E. Coli may be severe stomach cramps, vomiting and diarrhoea.

4.

Ans. (b) Bones are connected to the bones by the ligaments.

5.

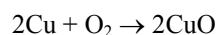
Ans. (b) : Salivary amylase is the enzyme that is present in saliva which is produced by salivary glands. It breaks down starch into dextrin and maltose. It can easily be absorbed by the body.

6.

Ans.(d) : Genes control traits through the activity of hormones. Gene is the fundamental structural and functional unit of heredity. It is a sequence of RNA or DNA hormones. DNA hormones carry coded information from parents to offspring through the gametes.

7.

Ans. (c) When a metal reacts with oxygen, metallic oxide is formed.



8.

Ans : (d) In the modern periodic table, metals are placed on the left side. These metals are called alkali metals and alkaline soil metals respectively.

Metallic properties decrease from left to right in the periodic table, and non-metallic properties increase.

9.

Ans. (b) : Muriatic acid is a colourless, ultra-pungent solution consisting of hydrogen chloride in water. It is a very strong mineral and highly corrosive with numerous industrial uses. It was historically produced with a common salt and vitriol, a kind of sulfuric acid. Muriatic acid is scientifically known as hydrochloric acid.

10.

Ans. (a) Oxides of metals are usually basic (alkaline). Oxides are chemical compounds that have at least one oxygen atom with another element. Oxides of elements are formed by oxidation reaction of elements in air. Corrosion of iron is an important example of this.

11.

Ans. (b) : To option sharp signals from a dish antenna, the receiver of the dish antenna should be placed in front of the dish at F.

12.

Ans : (d) The velocity of sound is greater in summer than in winter. It is because the speed of sound increases with the temperature of the medium. The speed of sound is 0.61 m/s when the temperature increases in the air at 1°C. The velocity of sound waves is the lowest in gases and the highest in solids.

13.

Ans : (b) If the distance between two particles increases, the effect on the gravitational force between them decreases. According to Newton's Law of Gravitation, the force of attraction between any two bodies in the universe is directly proportional to the product of their mass and inversely proportional to the square of the distance between them.

$$F \propto \frac{m_1 m_2}{r^2}$$

14.

Ans : (b) Potential energy is the energy which is stored in an object due to its position or shape position. An object possesses gravitational potential energy if it is positioned at a height above (or below) to the ground.

15.

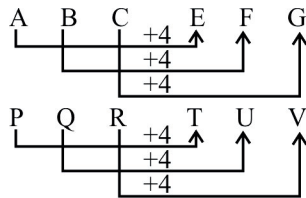
Ans : (b) A coulomb per second is the definition of one ampere. Ampere is the SI unit of electric current.
 $1 \text{ Q/s} = 1 \text{ A}$.

$$\text{Electric Current (I)} = \frac{\text{Electric Charge (Q)}}{\text{Time (t)}}$$

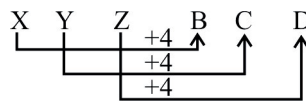
$$= \frac{1\text{Q}}{1\text{s}} = 1 \text{ ampere}$$

16.

Ans. (a) : Given,



Similarly, from option (a)-



Hence, XYZ is coded as BCD.

17.

Ans. (a) : Just as,

$$2 : 7 = 2, \boxed{3, 5}, 7$$

And, $23 : 37 = 23, \boxed{29, 31}, 37$

Similarly,

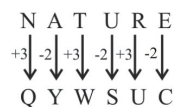
$$11 : 19 = 11, \boxed{13, 17}, 19$$

Hence, $\boxed{? = 19}$

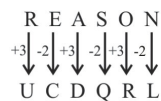
Note-Here is two prime numbers is skipped between both prime number.

18.

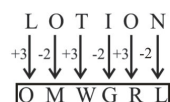
Ans. (a) : Just as,



and,



Same as,



19.

Ans. (b) : According to the question,
 From condition (iii),

$$\begin{matrix} 5 & \% & = & 3 & ! & 9 \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ B & V & V & P & C & X \end{matrix}$$

Hence, option (b) is correct.

20.

Ans. (b) : From the options,

(a) $19 : 361$ (b) $23 : 539$
 $19^2 = 361$ $23^2 = 529 \neq 539$

(c) $28 : 784$ (d) $17 : 289$
 $28^2 = 784$ $17^2 = 289$

∴ Option (b) is odd.

21.

Ans. (a) : Penguin → In Antarctica

Emu → Switzerland/Australia

Ostrich → Kalahari Desert

These three birds (Emu, Penguin, Ostrich) are unable to fly whereas vulture can fly. So, vulture does not belong to this group.

22.

Ans. (b) : Just as, $3 (317 - 243) = 222$

Similarly, $3 (621 - 548) = 219$

23.

Ans. (c) : The first figure in the given question figure (i) is a mirror image of the second figures. The pattern of the third figure is present in the figure 'D'.

Hence option (c) is correct.

24.

Ans. (d) : From option (d)-

$$7 < 18 + 2 \wedge 12 > 3 - 2 < 100$$

On changing the symbol with signs,

$$7 - 18 \div 2 \times 12 + 3 = 2 - 100$$

$$7 - 9 \times 12 + 3 = -98$$

$$-108 + 10 = -98$$

$$-98 = -98$$

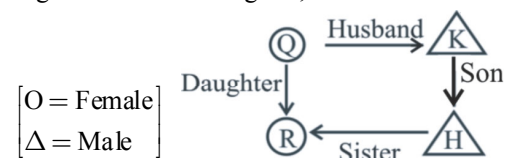
$$\text{L.H.S} = \text{R.H.S}$$

So, option (d) is correct on interchange of signs.

25.

Ans. (d) : From option (d), $R @ H \$ K > Q$

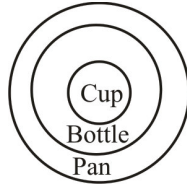
On drawing blood relation diagram,



Hence, it is clear from above diagram that R is the daughter of Q.

26.

Ans. (b) : According to statement Venn diagram is as follows-

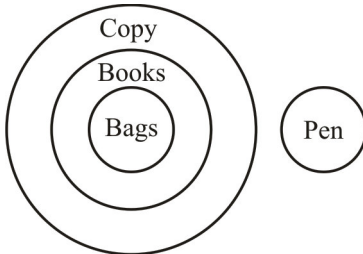


- conclusion - I. (✓)
 II. (✗)
 III. (✗)
 IV. (✓)

Hence, only conclusion (I) and (IV) follows.

27.

Ans.(b) : According to the question, Venn diagram is as follows-

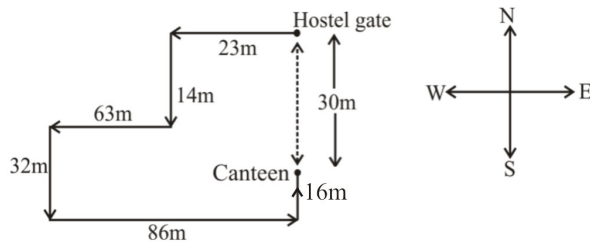


- Conclusions - I. (✗)
 II. (✓)
 III. (✓)

Hence, only conclusion II and III follows.

28.

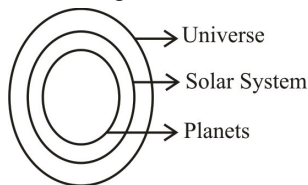
Ans.(d) : According to the question,



Hence, Canteen is in 30 m, south direction from Dev's hostel gate.

29.

Ans. (d) : The Venn diagram relation is as follows-



Planets are the part of Solar system and Solar system is a part of universe. Hence, option (d) is correct.

30.

Ans. (a) :

- U → Monday
 R → Tuesday
 V → Wednesday
 S → Thursday
 T → Friday
 P → Saturday
 Q → Sunday

U have exam on Monday.

31.

Ans. (b) : In the given options (a), (c) and (d) the second number is divisible by the first number. But in option (b) the second number is not perfectly divisible by the first. Hence, option (b) is different among all.

32.

Ans.(d) : Given,

D & C N E ^ & G ^ Y % % @ G Y & I & * H K Z

Hence, required number of consonants which is immediately preceded by a symbol = 6.

33.

Ans. (b) According to the given statement, neither conclusion I nor II follows. Penguins have been called friendly creature among all creatures in the statement. But this does not mean that no other creature is friendly that is other creatures can be friendly and the statement also does not mention about the animal which is preferred by humans.

34.

Ans. (d) : From statement,

(1) I was [late] ——— "N wis [le]"

(2) She is [late] ——— "Se s [e]"

From statement (1) & (2), we have-

Code of 'late' will be 'le'

Hence, to answer question statements (1) and (2) together are sufficient.

35.

Ans. (c) : Because of severe cold wave, the government has ordered all schools to be closed for a week with immediate effect. Therefore the government anticipates that the cold wave may continue for a week. Hence the assumption I is implicit in the statement but after one week if the effect of cold wave is ended them the parents may send their children to the school. Hence inference II is not implicit in the statement.

36.

Ans. (b) : The greatest number of 4 digits = 9999

307)9999(32

- 921

789

614

175

Hence, the smallest number to be added = 307-175

= 132

37.

Ans : (b) $\left[(4523)^{1632} \times (2224)^{1632} \times (3225)^{1632} \right]$

$$\Rightarrow (3)^4 \times (4)^4 \times (5)^4$$

$$81 \times 256 \times 625$$

$$1 \times 6 \times 5$$

$$30 \Rightarrow \boxed{0}$$

38.

Ans : (c) From the given expression,

$$\left\{ 38 - (60 \div 5 \times \overline{16 - 8} \div 2 \div 3) \right\} = ?$$

$$= \{ 38 - (60 \div 5 \times 8 \div 2 \div 3) \}$$

$$= \{ 38 - (60 \div 5 \times 4 \div 3) \}$$

$$= \left\{ 38 - \left(12 \times \frac{4}{3} \right) \right\}$$

$$= \{ 38 - 16 \} = 22$$

39.

Ans : (a)

$$\frac{14}{21} = \frac{2}{3}, \quad \frac{33}{43} = \frac{33}{43}$$

$$\frac{18}{24} = \frac{3}{4}$$

$$\frac{41}{82} = \frac{1}{2}$$

Hence, it is clear that $\frac{33}{43}$ cannot be reduced further.

40.

Ans. (c) :

First Number \times Second Number = HCF \times LCM

$$\text{HCF} = \frac{20x^3y^2 \times 10x^4y^4}{20x^4y^4} = 10x^3y^2$$

41.

Ans : (b) Let the number of coins of 50 paise, 25 paise and 10 paise in the bag are $5x$, $4x$, $3x$ respectively

$$\text{Ratio of coins} = \frac{5x}{2} : \frac{4x}{4} : \frac{3x}{10}$$

According to the question,

$$\frac{5x}{2} + \frac{4x}{4} + \frac{3x}{10} = 171$$

$$50x + 20x + 6x = 3420$$

$$76x = 3420,$$

$$x = 45$$

Hence the number of coins = $5x = 5 \times 45 = 225$

$$= 4x = 4 \times 45 = 180$$

$$= 3x = 3 \times 45 = 135$$

i.e. coins of 50 paise, 25 paise and 10 paise are 225, 180, 135 respectively.

42.

Ans : (b) Expenditure on salary = 25% = ₹2,00,000

So, the amount spent on maintenance

$$\Rightarrow 50\% = \frac{2,00,000 \times 50}{25} = ₹400000$$

43.

Ans. (a) : Let,

Length of rectangle = $11x$ cm

Breadth of rectangle = $9x$ cm

Area of rectangle = Length \times Breadth

$$396 = 11x \times 9x$$

$$396 = 99 \times x^2$$

$$4 = x^2$$

$$x = 2$$

Length = $11x = 11 \times 2 = 22$ cm

Breadth = $9x = 9 \times 2 = 18$ cm

Perimeter of rectangle = $2(L+B)$

$$= 2(22+18)$$

$$= 2 \times 40$$

$$= 80 \text{ cm.}$$

44.

Ans : (c) One day work of P = $\frac{1}{6}$ part

One day work of Q = $\frac{1}{8}$ part

According to the question,

$$\frac{1}{P} + \frac{1}{Q} + \frac{1}{R} = \frac{1}{3}$$

$$\Rightarrow \frac{1}{6} + \frac{1}{8} + \frac{1}{R} = \frac{1}{3}$$

$$\Rightarrow \frac{1}{R} = \frac{1}{3} - \left(\frac{7}{24} \right)$$

$$\frac{1}{R} = \frac{1}{24}$$

Efficiency ratio of P, Q and R = $\frac{1}{6} : \frac{1}{8} : \frac{1}{24} = \frac{4}{24} : \frac{3}{24} : \frac{1}{24}$

P : Q : R = 4 : 3 : 1

Wages of R = $3200 \times \frac{1}{8} = \text{Rs. } 400$

45.

Ans : (c)

$V_1 = 60 \text{ Km./hr.}$



$V_2 = 40 \text{ Km./hr.}$

Average speed of car = $\frac{2V_1V_2}{V_1 + V_2}$

$$= \frac{2 \times 60 \times 40}{60 + 40} = \frac{4800}{100} = 48 \text{ Km./hr.}$$

46.

Ans. (d) : According to the question,

$$P = ₹ 24000$$

$$SI = ₹ 19440$$

$$t = r$$

$$r = ?$$

$$SI = \frac{P \times r \times t}{100}$$

$$19440 = \frac{24000 \times r \times r}{100}$$

$$r^2 = \frac{19440 \times 100}{24000}$$

$$r^2 = 81$$

$$r = 9$$

47.

Ans : (c) Let Principal = ₹x

$$\therefore \text{Simple interest} = \frac{P \times R \times T}{100}$$

$$\Rightarrow 2000 = \frac{x \times 10 \times 2}{100}$$

$$x = ₹10000$$

$$\therefore \text{Compound interest for 2 years} = P \left[\left(1 + \frac{R}{100} \right)^T - 1 \right]$$

$$= 10000 \left[\left(1 + \frac{10}{100} \right)^2 - 1 \right]$$

$$= 10000 \left[\frac{121}{100} - 1 \right]$$

$$= 10000 \times \frac{21}{100} = ₹2100$$

$$\therefore \text{Difference between CI and SI} = 2100 - 2000 = ₹100$$

48.

Ans. (c) : According to the question,

8 bananas were bought ₹5

$$\text{Cost price of 1 bananas} = ₹ \frac{5}{8}$$

5 bananas sold for ₹ 8

$$\text{Selling price of 1 bananas} = ₹ \frac{8}{5}$$

We know that,

$$\text{Profit \%} = \left(\frac{SP - CP}{CP} \right) \times 100$$

$$= \frac{\frac{8}{5} - \frac{5}{8}}{\frac{5}{8}} \times 100$$

$$= \left(\frac{64 - 25}{40} \right) \times \frac{8}{5} \times 100$$

$$= \frac{39}{40} \times \frac{8}{5} \times 100$$

$$= 156\%$$

49.

Ans. (b) : Cost price of the toy = ₹280

Selling price of the toy = ₹315

Formula- Profit (p) = Selling price - Cost price

$$P = 315 - 280 = ₹35$$

Formula- $P\% = \frac{\text{Profit}}{\text{Cost Price}} \times 100$

$$= \frac{35}{280} \times 100 = \frac{5 \times 100}{40} = \frac{50}{4} = 12.5\%$$

50.

Ans : (d)

Left remainder is 32 from $x^2 + ax + b \div (x - 4)$

Putting, $x = 4$

$$(4)^2 + 4a + b - 32 = 0$$

$$\Rightarrow 16 + 4a + b - 32 = 0$$

$$\Rightarrow 4a + b = 16 \quad \dots\dots\dots (i)$$

And left remainder is 35 from $(x^2 + bx + a) \div (x - 4)$

Putting, $x = 4$ in given equation,

$$(4)^2 + b \times 4 + a - 35 = 0$$

$$16 + 4b + a - 35 = 0$$

$$4b + a - 19 = 0$$

$$4b + a = 19 \quad \dots\dots\dots (ii)$$

Adding equation (i) + (ii)

$$5a + 5b = 16 + 19$$

$$5(a + b) = 35$$

$$a + b = 7$$

51.

Ans. (c) : Perimeter of parallelogram

$$= 2(3x + 2) + 2(5x + 4)$$

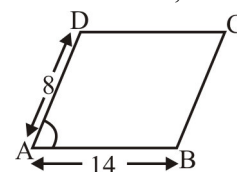
$$\Rightarrow 16x + 12 = 44$$

$$16x = 32$$

$$x = 2$$

Hence the adjacent sides = $3x + 2$, $5x + 4$

$$= 8 \text{ cm}, 14 \text{ cm}$$



Given that the area of parallelogram = 64 cm^2

$$ab \sin\theta = 64$$

$$8 \times 14 \sin\theta = 64$$

$$\sin\theta = \frac{4}{7} = 0.571$$

$$\sin 30^\circ = \frac{1}{2} < \sin\theta = \frac{4}{7} < \sin 60^\circ = \frac{\sqrt{3}}{2}$$

Acute angle = $30^\circ < \theta < 60^\circ$

Hence, option (c) will be true.

52.

Ans : (a) Range = $21 - 12 = 9$

Mode = 13 (Most frequent)

On arranging the data in ascending order-

12, 13, 13, 13, 14, 15, 16, 18, 21

$\therefore n = 9$ (odd)

\therefore Median = $\left(\frac{9+1}{2}\right)^{\text{th}}$ term = 5^{th} term = 14

53.

Ans : (c) $\sqrt{225} = 15$

According to the question,

$$= \frac{\sqrt{0.00000225}}{15}$$

$$= \frac{\sqrt{\frac{225}{100000000}}}{15}$$

$$= \frac{15}{10000 \times 15} = \frac{1}{10000} = 0.0001$$

54.

Ans. (c) Let the present age of Mauma = a years

Present age of Saumi = b years

Before y years,

$$a - y = (b - y) \frac{1}{5}$$

$$5a - 5y = b - y$$

$$5a - b = 4y \quad \dots(i)$$

After y years,

$$a + y = (b + y) \frac{1}{4}$$

$$4a + 4y = b + y$$

$$4a - b = -3y \quad \dots(ii)$$

On solving equation (i) and (ii),

$$5a - b = 4y$$

$$4a - b = -3y$$

$$\begin{array}{r} - \\ + \\ + \\ \hline a = 7y \end{array}$$

Therefore,

$$5a - b = 4y$$

$$5 \times 7y - b = 4y$$

$$b = 35y - 4y$$

$$b = 31y$$

$$a : b = 7y : 31y$$

$$a : b = 7 : 31$$

55.

Ans : (d) Let extra time taken by Q to fill the tank = t min.

From question,

$$\frac{4}{15} + \frac{t+4}{20} = 1$$

$$\frac{16 + 3t + 12}{60} = 1$$

$$3t + 28 = 60$$

$$3t = 32$$

$$t = 10 \text{ min. } 40 \text{ sec.}$$

$$\text{Required time} = 10 \text{ min } 40 \text{ sec.} + 4 \text{ min.}$$

$$= 14 \text{ min. } 40 \text{ sec.}$$

56.

Ans. (a): Velu Thampi was the Dalawa of Travancore. He led revolt in Kerala against the Britishers in 1808 AD. He is best known for being one of the earliest individuals to rebel against the British East India Company supremacy in India. This revolt is also known as Velu Thampi Revolt.

57.

Ans. (b) : Raniji ki Baori or the 'Queen's stepwell', is the largest among the fifty step wells that were built to meet the need for water located in Bundi, Rajasthan. It was built by Queen Nathawat Ji Solnki in 1699. Who was the younger queen of the ruling Rao Raja Anirudh Singh of Bundi.

58.

Ans. (a):

Book	Author	Language
1. Tirukkural	Thiruvalluvar	Tamil
2. Ratnavali	Harsha	Sanskrit
3. Rajatarangini	Kalhan	Sanskrit
4. Meghdoot	Kalidasa	Sanskrit

59.

Ans. (b): Preventive detention refers to taking into custody to an individual who has not committed a crime yet the authorities believe him to be a threat to law and order. It is provided under Article 22 of the constitution. Article 22 also provides exhaustive procedural safeguards with respect to preventive detention.

60.

Ans. (d): As per Part V, Article 75(3) of the Indian Constitution states that "The Council of ministers shall be collectively responsible to the house of people (Lok Sabha). It means the existence of council of Ministers depends upon "till the Lok Sabha believes in it. According to Constitution of India {75(d)}, the total number of ministers in the council of ministers must not exceed 15% of the total number of members of the Lok Sabha (91st Amendment).

61.

Ans. (b): 91st Constitutional Amendment Act, 2003 states that The total number of ministers, including the Prime Minister, in the central Council of Ministers shall not exceed 15% of the total strength of the Lok Sabha. (same as Legislative Assembly of States).

62.

Ans. (d) : The Grand Bank of Newfoundland is one of the world's richest fishing ground. It is located at the confluence of the Labrador Current and The Gulf stream. When the cold Labrador Current mixes with the warm water of the Gulf Stream then it lifts nutrients to the surface which helps to create one of the richest fishing grounds in the world.

63.

Ans. (d) : A Qanat or Kariz, is a system for transporting water from an aquifer or water well to the surface, through an underground aqueduct. Constructed in Iran, Iraq and numerous other societies, this is an ancient system of water supply which allows water to be transported over long distances in hot dry climates. In this system consists of a network of underground canals that transport water from acquifers in highlands to the surface at lower levels by gravity.

64.

Ans. (a): Credit control is a monetary policy tool used by the Reserve Bank of India to control the demand and supply of money or liquidity in the economy.

Moral suasion is the qualitative method of controlling credit.

Whereas open market operation, Repo rate, Bank Rate, CRR, SLR are the quantitative method of controlling credit.

65.

Ans. (c): The government takes measures to develop the health of the people by providing them with free and cashless medical treatment covering up to Rs. 5 lakhs every year.

66.

Ans. (a): The Prize money for the Rajiv Gandhi Khel Ratna Award (currently-mejor Dhyanchand Khel Ratna Award) has been increased to whopping Rs. 25 lakh from 7.5 lakh.

While- Arjun Award – ₹15 lakh from ₹5 lakh

Dhronacharya (lifetime)– ₹15 lakh from ₹5 lakh

and (Regular) - ₹10 lakh from ₹5 lakh

Dhyan Chand Award - ₹10 lakh from ₹5 lakh

67.

Ans. (b) : The dance committee of International Theatre Institute (ITI) founded the International Dance Day and decided to celebrate the dance day on 29 April to honour the birthday of Jean Georges Noverre, who is the generally considered as the creator of modern ballet dance.

68.

Ans. (b) : Galileo Galilei was an Italian scientist, he wrote his first scientific book 'The Little Balance' (La Bilancetta) in 1586, which described Archimedes method of finding the specific gravities of substance using a balance.

69.

Ans. (c) : The North Atlantic Treaty Organization, (NATO) also called the North Atlantic Alliance, is an intergovernmental military alliance among 27 European countries, 2 North American countries, and 1 Eurasian country. The organization implements North Atlantic Treaty that was signed on 4 April 1949. Its headquarter is situated in Brussels, Belgium. Recently Finland became 31st member of NATO.

70.

Ans. (b): The largest statue of Jesus Christ, Cristo Rey, height 20.5 meter (67 feet) is situated in the state of Guanajuato in Mexico. It was completed in 1944 and bears the hallmarks of the Art Deco movement.

71.

Ans. (b) Ballistic missiles fail due to disturbances in precision of air resistance.

72.

Ans. (c) : The former Indian Cricket team batsman Sachin Tendulkar made his 100th century against Bangladesh. Sachin is the only person in the world to have 100 centuries in ICC test and One day international matches.

73.

Ans. (b) : Canadian Open is not a Tennis Grand Slam tournament.

Tennis Grand Slams

Grand Slam	Duration	Court Type
Australian Open	Mid-January	Hard Court
French Open	May & June	Clay
Wimbledon Open	June-July	Grass
US Open	August-September	Hard Court

74.

Ans. (d) : Chapchar Kut is a festival of Mizoram, celebrated after completion of jhum operation.

75.

Ans. (d) :

Traditional Weaving	States
Kanjivaram	Tamil Nadu
Patola	Gujarat
Jamdani	West Bengal

PRACTICE SET-13

1. **Genetic variation between distinct populations of the same species is known as-**
 (a) Ecosystem diversity (b) Bio diversity
 (c) Species diversity (d) Genetic diversity
2. **Pollination by wind is called :**
 (a) Hydrophily (b) Pollinophily
 (c) Anemophily (d) Herbophily
3. **The fungal cell wall is made of -**
 (a) Hemi-cellulose (b) Cellulose
 (c) Chitin (d) Lignin
4. **Which hormone protects the body glucose from going too low?**
 (a) Oxytocin (b) Glucagon
 (c) Vasopressin (d) Insulin
5. **Bile is secreted from:**
 (a) Stomach (b) Liver
 (c) Large intestine (d) Gall bladder
6. **In sexual reproduction, a parent contributes:**
 (a) Half of genes (b) Three fourth of genes
 (c) All genes (d) One fourth of genes
7. **The oxidation reaction that produces heat and light is:**
 (a) endothermic (b) combustion
 (c) exothermic (d) Neutral
8. **What are the horizontal rows in a periodic table called?**
 (a) Period (b) Group
 (c) Pattern (d) Valency
9. **To dilute a concentrated acid, what should we do?**
 (a) water in dilute acid
 (b) water in concentrated acid
 (c) First water in acid and then acid in water
 (d) concentrated acid in water
10. **In preparation of NaOH by electrolytic method, which solution is used?**
 (a) Lime water (b) Chlorine water
 (c) Bromine water (d) Brine
11. **The Theory of Relativity is associated with:**
 (a) WC Rontgen (b) Kelvin
 (c) Newton (d) Albert Einstein
12. **Which of the following statements are true / false about the speed of sound in different mediums at 25 °C?**
 A. In seawater, the speed of sound is 1531 km/s.
 B. In water (distilled), the speed of sound is 1498 km/s.
 (a) Neither A nor B is correct.
 (b) Both A and B are correct.
 (c) Only B is correct.
 (d) Only A is correct.
13. **Free fall possible only in -**
 (a) atmosphere (b) air
 (c) sea (d) vacuum
14. **Which of the following energy is always positive ?**
 (a) Static energy (b) Kinetic energy
 (c) Potential energy (d) Gravitational energy
15. **Lux is the SI unit of**
 (a) Intensity of illumination
 (b) Luminous efficiency
 (c) Luminous flux
 (d) Luminous intensity
16. **Select the option that is related to the fifth letter- cluster in the same way as the fourth letter-cluster related to the third letter-cluster and second letter-cluster is related to the first letter-cluster.**
IGRS: NJWV :: BMYF : GPDI :: XQSB: ?
 (a) CUXF (b) BTWE
 (c) BUWF (d) CTXE
17. **Select the number from among the options given that is related to the fifth number in the same way as the second and fourth numbers are related to the first and third numbers respectively.**
15 : 90 :: 203 : 1015 :: 16 : x
 (a) 96 (b) 112
 (c) 120 (d) 128
18. **In a certain code language, 'TEMPLE' is written as 'QHJSIH' and 'MOSQUE' is written as 'JRPTRH'. How will 'SUPREME' be written in the same code language?**
 (a) PXMUBPB (b) PRMOBJB
 (c) PRMOBJH (d) PRMUBPB
19. **In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.**

Number/ Symbol	6	5	4	3	%	#	8
Codes	R	G	U	W	K	P	B

Conditions:

 (i). If the first element is an odd number and the last element is an even number, the codes for these two (the first and the last elements) are to be interchanged.
 (ii). If the second element is a symbol and the first element is an even number, the codes for these two (the second and the fifth element) are to be interchanged.
 (iii). If the third element is a number and the fourth element is a symbol, both these elements (the third and the fourth elements) are to be coded as Y.
Question: 6 # % 3 8 5 # 4
 (a) B U K W P G P R (b) R P K W B G P U
 (c) R B K W P G P U (d) R B Y Y P G P U
20. **Select the odd term from given options.**
 (a) 2197 (b) 441
 (c) 729 (d) 1331
21. **Select odd.**
 (a) Cocaine (b) Caphin
 (c) Nicotine (d) Heroin

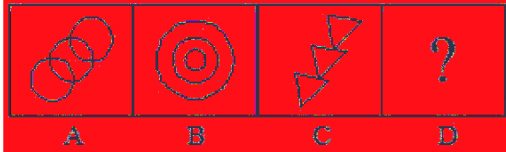
22. Identify the number that does not belong to the following series.

7, 14, 56, 448, 2688, 26880

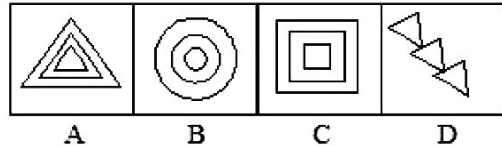
- (a) 26880 (b) 2688
(c) 56 (d) 448

23. Find the next figure for given sequence

Question figure:



Answer figure:



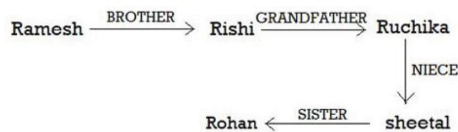
- (a) C (b) D
(c) A (d) B

24. What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also 'x' and '÷' are interchanged?

$$12 \times 6 \div 9 - 3 + 2 = ?$$

- (a) 28 (b) 18
(c) 29 (d) 19

25. If 'A → B' means 'A is the mother (or any other relationship) of B', then using the given relationship chart, select the option that correctly depicts the meaning of 'Rohan → Rishi'.



(Context-Brother-Grandfather-Niece-Sister-)

- (a) Rohan is the grandson of Rishi
(b) Rishi is the son of Rohan
(c) Rohan is the son of Rishi
(d) Rohan is the nephew of Rishi

26. Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

Few desks are blades.

Most blades are pillows.

All pillows are flowers.

Conclusions:

I. Few desks are pillows.

II. Some flowers are desks.

III. Some flowers are blades.

- (a) All the conclusions follow.
(b) Only conclusions III follow.
(c) Only conclusions II follow.
(d) Only conclusions I follow.

27. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements :

A. No mobile is a telephone

B. All telephone are TV

Conclusions :

1. No mobile is a TV

2. Some mobiles are TV

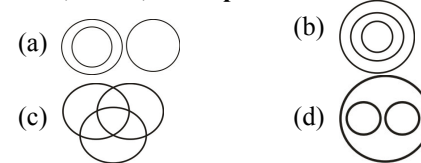
- (a) Both conclusions 1 and 2 do not follow
(b) Only conclusion 1 follows
(c) Both conclusions 1 and 2 follow
(d) Only conclusion 1 follows

28. Umesh is standing facing the south-west direction. He then takes a 90° clockwise turn. After that, he takes a 135° clockwise turn. He finally takes a 90° anticlockwise turn. In which direction is he facing now?

- (a) West (b) North
(c) North-east (d) North-west

29. Select the Venn diagram that best represents the relationship among the following three classes.

Bird, Crow, Woodpecker



30. Ram has 5 cars which he uses for travel from his home to his office from Monday to Friday. He drives Skoda on the next day after the day he drives Honda and Honda is not used on Tuesday and Wednesday. He drives Nissan on the last working day. He does not drive Tata and Maruti on Monday. Then which car does he drive on Monday?

- (a) Nissan (b) TATA
(c) Honda (d) Skoda

31. Out of the four figures listed in the options, one is different from the others in some manner. Select the odd one out.

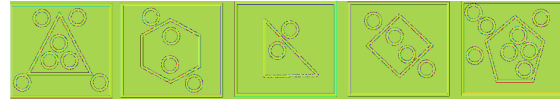


Figure A Figure B Figure C Figure D Figure E

- (a) Figure A (b) Figure C
(c) Figure B (d) Figure E

32. Study the given letter, symbol series and answer the question that follows.

L @ S * E ^ B U # W I < EM @ O S # B * H !
A & L < O

If we replace each of the vowels with any consonant and similarly if we replace each of the consonants in the original series with any vowel, then how many consonants will be immediately followed by a symbol in the resultant series thus formed?

- (a) 5 (b) 7 (c) 6 (d) 4

33. **Statement:**
The world is neither fair nor unfair, it is just a state of mind of the people.
Conclusion:
1. Some people find the world fair.
2. Some people find the world unfair.
(a) Only conclusion I follows.
(b) Both conclusion I and II follows.
(c) Only conclusion II follows.
(d) Neither conclusion I nor II follows.
34. A question is given followed by two statements labeled I and II Identify which of the statements is are sufficient to answer the question.
Question:
In which year was Dheeraj born?
Statements:
(I) Dheeraj at present is 35 years younger to his mother Parvati.
(II) Dheeraj's brother Shan, who was born in 1998, is 45 years younger to his mother Parvati.
(a) I alone is sufficient, while II alone is not sufficient
(b) Both I and II together are sufficient
(c) Either I alone or II alone is sufficient
(d) II alone is sufficient, while I alone is not sufficient
35. Read the given statement and the arguments carefully and select the appropriate answer from the given options.
Statement:
"If waste management capabilities of Hospital X are dealt with, we will definitely win the 'excellence in service' award for year 22-23."
One of the board of directors from Hospital X.
Arguments:
I. In four separate incidents in the year 22-23, 15 patients lost their lives and 46 were injured due to various incidents such as fire breakout in ICU, lack of oxygen etc.
II. Hospital A located in the nearby city has won 'excellence in service' award for a record five times.
(a) II weakens while I strengthens the statement.
(b) I weakens while II strengthens the statements.
(c) II weakens while I is a neutral argument.
(d) I weakens while II is a neutral argument.
36. A number when divided by 280 leaves 73 as the remainder. When the same number is divided by 35, the remainder will be:
(a) 4 (b) 2
(c) 3 (d) 7
37. X, Y and Z together earn ₹ 2,400/- in 15 days, X and Y together earn ₹ 1,840/- in 16 days. Y and Z together earn ₹ 1,530/- in 18 days. What is the daily earning (in ₹) of Y?
(a) ₹50 (b) ₹40
(c) ₹60 (d) ₹30
38. $4 + \frac{1}{6} \times \{[-12 \times (24 - 13 - 3)] \div (20 - 4)\} = ?$
(a) 4 (b) 6
(c) 5 (d) 3
39. Which of the fractions below given is NOT equal to $\frac{9}{17}$?
(a) $\frac{108}{221}$ (b) $\frac{27}{51}$
(c) $\frac{63}{119}$ (d) $\frac{153}{289}$
40. The LCM of two numbers is 721, and the numbers are in the ratio of 1 : 7. What is the sum of the numbers?
(a) 825 (b) 728 (c) 721 (d) 824
41. If $(a + b) : (b + c) : (c + a)$ is 6 : 7 : 8 and also $a + b + c = 14$, then what is the value of c?
(a) 8 (b) 10 (c) 6 (d) 12
42. 60% of 40% of 32% of an amount is Rs. 432. What is the amount (in Rs.)?
(a) 5,625 (b) 5,555
(c) 5,525 (d) 5,605
43. 150 cm wide carpet is to be laid on the floor of a rectangular hall. If the hall is 20 m long and 18 m wide, what will be the required cost of carpet at the rate of ₹ 12 per meter?
(a) ₹ 3,280 (b) ₹ 2,280
(c) ₹ 2,880 (d) ₹ 2,480
44. A hostel has a stock of 6,190.80 kg of wheat for 105 students for 22 days. After 5 days, 14 more students join the hostel. If all the students eat the same food, then for now many days the remaining wheat will be enough for the students?
(a) 15 days (b) 11 days
(c) 1 days (d) 17 days
45. A person covers the first 176 km at a speed of 16 km/h and the next 64 km at a speed of 32 km/h. What would be the approximate average speed for the first 240 km of the journey?
(a) 13 km./hr. (b) 27 km./hr.
(c) 18.5 km./hr. (d) 21 km./hr.
46. The difference between the simple interest from two different rates on ₹1,200 for 3 years is ₹10.80. The difference between their rates of interest is.
(a) 0.03% (b) 1% (c) 0.6% (d) 0.3%
47. Find the difference between simple interest and compound interest on principal of ₹4000 at an annual rate of 20% for 2 years.
(a) 160 (b) 120 (c) 90 (d) 110
48. By selling an item for ₹2,332 a person incurred a loss of 12%. What was the cost price of the item?
(a) 2,650 (b) 2,675
(c) 2,620 (d) 2,625
49. Anupama sold a book at 10% profit. If she would have sold the book for ₹20 more her profit % would have been 15%. Find the cost price of book?
(a) ₹450 (b) ₹400 (c) ₹500 (d) ₹375
50. If $(x^4 - 2x^3 + 3x^2 - x + k)$ is a multiple of $(x - 3)$ then value of k is
(a) 51 (b) -51 (c) 165 (d) -165

51. In a circle AB and CD are produced to meet at E outside the circle. If AB = 9 cm and AE = 12 cm and ED = 4 cm, then what is the length of the chord CD?
(a) 5.5 cm (b) 4 cm (c) 5 cm (d) 4.5 cm
52. In the given following data find out the LCM of mode, median and mean?
7, 2, 10, 4, 3, 12, 8, 4, 6, 4.
(a) 30 (b) 20 (c) 12 (d) 60
53. If $\sqrt{9} = 3$ then the value of $\sqrt{81}/\sqrt{3}$
(a) 3 (b) $3/\sqrt{3}$
(c) $3\sqrt{3}$ (d) 9
54. The ratio of the present ages of Seema and Reema is 2:3. Seema is 6 years younger than Reema. After 6 years the age ratio of the ages of Seema and Reema will be:
(a) 2:3 (b) 2:7 (c) 3:4 (d) 7:8
55. Three flood gate A, B and C can fill a reservoir in 6 hours. After working for two hours together C was closed, remaining part is filled by flood gates A and B in 7 hours. What time will be taken by flood gate C to fill the reservoir?
(a) 16 (b) 12 (c) 14 (d) 10
56. Select the correct combination of personality and his / her associated organization.
(a) Poona Sarvajanik Sabha – Subash Chandra Bose
(b) Satyashodhak Samaj – Jyotiba Phule
(c) Hindustan Socialist Republican Association – Annie Besant
(d) Theosophical Society – Sarojini Naidu
57. The Mysore Palace in Karnataka was an official residence of which of the following dynasties?
(a) Chalukya (b) Wadiyar
(c) Chola (d) Pallava
58. Which type of paintings are found on the walls of Thiruvavur and Ajanta temples ?
(a) Mural (b) Madhubani
(c) Rajasthani (d) Mughal
59. Under which article of Indian Constitution is the right to hoist the national flag-
(a) Article 18 (1) (b) Article 19 (1)
(c) Article 20 (1) (d) Article 21 (1)
60. How many ministers can be included in the Union Council of Ministers?
(a) 15% of the total members of Lok Sabha
(b) 50% of the total members of Lok Sabha
(c) 10% to 15% of the total members of Lok Sabha
(d) As desired by the Prime Minister of India
61. A political party can be recognized as a national party if it secures ____ of the valid votes in any four states in general or state assembly elections and in addition it wins 4 Lok Sabha seats from any state or states.
(a) 9% (b) 8% (c) 7% (d) 6%
62. The Bering Strait connects the:
(a) Indian Ocean and Java Sea
(b) Arctic Ocean and Pacific Ocean
(c) Mediterranean Sea and Atlantic Ocean
(d) Atlantic Ocean and Gulf of Hudson
63. Which port is one of the oldest artificial ports on the eastern coast of India?
(a) Chennai Port (b) Kandla Port
(c) Visakhapatnam Port (d) Paradip Port
64. Securities sold by the Central Bank with a clear specification of repurchase date and price is called
(a) outright open market operations
(b) Interest Rate Swap
(c) repurchase agreement
(d) reverse repo
65. A special bank account meant for the girl child and launched as a part of the Beti Bachao Beti Padhao Campaign is known as:
(a) Dhanlakshmi (b) Kanya Dhan
(c) Sukanya Samridhi (d) Kanyashree
66. Which of the following awards is given for outstanding performance in journalism?
(a) Guru Raj Bhatta
(b) Indian Sahitya Academy
(c) Dadasaheb Phalke
(d) Ramnath Goenka
67. When is National Mathematics Day celebrated every year in India?
(a) 22 December (b) 22 November
(c) 21 March (d) 21 January
68. Who is the author of 'Early History of India'?
(a) K.A. Nilakanta Sastri (b) R.C. Majumdar
(c) R.G. Bhandarkar (d) Vincent Arthur Smith
69. The headquarters of which of the following international organizations is situated Washington DC?
(a) IMF (b) ECB (c) OECD (d) ILO
70. Where is 'Fountain of Wealth' located?
(a) Singapore (b) Thailand
(c) Saudi Arabia (d) London
71. Which is the short - range surface - to -air missile in India?
(a) Prithvi (b) Astra (c) Trishul (d) Akash
72. Identify the Indian batsman who scored three consecutive test centuries in his first three International Cricket test matches.
(a) Virat Kohli
(b) Sachin Tendulkar
(c) Mohammad Azharuddin
(d) Rahul Dravid
73. Which of the following tournaments of Tennis is played on a clay court?
(a) Roland Garros (b) Wimbledon
(c) US Open (d) Australian Open
74. Jon Beel Mela is the only fair in India where barter system is still used. In which state does it take place?
(a) Nagaland (b) Manipur
(c) Tripura (d) Assam
75. ____ is an exclusive martial dance form of Manipur that includes unique display of skill, creativity and agility in which the performers enact a mock fight sequence
(a) Thang Ta (b) Rangama
(c) Chakyar Koothu (d) Singhi Chham

SOLUTION : PRACTICE SET- 13

ANSWER KEY

1. (d)	7. (b)	13. (d)	19. (c)	25. (c)	31. (a)	37. (b)	43. (c)	49. (b)	55. (c)	61. (d)	67. (a)	73. (a)
2. (c)	8. (a)	14. (b)	20. (b)	26. (b)	32. (d)	38. (d)	44. (a)	50. (b)	56. (b)	62. (b)	68. (d)	74. (d)
3. (c)	9. (d)	15. (a)	21. (b)	27. (b)	33. (b)	39. (a)	45. (c)	51. (c)	57. (b)	63. (a)	69. (a)	75. (a)
4. (b)	10. (d)	16. (d)	22. (d)	28. (b)	34. (b)	40. (d)	46. (d)	52. (d)	58. (a)	64. (a)	70. (a)	
5. (b)	11. (d)	17. (b)	23. (c)	29. (d)	35. (d)	41. (c)	47. (a)	53. (c)	59. (b)	65. (c)	71. (c)	
6. (a)	12. (b)	18. (a)	24. (d)	30. (c)	36. (c)	42. (a)	48. (a)	54. (c)	60. (a)	66. (d)	72. (c)	

SOLUTION

1.

Ans. (d) : Genetic variation between distinct populations of the same species is known as genetic diversity.

2.

Ans : (c) Pollination by wind in flowers is called anemophily and these flowers are called anemophilous flowers. ex, maize. Pollination by water is called hydrophily.

3.

Ans : (c) The body of the fungus lacks root, stem and leaf. They lack chlorophyll and are heterotrophic. They are also saprotrophs, parasites or symbionts. The cell wall of fungi is made of chitin, fungus cellulose or callose wall.

4.

Ans. (b) Glucagon is a peptide hormone secreted from the alpha cells of the pancreatic islets of Langerhans. It protects the body glucose from going too low.

5.

Ans : (b) Bile releases through the liver. Bile kills harmful germs present in food. The organic salts present in the bile alkaline the food coming from the stomach, so that the pancreatic juice can function.

6.

Ans: (a) The formation of offspring by sexual reproduction involves a combination of two gametes, which contain a group of haploid chromosomes. The gametes are made up of specific diploid cells. This is a specific type of cell division, by which half the number of chromosomes in haploid progeny cells is formed. This type of division is called meiosis. In the life cycle of sexually reproducing organisms, the haploid state is produced by meiosis and the diploid state is restored by fertilization.

7.

Ans : (b) The chemical process in which a substance reacts with oxygen and produces heat and light is called combustion. Combustion is an exothermic reaction. Examples - burning wood, burning candles etc.

8.

Ans. (a) In the modern periodic table, horizontal rows are called periods. Sorting the elements in ascending order of atomic numbers gives horizontal lines (Period). The modern periodic table also has 18 groups which are called vertical columns.

9.

Ans : (d) To dilute a concentrated acid, we should add concentrated acid slowly to the water. To dilute any concentrated acid, a few drops of concentrated acid are added to the water. This is an exothermic reaction.

10.

Ans. (d) : NaOH is prepared by the electrolysis of brine solution. The reaction gives Cl_2 and H_2 as by products.

11.

Ans. (d) : The Theory of Relativity was first introduced by Albert Einstein in 1905. It is the combination of his two interrelated theories called Special Relativity and General Relativity. Special Relativity applies to the object in absence of gravity and General Relativity explains the law of gravitation and the other forces existing in nature.

12.

Ans. (b) : At 25 °C the speed of sound in seawater is 1531 m / s and in water (distilled), speed of sound is 1498 m / s. Hence, Both A and B are correct.

13.

Ans : (d) Any object falls freely in a vacuum because there is no effect of friction on the object.

14.

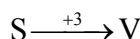
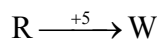
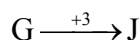
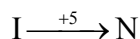
Ans : (b) Kinetic energy is always positive.

15.

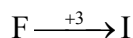
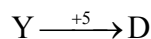
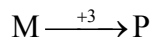
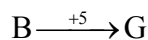
Ans : (a) The SI unit of intensity of illumination (illuminance) is lux. An illuminance of 1.0 lux is produced by 1.0 lumen of light shining in an area of 1.0 m^2 .

16.

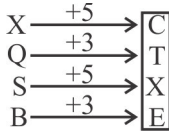
Ans. (d) : Just as,



And,



Same as,



17.

Ans. (b) : Just as,

$$15 = 1 + 5 = 6 \times 15 = 90$$

And, $203 = 2 + 0 + 3 = 5 \times 203 = 1015$

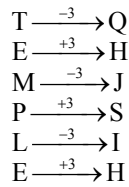
Similarly,

$$16 = 1 + 6 = 7 \times 16 = 112$$

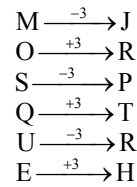
Hence, 112 will be on the place of x.

18.

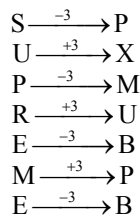
Ans. (a) : Just as,



and



Same as,



Hence, SUPREME will be written as PXMUBPB.

19.

Ans. (c) : According to the II conditions. On interchanging the place of second and fifth element $6\# \% 385\#4 \rightarrow RBKWPGPU$

20.

Ans. (b) : Except 441, all others number are completely cube number whereas 441 is a perfect square.

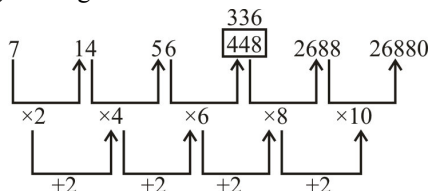
21.

Ans. (b) : Cocaine, Nicotine and Heroin are intoxicants whereas Caphin is not intoxicant.

Hence, option (b) is odd one.

22.

Ans. (d) : The given series is as follows-



Then 336 will be on the place of 448.

23.

Ans. (c) : The second field contains both small circles inside the first big circle. Similarly, in the fourth field, two small Δ are replaced inside the big Δ. Hence, answer figure A will be in the place of ?

24.

Ans. (d) : According to the question,

$$+ = -$$

$$- = +$$

$$\times = \div$$

$$\div = \times$$

$$12 \times 6 \div 9 - 3 + 2$$

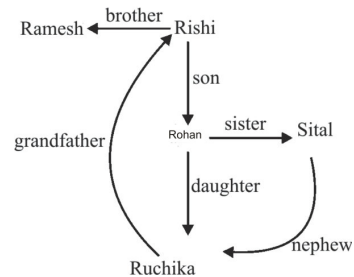
On interchanging the signs,

$$12 \div 6 \times 9 + 3 - 2$$

$$18 + 1 = 19$$

25.

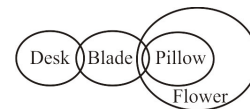
Ans. (c) : On drawing blood relation diagram according to the question,



It is clear from the above blood relation diagram that Rohan is the son of Rishi.

26.

Ans. (b) : According to the statement Venn diagram is as follows,



Conclusion - I. (X)

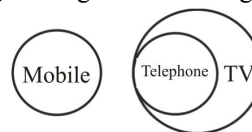
II. (X)

III. (✓)

Hence, only conclusion III is true.

27.

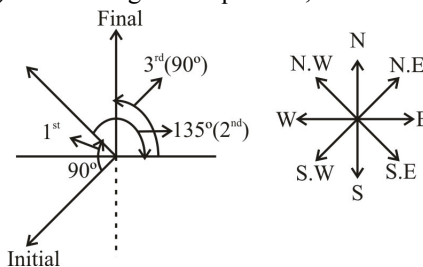
Ans. (b) : The given Venn diagram is as follows-



⇒ Only conclusion 1 follows.

28.

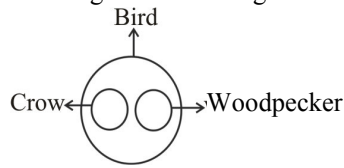
Ans. (b) : According to the question,



Hence, it is clear from above that Umesh is facing North direction.

29.

Ans. (d) : From the given Venn diagram-



Hence, the Venn diagram of option (d) is the correct answer.

30.

Ans. (c) : According to given conditions-

Honda → Monday
 Skoda → Tuesday
 Maruti/Tata → Wednesday
 Maruti/Tata → Thursday
 Nissan → Friday

Hence, Ram drives Honda on Monday.

31.

Ans. (a) : In the given figures, option figure (A) is different from others as many circles are located inside the figure as equal number of circles are located outside the figure. Hence, option (a) is correct.

32.

Ans. (d) : Given,

L @ S * E ^ B U # W I < E M @ O S # B * H ! A & L < O

On replacing each of vowels with any consonant, we have

L @ S * S ^ B S # W S < S M @ S S # B * H ! S & L < S

Again replacing on each of consonant with any vowel,

E @ E * S ^ E S # E S < S E @ S E # E * E ! S & E < S

Hence, total number of consonant who's immediately followed by a symbol = $s^{\wedge}, S^{\#}, S^{<}, S^{\&} = 4$.

33.

Ans : (b) According to the statement, the world is neither fair nor unfair, it is the state of mind of the people. So, people find the world fair and unfair due to their state of mind. Hence, both conclusion I and conclusion II follows.

34.

Ans. (b) : Dheeraj's brother Shan was born in 1998.

According to the question,
 Birth year of Dheeraj's mother = $1998 - 45 = 1953$

Birth year of Dheeraj = $1953 + 35 = 1988$
 Hence, it is clear in which year Dheeraj was born.

Hence, both statements (I) and (II) together are sufficient to answer the question.

35.

Ans. (d) : According to the given statement, argument I weaken while II is a neutral argument. Hence, option (d) is correct.

36.

Ans. (c) : Let number = N

$$N = 280K + 73$$

$$= (35 \times 8)K + 70 + 3$$

$$= 35(8K + 2) + 3$$

$$N = 35m + 3 \dots (i) \quad (\text{where, } m = 8K + 2)$$

$$\text{or } N = 35q + r \dots (ii)$$

On comparing both equation,

$$r = 3$$

Hence, on dividing the same numbers by 35 the remainder will be 3.

37.

Ans. (b) :

$$\text{Amount earned by X, Y and Z in 1 day} = \frac{2400}{15} = 160$$

$$\text{Amount earned by X, Z and Y in 1 day} = \frac{1840}{16} = 115$$

$$\text{Amount earned by Y and Z in 1 day} = \frac{1530}{18} = 85$$

$$\begin{aligned} \text{Daily earning of Y} &= (\text{Daily earning of X and Z together}) + (\text{Daily earning of Y and Z together}) - (\text{Daily earning by X, Y and Z together}) \\ &= 115 + 85 - 160 \\ &= 40 \end{aligned}$$

38.

Ans : (d) From the given expression,

$$4 + \frac{1}{6} \times \left[\{-12 \times (24 - 13 - 3)\} \div (20 - 4) \right]$$

$$= 4 + \frac{1}{6} \times \left[\{-12 \times 8\} \div 16 \right]$$

$$= 4 + \frac{1}{6} \times (-6) = 4 - 1$$

$$= 3$$

39.

Ans : (a) Given: $\frac{9}{17}$

$$\frac{9 \times 3}{17 \times 3} = \frac{27}{51}$$

$$\frac{9 \times 7}{17 \times 7} = \frac{63}{119}$$

$$\frac{9 \times 17}{17 \times 17} = \frac{153}{289}$$

Hence $\frac{108}{221}$ will not give any equivalent fraction of $\frac{9}{17}$.

40.

Ans. (d) : Let the numbers is x and 7x

Then, LCM of numbers = 7x

According to the question,

$$\therefore 7x = 721$$

$$x = 103$$

$$\begin{aligned} \text{Hence the sum of numbers} &= x + 7x \\ &= 103 + 7 \times 103 \\ &= 103 + 721 \\ &= 824 \end{aligned}$$

41.

Ans. (c) : $(a+b):(b+c):(c+a) = 6 : 7 : 8$

$$a + b + c = 14$$

$$\text{Let } (a + b) = 6x \quad \dots (1)$$

$$(b + c) = 7x \quad \dots (2)$$

$$(c + a) = 8x \quad \dots (3)$$

On adding equation (1), (2) and (3) –

$$(a + b) + (b + c) + (c + a) = 6x + 7x + 8x$$

$$2(a + b + c) = 21x$$

$$a + b + c = \frac{21}{2}x$$

$$6x + c = \frac{21}{2}x \quad (\text{from equation (1) } \dots (4))$$

$$a + b + c = 14 \quad (\text{Given})$$

$$\frac{21}{2}x = 14$$

$$\boxed{x = \frac{28}{21}}$$

On putting the value of x in equation (4)

$$6 \times \frac{28}{21} + c = \frac{21}{2} \times \frac{28}{21}$$

$$c = \frac{21}{2} \times \frac{28}{21} - 6 \times \frac{28}{21}$$

$$c = \frac{28}{21} \left[\frac{21}{2} - 6 \right]$$

$$c = \frac{28}{21} \times \frac{9}{2}$$

$$c = 6$$

42.

Ans. (a) : Let the amount = ₹x

According to the question,

$$x \times \frac{60}{100} \times \frac{40}{100} \times \frac{32}{100} = 432$$

$$x \times \frac{3}{5} \times \frac{2}{5} \times \frac{8}{25} = 432$$

$$x = 9 \times 5 \times 5 \times 25$$

$$x = 625 \times 9$$

$$x = ₹5,625$$

43.

Ans. (c) As per the question,

Length of hall = 20 m

Breadth of hall = 18 m

Area of hall = 20×18 [150cm = 1.5m]
= 360 m^2

Breadth of carpet = 1.5 m

Cost = ₹ 12 per meter

$$\text{Cost of carpet} = \frac{360}{1.50} \times 12$$

$$= ₹ 2880$$

44.

Ans. (a) Suppose remaining wheat will be enough for x days.

$$\text{From, } \frac{M_1 D_1}{W_1} = \frac{M_2 D_2}{W_2}$$

$$\frac{105 \times 22}{6190.80} = \frac{105 \times 5}{6190.80} + \frac{(105 + 14)x}{6190.80}$$

$$105 \times 22 = 105 \times 5 + (105 + 14)x$$

$$105 \times 22 = 105 \times 5 + 119x$$

$$2310 = 525 + 119x$$

$$2310 - 525 = 119x$$

$$\frac{1785}{119} = x$$

$$\boxed{x = 15} \text{ days}$$

45.

Ans : (c) Time taken to travel 176 km. distance =

$$\frac{176}{16} = 11 \text{ hours}$$

Time taken to travel 64 km. distance = $\frac{64}{32} = 2 \text{ hrs.}$

$$\text{Average speed} = \frac{\text{Total Distance}}{\text{Total Time}}$$

$$= \frac{176 + 64}{11 + 2} = \frac{240}{13}$$

$$= 18.5 \text{ Km./hr. (almost)}$$

46.

Ans. (d) Let the two interest rates be r_1 & r_2 .

As per question,

$$\frac{1200 \times r_1 \times 3}{100} - \frac{1200 \times r_2 \times 3}{100} = 10.80$$

$$\frac{1200 \times 3}{100} (r_1 - r_2) = 10.80$$

$$r_1 - r_2 = \frac{10.80 \times 100}{1200 \times 3}$$

$$r_1 - r_2 = 0.3\%$$

Hence, difference between rate of interest $(r_1 - r_2) = 0.3\%$

47.

Ans : (a) Principal (P) = ₹4000

Rate (R) = 20%

Difference between CI and SI for two years-

$$D = P \times \left(\frac{R}{100} \right)^2$$

$$= 4000 \times \left(\frac{20}{100} \right)^2 = 4000 \times \frac{20}{100} \times \frac{20}{100} = ₹160$$

48.

Ans. (a) : According to the question,

$$88\% \longrightarrow ₹2,332$$

$$1\% \longrightarrow \frac{2332}{88} \times 1$$

$$100\% \longrightarrow \frac{2332 \times 100}{88}$$

Hence Cost Price of the item = ₹2650

49.

Ans. (b) : Let the cost price of book = ₹x

$$\text{Selling price} = x \times \frac{110}{100}$$

$$= ₹ \frac{11}{10} x$$

According to the question,

$$\frac{11x}{10} + 20 = x \frac{115}{100}$$

$$\frac{11x}{10} + 20 = \frac{23}{20} x$$

$$\frac{23x}{20} - \frac{11x}{10} = 20$$

$$\frac{23x - 22x}{20} = 20$$

$$\boxed{x = ₹400}$$

Hence, cost price of book is ₹400.

50.

Ans. (b) : $x^4 - 2x^3 + 3x^2 - x + k$,

$(x - 3)$ is a factor of the given expression,

∴ On putting, $x = 3$

$$\Rightarrow (3)^4 - 2 \times (3)^3 + 3(3)^2 - 3 + k = 0$$

$$\Rightarrow 81 - 54 + 27 - 3 + k = 0$$

$$\Rightarrow 51 + k = 0$$

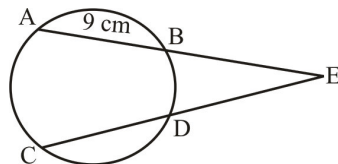
$$\Rightarrow k = -51$$

51.

Ans. (c) : Given,

AB = 9 cm, AE = 12 cm.

ED = 4 cm.



$$\therefore BE = AE - AB \\ = 12 - 9 = 3 \text{ cm.}$$

$$\therefore BE \times AE = ED \times CE \\ 3 \times 12 = 4 \times CE$$

$$CE = 9 \text{ cm}$$

$$\therefore CD = CE - ED \\ = 9 - 4 \\ = 5 \text{ cm.}$$

52.

Ans : (d) 7, 2, 10, 4, 3, 12, 8, 4, 6, 4

On arranging the numbers in ascending order- 2, 3, 4, 4, 4, 6, 7, 8, 10, 12

⇒ Mode = 4 (the highest frequency)

$$\text{Median} = \frac{1}{2} \left[\frac{n^{\text{th}}}{2} + \left(\frac{n}{2} + 1 \right)^{\text{th}} \right]$$

$$\text{Median} = \frac{1}{2} (5^{\text{th}} + 6^{\text{th}}) \text{ term} \quad \left\{ \begin{array}{l} \text{where } n = \text{terms number} \\ n = 10 \end{array} \right.$$

$$= \frac{1}{2} (4 + 6) = 5 = \frac{1}{2} \times 10 = 5$$

Mean

$$= \frac{\text{sum of total number}}{\text{total number}} = \frac{2+3+4+4+4+6+7+8+10+12}{10}$$

$$\text{mean} = \frac{60}{10} = 6$$

$$\text{LCM of } 4, 5, 6 = 2 \times 2 \times 3 \times 5 = 60$$

53.

Ans. (c) Given, $\sqrt{9} = 3$

$$\text{So, } \frac{\sqrt{81}}{\sqrt{3}} = \frac{9}{\sqrt{3}} = \frac{3 \times \sqrt{3} \times \sqrt{3}}{\sqrt{3}} = 3\sqrt{3}$$

54.

Ans : (c)

Let the present age of Seema and Reema is $2x$ and $3x$ years respectively.

According to the question,

$$3x - 2x = 6$$

$$x = 6 \text{ years}$$

Therefore, present age of Seema and Reema = $2 \times 6, 6 \times 3$
= 12 years, 18 years

Ratio of the ages of Seema and Reema after 6 years-
= $(12+6) : (18+6)$
= $18 : 24 = 3 : 4$

55.

Ans : (c) Filled part by all the three flood gates A, B, C

in 1 hour = $\frac{1}{6}$ part

∴ Filled part by all three flood gates in 2 hour =

$$\frac{1}{6} \times 2 = \frac{1}{3} \text{ part}$$

∴ Remaining part = $1 - \frac{1}{3} = \frac{2}{3}$ part

$$\text{Filled part by A and B in 7 hours} = \frac{2}{3}$$

$$\text{Filled part by A and B in 1 hour} = \frac{2}{21} \text{ part}$$

$$\text{Filled part by C in 1 hour} = \frac{1}{6} - \frac{2}{21}$$

$$= \frac{7-4}{42} = \frac{3}{42} = \frac{1}{14}$$

Time taken by C to fill the reservoir = 14 hours

56.

Ans. (b) : The correct combination of personality and his/her associated organization are – Satyashodhak Samaj – Jyotiba Phule.

The rest are correctly matched as follows:

Poona Sarvajanik Sabha – M.G. Ranade.

Hindustan Socialist Republican Association – Chandra Shekhar Azad.

Theosophical Society → Annie Besant.

57.

Ans. (b) : The Mysore Palace, is a historic palace and a royal residence in Mysore, in Karnataka, used to be the official residence of the Wadiyar dynasty, who ruled from 1399 to 1950 AD. Mysore Palace is also known as Amba Villa. Henry Irwin was the architect of the Mysore palace. In the 14th century Yaduraya built the first palace inside the old fort, which was demolished and restored several times. The present building was built between 1897 and 1912, after the burning of the old palace.

58.

Ans. (a) : Mural is a painting applied to surface of a wall or ceiling. Historically, they are especially associated with the fresco technique, where the pigments are applied to a thin layer of wet plaster, into which they sink. Temples associated with this painting are-

Virupaksha temple, Karnataka.

Thiruvavur temple, Tamil Nadu.

Ajanta, Maharashtra.

Veerabhadreswara temple, Karnataka

Lepakshi temple, Andhra Pradesh.

59.

Ans. (b) Article 19(1)(a) of the Indian Constitution guarantees 6 rights to all citizens, they are-

- (i) Right to freedom of speech and expression.
- (ii) Right to assemble peacefully and without arms.
- (iii) Right to form congregation or association.
- (iv) Right to seamless transmission everywhere in the territory of India.
- (v) Right to reside and settle in any part of the territory of India
- (vi) The right to carry on any profession, trade or business.

Under Article 19 (1)(a) freedom of speech and expression, the right to hoist the national flag is inherent.

60.

Ans. (a): As per Indian Constitution, Article 75(1-A) states the limit on minister. According to this article the total number of ministers including Prime Minister, in the Council of Ministers shall not exceed fifteen percent, of the total number of members of the House of the People. This provision was added by the 91st Amendment Act, of 2003.

61.

Ans. (d): A Political party is recognised as a National Party only if it fulfils any one of the following three conditions:

- The party wins 2 percent of the seats in the Lok Sabha (as of 2014, 11 seats) from at least 3 different States; or
- At a General Election to Lok Sabha or Legislative Assembly, the party polls 6% of votes in four States and in addition it wins 4 Lok Sabha seats from any state or states; or
- A party gets recognition as State Party in four or more States.

62.

Ans. (b) :		
Straits	Connects	Location
Bering Strait	Alaska & Russia	Arctic Ocean & Pacific Ocean
Bosporous Strait	Black Sea and Marmara Sea	Turkey
Davis Strait	Baffin Bay and Atlantic Ocean	Greenland-Canada
Sunda Strait	Java Sea and Indian Ocean	Indonesia
Gibraltar Strait	Mediterranean Sea and Atlantic Ocean	Spain-Morocco
Hudson Strait	Gulf of Hudson and Atlantic Ocean	Canada

63.

Ans. (a) : Chennai Port was founded in 1639. Initially, East India company's ships used to anchor offshore and the cargo was transported through the small boats. Chennai doesn't possess any natural harbour. Chennai Port is 3rd oldest port in India. It serves mainly as a container port that ranks second in India just after the container port of Mumbai. It is the largest port in Bay of Bengal.

64.

Ans. (a): Securities sold by the central Bank with a clear specification of repurchase date and price is called outright open market operations.

65.

Ans. (c): Sukanya Samridhi Scheme is a small girls saving scheme. The Government of India (GOI) targeted the parents of the girl child. This scheme was launched by PM Narendra Modi as a part of Beti Bachao, Beti Padhao Campaign. It was launched on 22nd January, 2015 in Panipat, Haryana. The account opened in banks under this scheme is known as Sukanya Samridhi account.

66.

Ans. (d) : Ramnath Goenka award is given for excellence in Journalism. It is one of the most prestigious awards in India in the field of journalism. This award have been held annually since 2006.

67.

Ans. (a): National Mathematics Day is celebrated every year on December 22 since 2012 across the nation to recognize and celebrate the works of a great Mathematician Srinivasa Ramanujan. It was on this day in 1887, the Indian mathematical genius Srinivasa was born in Tamil Nadu.

68.

Ans. (d) :	
Historian/Author	Famous Book
Vincent Arthur Smith	The Early History of India: From 600 BC to the Muhammadan Conquest (including the Invasion of Alexander the Great)
K.A. Nilakanta Sastri	A History of South India: From Prehistoric Times to the Fall of Vijayanagar
R.C. Majumdar	Ancient India
R.G. Bhandarkar	First book of Sanskrit

69.

Ans. (a) :	
International Organization	Headquarters
International Monetary Fund (IMF)	Washington, D.C.
European Central Bank (ECB)	Frankfurt, Germany

Organisation for Economic Co-operation and Development (OECD)	Paris, France
International Labour Organization (ILO)	Geneva, Switzerland

70.

Ans. (a): The 'Fountain of Wealth' was listed in the Guinness Book of World Records in 1998 as the largest fountain in the world. It is located in the hub of one of Singapore's largest shopping malls, the Sun Tec City. At present the world's largest fountain is 'Palm Fountain' of Dubai in UAE.

71.

Ans. (c): Trishul is the short-range surface- to - air missile in India.

- Astra = The air to air missile has a range of 25 to 40 km.
- Prithvi = The short range surface - to- surface missile has a range of 150 to 350 km.
- Akash = The medium range surface - to air missile has a range of 25 km.

72.

Ans. (c) : Mohd. Azharuddin made three consecutive centuries in his first three test matches. His international playing career came to an end when he was found to be involved in a match-fixing scandal in 2000 and subsequently banned by the BCCI for life. In 2012, the Andhra Pradesh High Court lifted the life ban.

73.

Ans. (a) : The French Open also known as Roland Garros is the premier Clay Court Championship in the world. It is the second of the four annual Grand Slam tournaments. The other three are the Australian Open, Wimbledon Open and the US Open.

74.

Ans. (d) : Jonbeel Mela usually takes place a few days after Magh Bihu. It is celebrated at Dayang Belguri in Morigaon district in Assam. A cluster of tribes celebrates this from centuries. It is the only fair in India where barter system is still used. Jonbeel Mela is organized by Tiwa community.




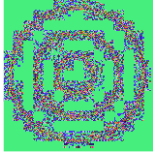
75.

Ans. (a) : Thang Ta "the art of the sword and spear" is the traditional martial art of Manipur. It integrates various external weapons the sword, spear, dagger etc. Rangama is a dance of Nagaland. Chakyar Koothu is a performance art from Kerala. Singhi is lion dance of Sikkim. In this dance form the dancers perform in a lion costume that represents the snow lion.

RRB Practice Set-14

1. Which one of the following is not a hardware component of a computer?
(a) Keyboard (b) Memory
(c) Printer (d) Mouse
2. Name the plant from which the anti-malarial drug Quinine is extracted?
(a) Cinchona (b) Eucalyptus
(c) Dandelion (d) Basil
3. Which one of the following plants is not classified in Thallophyta division?
(a) Chara (b) Riccia
(c) Ulva (d) Spirogyra
4. Which of the following is responsible for dwarfism in humans?
(a) Thyroxine (b) Pituitary
(c) Adrenaline (d) Pancreas
5. What is the tooth enamel made of?
(a) Calcium chloride (b) Calcium sulphate
(c) Calcium carbonate (d) Calcium phosphate
6. Mendel selected pea plants because _____.
(a) They were cheap.
(b) They were easily available.
(c) They had contrast traits.
(d) All the above options
7. When coal and petroleum are burnt in insufficient air (oxygen), which harmful gas is produced, causing pollution?
(a) Carbon dioxide (b) Oxides of nitrogen
(c) Carbon monoxide (d) Sulphur dioxide
8. Which of the following elements has the smallest atomic radius in the fourth period?
(a) chlorine (b) iodine
(c) fluorine (d) bromine
9. Which of the following is alkaline in nature?
(a) HCl (b) HNO₃
(c) H₂SO₄ (d) NaOH
10. Which form of carbon is used as a dry lubricant?
(a) Coke (b) Coal
(c) Diamond (d) Graphite
11. What does the speed of a car not depend on?
(a) speedometer (b) change in direction
(c) change in speed (d) change in acceleration
12. In which of the following mediums does the sound travel fastest at a particular temperature?
(a) Water (b) Air
(c) Glass (d) Iron
13. If your weight 38 kg on Earth, what will be your weight on the planet Mercury?
(a) 19 kg (b) 760 kg
(c) 10 kg (d) 14.3 kg
14. At the time of releasing an arrow in a drawn bow, the potential energy of the bow change
(a) Chemical energy (b) Kinetic energy
(c) Sound energy (d) Thermal energy
15. What is the S.I. unit of wave speed ?
(a) Meter (b) Meter/second
(c) Second (d) Hertz
16. In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.
BLG : DHM
GMQ : IIW
(a) QDR : TZX (b) ULF : WGL
(c) CNH : EJN (d) YPJ : ATP
17. Select the option that is related to the third term in the same way as the second term is related to the first term.
Cricket : 11 :: Kabaddi : ?
(a) 5 (b) 6
(c) 8 (d) 7
18. In a certain code language, ROUTINE is written as UORTENI and PLAYERS is written as ALPYSRE. How will BANKING be written in the same language?
(a) NABGNIK (b) NABKGNI
(c) BNAKIGN (d) NBAIGKN
19. Letters are coded as numbers/symbols as per the table given below and the conditions which follow. Refer to the codes and conditions and then select the correct code for SQUARE.

Letters	T	P	J	Q	S	U	E	R	H	A
Number/Symbol	-	6	8	%	7	@	3	9	#	1
- Conditions:
(i) If there is more than 1 vowel in the word, the vowels will be coded as 4.
(ii) If a word has consonants at both ends, both the consonants will be coded as 2.
(a) 7%4493 (b) 7%@193
(c) 7%9493 (d) 7%4494
20. Four options have been given out of which three are alike in some manner and one is different. Select the odd one
(a) AZBY (b) KPLO
(c) FUGT (d) UVFE
21. Four pair of words given select the different from these.
(a) After : Before
(b) Successor : Predecessor
(c) First : Second
(d) Future : Past
22. Select the number from the given options that can come next in the following series.
1, 12, 124, 1248, 12496, _____.
(a) 124982 (b) 124962
(c) 124992 (d) 124978

23. Select the alphanumeric-cluster from among the given options that can replace the question mark (?) in the following series.
D2E#F, G#H3I, J4K#L, ?, P6O#R, S#T7U
(a) M6A#T (b) M#N5O
(c) M3N#P (d) M#O7N
24. Which two numbers, from among the given options, should be interchanged to make the given equation correct?
 $21 \div 9 + 99 - 81 \times 5 = 3$
(a) 9 and 81 (b) 21 and 81
(c) 21 and 5 (d) 9 and 5
25. A nurse dressing the wound of a boy in a clinic is asked by her colleague how that boy is related to her. She replies, " My maternal uncle and the maternal uncle of his maternal uncle are the same." How is that boy related to the nurse?
(a) Brother (b) Brother's Son
(c) Paternal Aunt (d) Son
26. Three statements are given, followed by three conclusion numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow (s) from the statements.
All anklets are printers.
Some printers are birds.
Some birds are cherries.
Conclusions:
I. Some birds are printers.
II. All printers are anklets
III. Some cherries are birds.
(a) Only conclusion II follows
(b) Both conclusions I and III follow.
(c) None of the conclusions follow
(d) Only conclusion I follows.
27. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement.
Statements:
1. Some classical dancers are students.
2. Rama is a classical dancer.
3. Sohan is a student of class X.
Conclusions:
I. Sohan is not a classical dancer.
II. Rama is a student.
(a) Only conclusion II follows.
(b) Only conclusion I follows.
(c) None of the conclusions definitely follow.
(d) Both conclusions I and II follow.
28. Sohan is facing north-west. He turns 90° clockwise, then 360° anticlockwise and then 90° clockwise. In which direction is Sohan facing now?
(a) North-west (b) North-east
(c) South-west (d) South-east
29. Which of the following Venn diagrams best depicts the relationship between the classes? Summer, Season, Cloudy
(a)  (b) 
(c)  (d) 
30. Read the following information and answer the question that follows.
1. Rohit, Shobhit and Manu play Volleyball, Tennis and Kho-Kho.
2. Rohit, Ashu and Manu play Volleyball, Tennis and Badminton.
3. Rohit, Shobhit, Dilip and Manu play Kho-Kho and Tennis.
Which game is played by all the boys?
(a) Tennis (b) Kho-Kho
(c) Badminton (d) Volleyball
31. Three of the following four letter clusters are a like in a certain way and one is different. Pick the odd one out.
(a) DOS (b) SLO
(c) REI (d) GQU
32. Refer to the following letter series and answer the question.
(Left) T Y A N E C M K E W A F H E Q A P
M N B E D H E K U W S D A N M A W E
(Right)
How many such consonants are there in the series which are immediately preceded by a vowel also immediately followed by a vowel?
(a) Five (b) Four
(c) Three (d) Six
33. Statement:
This scale is transparent.
Conclusion:
1. The scale is made up of glass.
2. The scale is made up of plastic.
(a) Only II follow
(b) Both I and II follows
(c) Only I follow
(d) Neither I nor II follow
34. Question:
How many daughters does Z have?
Statement:
1. X and Y are the daughters of W.
2. V is brother of X and son of Z.
(a) Both 1 and 2 together are sufficient
(b) Only 2 is sufficient while first alone is not sufficient
(c) Either 1 alone or 2 alone is sufficient
(d) Only 1 is sufficient while other alone is not sufficient

35. **Statement:**
Company X announced that in their company, 10 clerical jobs will be filled, with the minimum eligibility criteria of being bachelor's degree pass.
Assumptions
1. Only those who have passed the bachelor's degree will apply.
2. Masters can also apply.
(a) Only assumption 2 is implicit
(b) Both assumptions 1 and 2 are implicit
(c) Either assumption 1 or 2 is implicit
(d) Only assumption 1 is implicit
36. $3^{71}+3^{72}+3^{73}+3^{74}+3^{75}$ is divisible by:
(a) 8 (b) 5
(c) 11 (d) 7
37. By how much is $\frac{1}{6}$ th of 432 smaller than $\frac{3}{4}$ th of 216?
(a) -90 (b) 72
(c) 90 (d) 162
38. Find the value of $7 + 5 - 2 \times (7 + 89) - 94 \div 2 + (33 \div 3 + 9 \times 2 - 7) \div 11$.
(a) -235 (b) -245
(c) 245 (d) -225
39. Find the number obtained by adding the sum and difference of the numbers 3.03 and 2.05.
(a) 0.606 (b) 6.06
(c) 600.6 (d) 60.06
40. If P is the largest number which, when divides 60, 150 and 285, gives the same remainder in each case, then find the sum of digits of p.
(a) 7 (b) 5
(c) 4 (d) 9
41. If a, b, c and d are in continued proportion, then $(ma^3 + nb^3 - rc^3) : (mb^3 + nc^3 - rd^3) = ?$
(a) d : a (b) b : c
(c) a : d (d) c : b
42. 12.5% of the first number is 37.5% of the second number. If the second number is subtracted from the first number. We get an answer of 1428. Find the sum of the two numbers.
(a) 2846 (b) 2856
(c) 2936 (d) 2716
43. If the surface area of a cube is 3750 cm^2 , then find its volume?
(a) 14255 cm^3 (b) 16625 cm^3
(c) 12225 cm^3 (d) 15625 cm^3
44. The bill for a satellite airtime for 2 minutes 30 seconds is Rs. 25, then what will be the price of 3 minutes 20 seconds in rupees? (up to one decimal place)
(a) 33.3 (b) 33.2
(c) 33.4 (d) 33.1
45. Two motorists traveling in the opposite direction meet at some point in the middle. After this they take 9 and 16 hours respectively to reach their destination. What is the ratio of their speed?
(a) 4:7 (b) 4:3
(c) 5:3 (d) 5:4
46. In what time will a sum of ₹6,400 amount to ₹7,168 at 6% simple interest per annum?
(a) 2.5 years (b) 4 years
(c) 2 years (d) 3 years
47. At what rate of compound interest per annum will a sum of ₹10,000 become ₹11,025 in 2 years?
(a) 6% (b) 4%
(c) 4.5% (d) 5%
48. A seller sells 12 chairs at a profit of 12% and 4 chairs at a loss of 3%. If his total profit is ₹1650, the cost price of each chair is:
(a) ₹1490 (b) ₹1250
(c) ₹1100 (d) ₹1380
49. If an item is sold at 13% loss and 14% profit, then the difference between both the prices is ₹162. What is the cost price of the item?
(a) ₹625 (b) ₹620
(c) ₹600 (d) ₹640
50. If the roots of the equation $2x^2 - 3x + a = 0$ are in the ratio 1:2, then find the value of a.
(a) 2 (b) 1
(c) -1 (d) -2
51. From a point Q, the length of the tangent to a circle is 21cm and the distance of Q from the centre 'O' of the circle is 29cm. Find the radius of the circle.
(a) 20 cm (b) 8 cm
(c) 50 cm (d) 30 cm
52. Find the sum of mean, median and mode of the given data.
9, 35, 20, 25, 25, 15, 25
(a) 75 (b) 72
(c) 47 (d) 50
53. $\sqrt[5]{\frac{32}{243}}$ value is equal.....?
(a) $\frac{5}{3}$ (b) $\frac{3}{2}$
(c) $\frac{5}{2}$ (d) $\frac{2}{3}$
54. A Father said to his son, "I was as old as you are now when you were born." If the present age of the Father is 40 years, then what was the age of the son 5 years ago ?
(a) 14 years (b) 16 years
(c) 18 years (d) 15 years

55. An inlet pipe and an outlet pipe are opened to fill and empty a cistern in the order of one hour each. When the cistern is empty inlet pipe is turned on. The inlet pipe takes 15 hours to fill the empty cistern completely, while the outlet pipe can empty the entire cistern in 21 hours. How many hours will it take to fill the cistern completely?
 (a) 100 (b) 52.5
 (c) 105 (d) 99
56. In which session of the Congress did Mahatma Gandhi convince other leaders to start a non-cooperation movement in support of Khilafat as well as swaraj?
 (a) Nagpur Session (b) Bombay Session
 (c) Calcutta Session (d) Lucknow Session
57. At which Sikh Guru's invitation did the Sufi saint Hazrat Mian Mir lay the foundation stone of Golden Temple (Harmandir Sahib) in Amritsar?
 (a) Shri Guru Har Govind ji
 (b) Shri Guru Arjun Dev ji
 (c) Shri Guru Har Rai ji
 (d) Shri Guru Tegh Bahadur ji
58. Who constructed the Jagannath Temple in Puri?
 (a) Anantavarman Chodagung
 (b) Narasimhavaramana
 (c) Adityavarmana
 (d) Parmeshwarvarmana
59. Article 43 B in Part IV of the Constitution of India deals with:
 (a) Rural business hubs
 (b) Village Panchayats
 (c) Forest development
 (d) Cooperative societies
60. The total number of ministers, including the Chief Minister, in the council of ministers in a state CANNOT exceed _____ of the total members of the legislative assembly of that state.
 (a) 15% (b) 3%
 (c) $\frac{1}{20}$ (d) $\frac{1}{10}$
61. In India _____ is/are governed by the provisions of Section 29A of the Representation of the People Act, 1951.
 (a) appointment of dates for nominations, etc.
 (b) withdrawal of candidature
 (c) general duties of chief electoral officers
 (d) registration of political parties
62. In which of the following continents Mount Vinson is located?
 (a) Australia (b) South America
 (c) Asia (d) Antarctica
63. Chakma refugees are migrants to India from which of the following neighbouring countries?
 (a) Myanmar (b) Bangladesh
 (c) Nepal (d) China
64. Which of the following money is deposited to individual.
 (a) M_1 (b) M_4
 (c) M_2 (d) M_3
65. Which of the following is related to "golden hand shake"?
 (a) Share Market
 (b) Smuggling
 (c) Voluntarily retirement profit
 (d) Theft
66. Kalidas Samman Award has been instituted by which state government?
 (a) Madhya Pradesh Government
 (b) Maharashtra Government
 (c) Chhatisgarh Government
 (d) Rajasthan Government
67. When is World Cancer Day celebrated?
 (a) 4 February (b) 5 March
 (c) 12 May (d) 23 August
68. Who is the author of the book titled "Dreams from My Father"?
 (a) Nelson Mandela (b) Tony Blair
 (c) Barack Obama (d) Donald Trump
69. India is not a member of which of these groups?
 (a) South Asian Association for Regional Cooperation
 (b) Association of South-East Asian Nations
 (c) Shanghai Cooperation Organization
 (d) Bay of Bengal Initiative for Multi-sectoral Technical and Economic Cooperation
70. Which is the most energy efficient city in the world?
 (a) Vancouver (b) Reykjavik
 (c) Denmark (d) Malmo
71. Which is India's first self-made jet fighter aircraft?
 (a) Dassault Rafael (b) MiG-21
 (c) LCA Tejas (d) Dassault Mirage.
72. Who is the first batsman in the history of cricket to score 3 ODI double centuries?
 (a) Sachin Tendulkar (b) Virender Sehwag
 (c) Virat Kohli (d) Rohit Sharma
73. What is the boxing field called?
 (a) Court (b) Ring
 (c) Track (d) Diamond
74. Which of the following is the famous festival game of Kerala?
 (a) Jujutsu (b) Weightlifting
 (c) Boat race (d) Swimming
75. Khandvi is a dish of which Indian state?
 (a) Karnataka (b) Gujarat
 (c) Odisha (d) Maharashtra

SOLUTION : PRACTICE SET- 14

ANSWER KEY

1. (b)	7. (c)	13. (d)	19. (d)	25. (d)	31. (c)	37. (c)	43. (d)	49. (c)	55. (d)	61. (d)	67. (a)	73. (b)
2. (a)	8. (d)	14. (b)	20. (d)	26. (b)	32. (a)	38. (d)	44. (a)	50. (b)	56. (c)	62. (d)	68. (c)	74. (c)
3. (b)	9. (d)	15. (b)	21. (c)	27. (b)	33. (d)	39. (b)	45. (b)	51. (a)	57. (b)	63. (b)	69. (b)	75. (b)
4. (b)	10. (d)	16. (c)	22. (c)	28. (d)	34. (a)	40. (d)	46. (c)	52. (b)	58. (a)	64. (a)	70. (b)	
5. (d)	11. (a)	17. (d)	23. (b)	29. (a)	35. (b)	41. (c)	47. (d)	53. (d)	59. (d)	65. (c)	71. (c)	
6. (d)	12. (d)	18. (b)	24. (b)	30. (a)	36. (c)	42. (b)	48. (b)	54. (d)	60. (a)	66. (a)	72. (d)	

SOLUTION

1.

Ans. (b) : All the physical components of computer which can be seen or touched are known as hardware. For example- Keyboard, Mouse, Monitor, Printer, Motherboard etc. While virtual memory is not hardware.

2.

Ans.(a) Quinine, the anti-malarial drug is extracted from the bark of Cinchona. Cinchona is a genus of flowering plants in the family Rubiaceae containing at least 23 species of trees and shrubs.

3.

Ans : (b) Thallophyta– Plant body is thallus-like i.e., not differentiated into stem, leaves and roots. These include lichens, algae, fungus, bacteria and slime moulds and bryophytes. Chara, Ulva, Spirogyra, all three are algae. Riccia is example of bryophytes.

4.

Ans. (b) Dwarfism is caused by problems arising from the pituitary gland or Growth Hormone Deficiency (GHD). The pea-sized pituitary gland is located at the base of brain. It makes hormones that control many functions in body.

5.

Ans:(d) The tooth enamel is made of calcium phosphate. All teeth have three layers: enamel, dentine, and pulp. The enamel is the outermost layer and is primarily made of calcium phosphate minerals. Enamel is the hardest substance in the human body, but it does not grow back once it's lost.

6.

Ans. (d) Mendel selected pea plant for his experiments because the pea plant is an annual plant. It has age of 3-7 months. Therefore, it is possible to study its many generations. Male and female reproductive organs are present on the same. Pea plants have many traits which are contrast to each other.

7.

Ans. (c) : Coal and petroleum fuels are carbon rich compounds, on incomplete combustion they react with atmospheric oxygen and form a harmful gas called Carbon monoxide (CO). Also incomplete combustion of coal and petroleum fuels lead to increased air pollution.

8.

Ans : (d) When moving from left to right in a period, the atomic radius decrease from alkali metal to halogen in a regular order, as the number of electrons of the outermost shell increases with increasing nuclear charge, which in turn increases the ability of the outermost shell to attract electrons. is. Because of this, the distance between their nucleus and outer shells decreases gradually, hence the atomic radius decreases. Thus the atomic radius of the halogen element bromine (Br) of the fourth period is the lowest.

9.

Ans. (d) NaOH is an alkaline substance in nature. While all the above compounds are HCl, HNO₃ and H₂SO₄ are acids.

10.

Ans. (d) : Graphite is a form of carbon which is used as a dry lubricant. Graphite is a crystalline form of carbon and occurs naturally. It is the most stable form of carbon.

11.

Ans : (a) The speed of the car does not depend on the speedometer. The speed of a car depends on a change in its direction, a change in speed and a change in acceleration.

12.

Ans. (d)	
Speed of sound in different medium at 25⁰C	
Substance	Speed (in m/s)
Steel	5960
Iron	5950
Glass (Flint)	3980
Water (sea)	1531
Air	346

13.

Ans : (d) Given, Weight on Earth = 38 kg
 Note - Gravity of Mercury planet
 $g_{\text{mercury}} = 0.378 \text{ m/s}^2$
 Weight on Mercury = $38 \times 0.378 = 14.364 \text{ kg}$.

14.

Ans : (b) At the time of releasing an arrow from a drawn bow, the potential energy of the bow change in to the kinetic energy.

15.

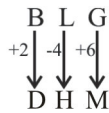
Ans : (b) Speed = Wavelength \times Wave Frequency

$$v = \lambda \times n$$

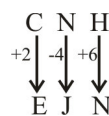
In this equation, wavelength is measured in meters and frequency is measured in hertz (Hz), or number of vibration per second. Therefore, wave speed is given in metre per second, which is the SI unit of wave speed.

16.

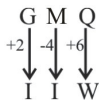
Ans.(c) : Just as,



Similarly,



and,



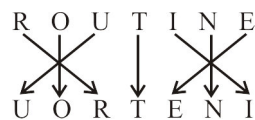
Hence, option (c) is correct.

17.

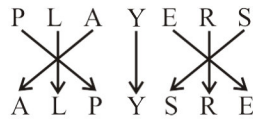
Ans. (d) : Just as,, number of players in Cricket is 11. Similarly, number of players in Kabaddi is 7.

18.

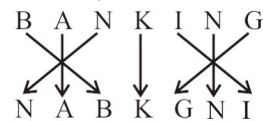
Ans. (b) : Just as,



And,



Same as,



19.

Ans. (d) : According to the question, From condition (i)- and given codes:-

$$S \text{ Q U A R E} \rightarrow 7 \% 4 4 9 4$$

Hence, option (d) is correct.

20.

Ans. (d) : From the given options,

- (a) $A \rightarrow Z \rightarrow B \rightarrow Y$
 - (b) $K \rightarrow P \rightarrow L \rightarrow Q$
 - (c) $F \rightarrow U \rightarrow G \rightarrow T$
 - (d) $U \rightarrow V \rightarrow F \rightarrow E$ } It is not opposite
- Both the letters present in the box are opposite letters

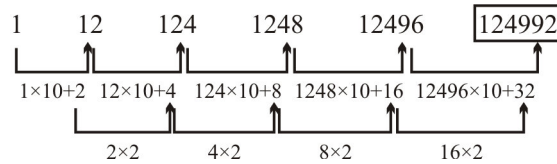
Hence option (d) is odd one.

21.

Ans. (c) Except option (c) all other words have opposite pairs.

22.

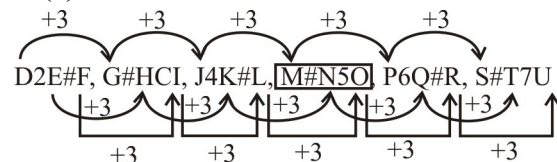
Ans. (c) : The given series is as follows:-



Hence, 124992 will be the next number in the series.

23.

Ans. (b) :



Hence, $? = M\#N5O$

24.

Ans. (b) : Given expression-

$$21 \div 9 + 99 - 81 \times 5 = 3$$

According to the option (b),

On interchanging 21 and 81

$$81 \div 9 + 99 - 21 \times 5 = 3$$

$$9 + 99 - 105 = 3$$

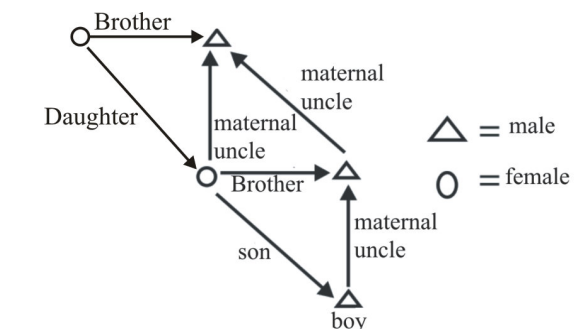
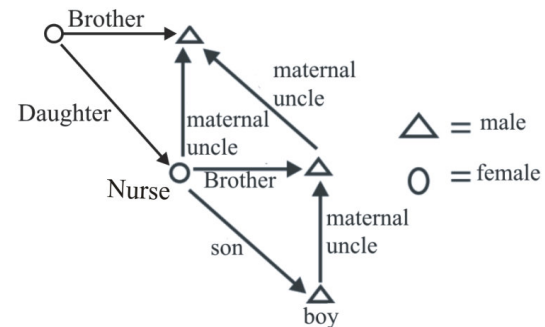
$$108 - 105 = 3$$

$$3 = 3$$

$$\text{LHS} = \text{RHS}$$

25.

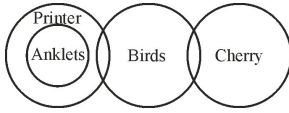
Ans. (d) : According to the question-



From the above diagram, it is clear that the boy is the son of the nurse.

26.

Ans. (b) : According to the question, Venn diagram is as follows,



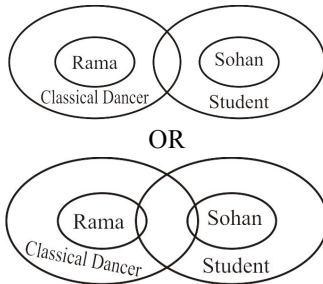
Conclusions,

- (I) (✓)
- (II) (✗)
- (III) (✓)

Hence, Both conclusion I and III follows.

27.

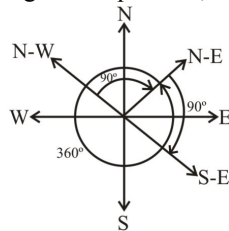
Ans. (b) : According to the statement Venn diagram is as follows,



Hence, it is clear from above none of the conclusion definitely follow.

28.

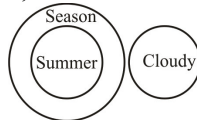
Ans.(d) : According to the question,



Hence, Sohan is facing in South-East direction.

29.

Ans. (a) : Venn diagram of Summer, Season and Cloudy is as follows,



Hence, option (a) will be correct.

30.

Ans. (a) : According to the question-

Boys	Volleybal	Tennis	Kho-Kho	Badminton
Rohit	✓	✓	✓	✓
Shobhit	✓	✓	✓	✗
Manu	✓	✓	✓	✓
Ashu	✓	✓	✗	✓
Dilip	✗	✓	✓	✗

Therefore it is clear from the above that tennis is played by all the boys.

31.

Ans. (c) : Except option (c), all other options have the one vowel but in option (c) there is two vowel.

Hence, option (c) is different from others.

32.

Ans. (a) : Given,

(Left) T Y **A N E** C M K **E W A** F H **E Q A** P M N B E
D H **E K U** W S D A N M **A W E** (Right)

Hence, required number of consonants according to the given question = 5.

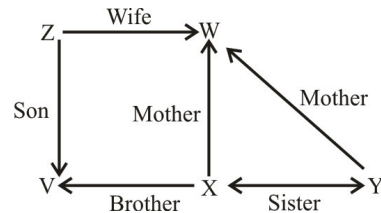
33.

Ans : (d) According to the statement conclusion I states that the scale is made of glass. So, it is not necessary that the scale can be made of plastic iron etc. Conclusion II states that the scale is made of plastic. So, it is also not necessary that the scale is made of plastic because such information does not come out of the statement.

Hence, Neither conclusion I nor II follows.

34.

Ans. (a) : From statement 1 and 2, we have-



It is clear from figure, statements 1 and 2 together are sufficient to answer the question.

35.

Ans : (b) According to the statement, the minimum qualification for the job is graduation. Therefore graduated and master's will be eligible. Hence assumptions I and II are implicit in the statement.

36.

$$\begin{aligned}
 \text{Ans. (c) : } & 3^{71} + 3^{72} + 3^{73} + 3^{74} + 3^{75} \\
 & = 3^{71} (3^0 + 3^1 + 3^2 + 3^3 + 3^4) \\
 & = 3^{71} (1 + 3 + 9 + 27 + 81) \\
 & = 3^{71} \times 121 \\
 & = 3^{71} \times 11^2
 \end{aligned}$$

Hence, given series will be divisible by 11.

37.

Ans. (c) : According to the question-

$$\frac{1}{6} \text{ part of } 432 = 432 \times \frac{1}{6} = 72$$

$$\text{and } \frac{3}{4} \text{ part of } 216 = 216 \times \frac{3}{4} = 162$$

$$\begin{aligned}
 \text{Required difference} & = 162 - 72 \\
 & = 90
 \end{aligned}$$

38.

$$\begin{aligned}\text{Ans. (d)} : 7 + 5 - 2 \times (7 + 89) - 94 \div 2 + (33 \div 3 + 9 \times 2 - 7) \div 11 \\ = 12 - 2 \times 96 - 47 + (11 + 18 - 7) \div 11 \\ = 12 - 192 - 47 + 2 \\ = 14 - 239 = -225\end{aligned}$$

39.

$$\begin{aligned}\text{Ans. (b)} : 3.03 + 2.05 = 5.08 \\ 3.03 - 2.05 = 0.98 \\ \hline + 6.06 \\ \hline\end{aligned}$$

40.

Ans : (d) The required number = The HCF of (150 - 60), (285 - 150) and (285 - 60)

$$\begin{aligned}90 &= 2 \times 3 \times 3 \times 5 \\ 135 &= 3 \times 3 \times 3 \times 5 \\ 225 &= 3 \times 3 \times 5 \times 5 \\ \text{HCF} &= 3 \times 3 \times 5 = 45\end{aligned}$$

So, the required sum = 4 + 5 = 9

41.

Ans. (c) : a, b, c and d are in continued proportion.

Let-

$$\frac{a}{b} = \frac{b}{c} = \frac{c}{d} = k$$

then $c = dk$, $b = ck$, $a = bk$

$$b = (dk)k$$

$$b = dk^2$$

$$a = dk^3 \dots\dots\dots (i)$$

Now,

$$\begin{aligned}\frac{ma^3 + nb^3 - rc^3}{mb^3 + nc^3 - rd^3} &= \frac{m(dk^3)^3 + n(dk^2)^3 - r(dk)^3}{m(dk^2)^3 + n(dk)^3 - rd^3} \\ &= \frac{d^3k^3(mk^6 + nk^3 - r)}{d^3(mk^6 + nk^3 - r)} \\ \frac{ma^3 + nb^3 - rc^3}{mb^3 + nc^3 - rd^3} &= k^3\end{aligned}$$

∴ From equation (i)-

$$\text{Hence } \frac{ma^3 + nb^3 - rc^3}{mb^3 + nc^3 - rd^3} = \frac{a}{d} = a : d$$

42.

Ans. (b) : According to the question,

$$12.5 \times I = 37.5 \times II$$

$$\frac{I}{II} = \frac{37.5}{12.5}$$

$$I : II = 3 : 1$$

Then, $3 - 1 = 2$ unit $\rightarrow 1428$

1 unit $\rightarrow 714$

∴ Sum of both numbers = 3 + 1

= 4 unit

= 4 × 714

= 2856

43.

Ans : (d) Surface area of the cube = $6a^2$

As per the question,

$$6a^2 = 3750$$

$$a^2 = 625$$

$$a = 25$$

Volume of cube = (side)³

$$= 25 \times 25 \times 25$$

$$= 15625 \text{ cm}^3$$

44.

Ans : (a) 2 minutes 30 seconds or (120 + 30) seconds. The bill of 150 sec = 25

$$\text{The bill 1 second} = \frac{25}{150} = \frac{1}{6}$$

Then

$$3 \text{ minutes } 20 \text{ seconds} = 180 + 20 = 200 \text{ seconds}$$

$$\text{The bill of 200 seconds} = \frac{1}{6} \times 200 = \frac{100}{3} = 33.33$$

45.

Ans : (b) Let the speed is x and y

$$\text{Ratio of speed} = \sqrt{\frac{t_2}{t_1}} = \frac{x}{y}$$

$$\frac{x}{y} = \sqrt{\frac{16}{9}}$$

$$\frac{x}{y} = \frac{4}{3}$$

$$x : y = 4 : 3$$

46.

Ans. (c) : Given that,

$$P = ₹ 6400$$

$$A = ₹ 7168$$

$$R = 6\%$$

$$T = ?$$

$$SI = \frac{P \times R \times T}{100}$$

$$7168 - 6400 = \frac{6400 \times 6 \times T}{100}$$

$$T = \frac{768 \times 100}{6400 \times 6}$$

$$T = \frac{128}{64}$$

$$\boxed{T = 2 \text{ years}}$$

47.

Ans. (d) : Given :

Principal = ₹10000

Amount = ₹11025

Time = 2 years

Rate (R) = ?

$$A = P \left(1 + \frac{r}{100}\right)^n$$

$$11025 = 10,000 \left(1 + \frac{r}{100}\right)^2$$

$$\frac{11025}{10,000} = \left(1 + \frac{r}{100}\right)^2$$

$$\frac{441}{400} = \left(1 + \frac{r}{100}\right)^2$$

$$\left(\frac{21}{20}\right)^2 = \left(1 + \frac{r}{100}\right)^2$$

$$\frac{21}{20} = 1 + \frac{r}{100}, \quad \frac{21}{20} - 1 = \frac{r}{100}$$

$$\frac{1}{20} = \frac{r}{100} \Rightarrow 20r = 100$$

$$r = 5\%$$

48.

Ans : (b) Let the cost price of each chair = ₹ x.
According to the question,-

$$\text{Selling price} = 12x \times \frac{(100+12)}{100} + 4x \times \frac{(100-3)}{100}$$

$$= \frac{3x \times 112}{25} + \frac{97x}{25}$$

$$= \frac{336x + 97x}{25} = \frac{433x}{25}$$

$$\text{Cost price} = 12x + 4x = 16x$$

$$\text{Profit} = \text{Selling price} - \text{Cost price}$$

$$1650 = \frac{433x}{25} - 16x$$

$$1650 \times 25 = 433x - 400x$$

$$x = \frac{1650 \times 25}{33}$$

$$x = 50 \times 25 = 1250$$

$$x = ₹1250$$

49.

Ans : (c) Let the cost price of the item = ₹ x,
According to the question, ,

$$x \times \frac{114}{100} - x \times \frac{87}{100} = 162$$

$$\Rightarrow \frac{x}{100} [114 - 87] = 162$$

$$\Rightarrow x = \frac{162 \times 100}{27}$$

$$x = 6 \times 100$$

$$x = 600$$

50.

Ans. (b) : Given,

$$2x^2 - 3x + a = 0$$

The ratio of the roots = 1:2 then a=?

Let roots be K and 2K

According to the question,

$$\alpha + \beta = \frac{-b}{a}$$

$$K + 2K = \frac{-(-3)}{2}$$

$$3K = \frac{3}{2}$$

$$\therefore \boxed{K = \frac{1}{2}}$$

Again, product of roots $(\alpha.\beta) = \frac{c}{a}$

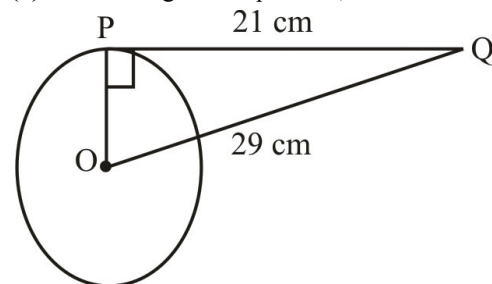
$$K.2K = \frac{a}{2}$$

$$\frac{1}{2} \times 2 \times \frac{1}{2} = \frac{a}{2} \quad (\text{On putting } K = \frac{1}{2})$$

$$a = 1$$

51.

Ans. (a) : According to the question,



Given,

$$PQ = 21 \text{ cm}$$

$$OQ = 29 \text{ cm}$$

$$OP = ?$$

$$OP = \sqrt{(OQ)^2 - (PQ)^2}$$

$$= \sqrt{(29)^2 - (21)^2}$$

$$= \sqrt{841 - 441}$$

$$= \sqrt{400}$$

$$= 20 \text{ cm}$$

Hence, the radius of the circle

$$(OP) = 20 \text{ cm}$$

52.

Ans. (b) :

$$\text{Mean} = \frac{9 + 35 + 20 + 25 + 25 + 15 + 25}{7}$$

$$= \frac{154}{7} = 22$$

On writing the data in ascending order

9, 15, 20, 25, 25, 25, 35

N = 7 terms (odd)

$$\text{Median} = \left(\frac{N+1}{2} \right)^{\text{th}} \text{ term}$$

$$= \left(\frac{7+1}{2} \right)^{\text{th}} \text{ term} = 4 \text{ term}$$

Median = 25

Mode = The number that occurs the highest number of times

$$= 25$$

$$\begin{aligned} \text{Sum of mean, median and mode} &= 22 + 25 + 25 \\ &= 72 \end{aligned}$$

53.

Ans. (d) :

$$\begin{aligned} \sqrt[5]{\frac{32}{243}} &= \sqrt[5]{\left(\frac{2}{3}\right)^5} \\ &= \left(\frac{2}{3}\right)^{\frac{5 \times 1}{5}} = \frac{2}{3} \end{aligned}$$

54.

Ans. (d) : Let the present age of son = x years

According to the question

The present age of the Father and the age of the Son at the time of his birth are equal -

$$\text{Hence } 2x = 40$$

$$x = 20$$

$$\begin{aligned} \text{Hence the age of Son 5 years ago} &= 20 - 5 \\ &= 15 \text{ years} \end{aligned}$$

55.

Ans. (d) : Filled part of cistern in 2 hours

$$= \frac{1}{15} - \frac{1}{21} = \frac{7-5}{105} = \frac{2}{105}$$

On multiplying by 49.

$$\text{Filled portion of cistern in 98 hours} = \frac{2}{105} \times 49 = \frac{14}{15}$$

$$\therefore \text{Remaining part} = 1 - \frac{14}{15} = \frac{1}{15}$$

Hence inlet pipe will now fill $\frac{1}{15}$ part in next 1 hour.

So, it will take total 99 hours to fill the entire cistern.

56.

Ans. (c) : Mahatma Gandhi felt the need to launch a more broad-based movement in India. But he was certain that no movement could be organised without bringing the Hindus and Muslims closer together. One

way of doing this, he felt, was to take up the Khilafat issue. The First World War had ended with the defeat of Ottoman Turkey. And there were rumours that a harsh peace treaty was going to be imposed on the Ottoman emperor the spiritual head of the Islamic World (the Khalifa). To defend the Khalifa's temporal powers, a Khilafat Committee was formed in Bombay in March 1919. A young generation of Muslim leaders like the brothers Muhammad Ali and Shaukat Ali, began discussing with Mahatma Gandhi about the possibility of a united mass action on the issue. Gandhiji saw this as an opportunity to bring Muslims under the umbrella of a unified national movement. At the Calcutta Session of the Congress in September 1920, he convinced other leaders to start a non-cooperation movement in support of Khilafat as well as for Swaraj.

57.

Ans. (b) : Guru Ram Das Ji was gifted the land for Harmandir Sahib by Mughal Emperor Akbar. The 5th Guru Sri Arjun Dev ji brick lined the structure and began construction of the Golden Temple Complex in December of 1588. In Sikh history, Sufi saint Mian Mir Mohammed Muayyinul Islam, laid the foundation stone of Harmandir Sahib.

58.

Ans. (a) : Shri Jagannath Temple of Puri is a Hindu Temple dedicated to Lord Jagannath (Shri Krishna). It is located in the coastal city of Puri in the Indian state of Odisha. The word Jagannath means lord of the world. This city is called Jagannathpuri or Puri. This temple was built by Kalinga king Anantvarman Chodagung Dev.

59.

Ans. (d): Article 43B (in Directive Principles of State Policy) says that 'states shall endeavour to promote voluntary formation, autonomous functioning, democratic control and professional management of cooperative societies'.

60.

Ans. (a): The total number of ministers, including the Chief Minister, in the Council of Ministers in a state cannot be more than 15% of the total number of members of the legislative assembly of that state. Article 164 (1A) provides that the strength of a Council of Ministers headed by the Chief Minister cannot exceed 15% of the strength of the assembly (the total number of MLAs) but it can't be less than 12 members either. As a real executive authority, the Chief Minister is called the head of the government (State).

61.

Ans. (d): Registration of Political parties is governed by the provisions of section 29 A of the Representation of the Peoples Act, 1951 as prescribed by the commission in exercise of the powers conferred by Article 324 of Indian constitution.

62.

Ans. (d) : Mount Vinson (Vinson Massif) is a large mountain in Antarctica that is 21 km long and 13 km wide and lies with in Sentinel Range of the Ellsworth Mountains. The height of this peak is 4892m.

63.

Ans. (b) : Chakma Refugees are Buddhist tribes that migrated to India from the Chittagong Hill tracts of Southeastern Bangladesh in 1960's. At present they primarily reside in the states of Arunachal Pradesh, Mizoram and Tripura in India.

64.

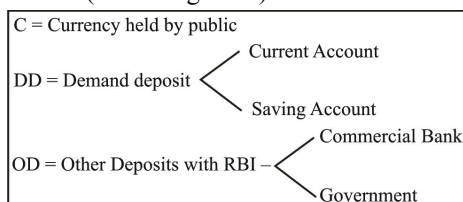
Ans. (a): In Indian economy, there are four types of money.

$M_1 = \text{Money deposited with the people} = C + DD + OD$

$M_2 = M + \text{Deposit with Post office.}$

$M_3 = M_1 + \text{Net time deposits commercial Banks}$

$M_4 = M_3 + \text{Total deposits with post office savings organizations (excluding NSC)}$



Hence option (a) is correct.

65.

Ans. (c): A golden handshake scheme is associated with voluntary retirement. It is a clause in an executive employment contract that provides the executive with significant severance package in the case the executive loses his/her job through firing, job restructuring or even scheduled retirement. This can be in the form of cash, equity and other benefits.

66.

Ans. (a) : Kalidas Samman is a prestigious arts award presented annually by the government of Madhya Pradesh in India. Kalidas Samman was first awarded in 1980. Kalidas Samman is one of the most notable arts and music awards. Kalidas Samman Award 2019 was given to Anil Rastogi in field of theater. In year 2021, Kalidas Samman was given to Nand Kishore Bhatt.

67.

Ans. (a): World cancer day is an international day marked on February 4 to raise awareness of cancer and to encourage its prevention, detection and treatment.

68.

Ans. (c) :

Books

Writer

- Dreams from My father Barack Obama
- Long walk to freedom Nelson Mandela
- A Journey: My Political life Tony Blair
- Great Again : How to Fix Our Crippled America Donald Trump

69.

Ans. (b) : Among the following, India is not a member of the Association of Southeast Asian Nations(ASEAN). ASEAN consists of 10 member countries viz. Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

- Headquarters: Jakarta, Indonesia
- Founded: 8 August 1967, Bangkok, Thailand

70.

Ans. (b): Reykjavik is the capital and largest city of Iceland. It is the most energy efficient city in the world. It relies on renewable hydropower and geothermal plants.

71.

Ans. (c): The LCA (Light combat Aircraft) Tejas is India's first self- made jet fighter aircraft designed by the Aeronautical Development Agency (ADA) in collaboration with Aircraft Research and Design Centre (ARDC) of Hindustan aeronautics Limited (HAL) for the Indian Air force and Indian Navy. In 2003, the light combat Aircraft (LCA) was officially named "Tejas"

72.

Ans. (d) : Rohit Sharma is the only player to have scored three One-day International(ODI) matches double centuries including 209, 264 and 208. Sachin Tendulkar was the first male cricketer who scored the first double century (200) in the ODI against South Africa in 2010.

73.

Ans. (b) : A boxing ring often referred simply as a ring or the squared circle, is the space in which boxing match occurs.

74.

Ans. (c) : Vallam kali or boat race is a traditional boat race in Kerala, India. It is a form of canoe racing, and uses paddled war canoes. It is mainly conducted during the season of the harvest festival Onam in spring. Vallam kali includes races of many kinds of paddled longboats and 'snake boats'.

75.

Ans. (b): Khandvi is a dish of Gujarat. It is one of the much-loved Gujarat snack. It is also known as Patuli or Dahivadi and made with gram flour. Some other traditional recipes of Gujarat are: Dhokla, Aam Shrikhand, Methi Ka Thepla, Dal Dhokli, Fafda, Upma, Dabeli, Khaman Dhokla etc.

RRB Practice Set-15

1. **ENIAC, the first general-purpose electronic computer, stands for:**
 - (a) Electronic Numerical Integrator and Computer
 - (b) Electronic Numerical Integrated Automatic Computer
 - (c) Electronic Network Integrated Analytical Computer
 - (d) Electronic Network Interactive analytic Computer
2. **Who isolated DNA for first time?**
 - (a) Friedrich Miescher
 - (b) Albrecht Kossel
 - (c) Phoebus Levene
 - (d) James Watson and Francis Crick
3. **The plants in group commonly called algae.**
 - (a) Gymnosperm
 - (b) Thallophyta
 - (c) Pteridophyta
 - (d) Bryophyta
4. **What is the basic function of estrogen?**
 - (a) To balance the mood
 - (b) To regulate the menstrual cycle
 - (c) To develop male reproductive tissues
 - (d) To maintain a pregnancy
5. **Herbivore requires longer small intestine to digest**
 - (a) Fat
 - (b) Cellulose
 - (c) Protein
 - (d) Vitamin
6. **Oparin theory about the 'origin of life' is related to:**
 - (a) Chemical evolution
 - (b) Physical evolution
 - (c) Biological Evolution
 - (d) Artificial evolution
7. **Burning of natural gas is:**
 - (a) an endothermic reaction
 - (b) an exothermic reaction
 - (c) a substitution reaction
 - (d) a decomposition reaction
8. **The element with atomic number 56 belongs to which block?**
 - (a) d
 - (b) s
 - (c) f
 - (d) p
9. **If the pH value of river water is, then its water is considered polluted with acidic waste.**
 - (a) exactly 7
 - (b) zero
 - (c) above 7
 - (d) below 7
10. **Neutron is present in all atoms except.....**
 - (a) Cr
 - (b) H
 - (c) C
 - (d) Mg
11. **Which of the following energy is found in the sea?**
 - (a) Sea wave energy, geothermal energy and ocean thermal energy
 - (b) Tidal energy, nuclear energy and ocean thermal energy
 - (c) Sea wave energy, nuclear energy and ocean thermal energy
 - (d) Tidal energy, ocean wave energy and ocean thermal energy

12. **Which of the following determines the loudness or softness of a sound?**
 - (a) wave velocity
 - (b) oscillation
 - (c) frequency
 - (d) amplitude
13. **Unit of 'g', same as unit of acceleration, i.e. is.....**
 - (a) ms^2
 - (b) ms^1
 - (c) ms^{-2}
 - (d) ms^{-1}
14. **Which of the following is not an example of potential energy?**
 - (a) A compressed spring
 - (b) Flowing water
 - (c) A raised hammer
 - (d) Water stored in a dam
15. **A 'light year' is a unit that is use to measure:**
 - (a) Time
 - (b) Distance
 - (c) Motion
 - (d) Speed
16. **Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.**
DXB : GSI :: KVR : NQY :: JNP : ?
 - (a) MIW
 - (b) NIW
 - (c) MHW
 - (d) MIV
17. **Following a certain logic, 5 is related to 28 in the same way as 7 is related to 52 and 9 is related to 84. Using the same logic, to which of the following is 11 related?**
 - (a) 126
 - (b) 121
 - (c) 128
 - (d) 124
18. **In a certain code language. 'FRAK' is coded as '35' and 'MALT' is coded as '45'. How will 'TRIM' be coded in that language?**
 - (a) 58
 - (b) 61
 - (c) 59
 - (d) 60
19. **In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.**

Number/ Symbols	2	@	9	5	\$	&	3	%	#	7	+	4	8	6
Code	T	F	A	J	L	E	W	Q	D	P	R	B	U	S

Conditions:

- (i) If the first element is a symbol and the last is a number. The codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last is an even number, the first of the last elements are to be coded asⓈ
- (iii) If both the second and the third elements are perfect squares, the third element is to be coded as the code for the second element.

Question: What will be the code for 7% 9 # 2?

- (a) ©D©QA (b) ©AD©Q
(c) Q©AD© (d) ©QAD©
20. Four options are given below, out of which three are alike in same manner while one is different. Find the odd one.
(a) $\sqrt{3}$ (b) $\sqrt{5}$ (c) $\sqrt{7}$ (d) $\sqrt{9}$
21. Four figures have been given, out of which three are alike in some manner and one is different. Select the odd figure.
- (a)
- (b)
- (c)
- (d)
22. Select the number that can replace the question mark (?) in the following series.
12.24, 48.96, 192.384, ?
(a) 748.1526 (b) 768.1546
(c) 768.1536 (d) 758.1536
23. ABC\$ + #DEF& = ?GHI!2*@,
Find the missing term using the above sequence:
A B C : @ * 2 :: \$ # E :
- (a) ?H! (b) HH! (c) !HG (d) !H?
24. By which of the following options, using the given symbols in the same order balance the given equation ?
65, 5, 25 = 190
(a) +, × (b) ×, - (c) ×, + (d) ÷, ×
25. There is a group of six persons, A, B, C, D, E and F in a room. In the group, there are two married couples. B is Italian and is the mother of C. F is the grandmother of C. F is from Canada. D is the grandfather of E and D is from Australia. There is one Italian, one Canadian, one Australian, one French and two Irish people in the group. The French person is a male and married. Nobody who is a grandchild is married. What is the nationality of A and who is his wife?
(a) French, F (b) Italian, B
(c) Irish, F (d) French, B
26. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts. decide which of the given conclusions logically follow (s) from the statements.
Statements:
Some dogs are donkeys.
No donkey is a horse.
Conclusions:
I. Some dogs are not horse.
II. Some horses are dogs
(a) Only conclusion II follows.
(b) Both conclusions I and II follow.
(c) Either conclusion I or II follows.
(d) Only conclusion I follow.

27. Read the given statements and conclusions carefully. Assuming that the information given in the statement is true, even if it appears to be at variance with commonly known facts decide which of the given conclusions logically follow(s) from the statements.
Statements:
Some pencils are pen.
No pen is a sharpener.
All sharpeners are staplers.
Conclusions:
(I) At least some staplers are pens.
(II) All pencils are pens.
(a) Both conclusions (I) and (II) follow
(b) Neither conclusion (I) nor (II) follows
(c) Only conclusion (I) follows
(d) Only conclusion (II) follows
28. If all the directions are moved 135 degrees clockwise, then which new direction does the original south point to?
(a) North-East (b) South-West
(c) South-East (d) North-West
29. Select the Venn diagram that best represents the relationship between the following classes. Music, Dance, Sound
- (a)
- (b)
- (c)
- (d)
30. Read the given information carefully and answer the question that follows.
Five coaching classes P, Q, R, S and T are located on five different floors 1, 2, 3, 4 and 5 not necessarily in the same order. Only one subject out of Physics, Chemistry, Mathematics, Biology and English, is taught in each coaching class, but not necessarily in the same order.
The following information is also known:
• Biology is taught in coaching class S, while English is not taught in coaching class Q.
• Coaching class R is on the 3rd floor, and Chemistry is taught in coaching class P.
• Physics is taught in the coaching class on the 5th floor.
• The coaching class on the 3rd floor does not teach either English or Physics.
On the basis of the information given, identify the floor on which Mathematics is taught.
(a) 3rd (b) 4rd (c) 2nd (d) 5th
31. Four letter-clusters have been given, out of which three are alike in some manner and one is different. Select the letter-cluster that is different.
(a) MKF (b) RPL (c) QOK (d) WUQ
32. Refer to the given letter, number and symbol series and answer the question that follows.
(Left) * Y S 2 # C 2 4 & 7 F & 2 @ R 4 ∈ G 4 ∈ 9 (Right)

- How many such letters are there in the series each of which is immediately preceded by a symbol and also immediately followed by a number?
(a) 2 (b) 1 (c) 3 (d) 4
33. **Statement:**
Students passing from premier institutions such as IIM, IIT and IISC get placed in foreign countries and receive more salary than they received in India.
Conclusions:
1. Companies in India should pay the same salary as companies in foreign countries.
2. Students from these institutions should be banned from going to foreign countries.
(a) Neither 1 nor 2 follows
(b) Only conclusion 2 follows
(c) Both 1 and 2 follow
(d) Only conclusion 1 follows
34. **Question:** Four magicians, U, V, W and X, will perform at a theatre on four consecutive days, each on a different day but not in the same order. On which day will W perform?
Statements:
1. Show starts on the 1st of Feb and X performs on the next day.
2. U doesn't perform on the 3rd of Feb; one of them performs between U and V.
(a) Both 1 and 2 together are sufficient to answer the question
(b) Either 1 or 2 is sufficient to answer the question
(c) 1 alone is sufficient while 2 alone is not sufficient to answer the question
(d) 2 alone is sufficient while 1 alone is not sufficient to answer the question
35. **Statement**
'Triple your money in one year' – an advertisement.
Assumptions
I. The assurance is not genuine
II. People want their money to be increased
(a) Both assumptions I and II are implicit
(b) Both assumption I and II are implicit.
(c) Only assumption I is implicit
(d) Only assumption II is implicit
36. A student divided a number by 12 instead of 21 and received 35. Find the correct answer.
(a) 20 (b) 15 (c) 26 (d) 25
37. How many factors of $2^7 \times 3^4 \times 5^3 \times 7$ are even ?
(a) 40 (b) 280 (c) 320 (d) 84
38. Simplify :
 $1800 \div 10 \times \{45 \div (17-2)\} \times 2 + \{-2(1+2)\}$
(a) 0 (b) 180 (c) 114 (d) 1074
39. In which fraction, when $5/16$ is added gives 1?
(a) $\frac{11}{32}$ (b) $\frac{13}{2}$ (c) $\frac{22}{32}$ (d) $\frac{6}{8}$
40. In a temple, four bells ring together at intervals of 12, 16, 24 and 36 minutes respectively. If they start ringing at regular intervals from 6:00 am when will they ring together again?
(a) 8 : 24 am (b) 5 : 24 am
(c) 7 : 24 am (d) 6 : 24 am
41. ₹ 13,680 is divide into three part such that first part is $3/5$ of third part, and and the ratio between second third part is 4 : 7. How much will be the first part?
(a) 3780 (b) 6300 (c) 1600 (d) 4800
42. If the radius of a circle is decreased by 35% then its area decreases by:
(a) $57\frac{3}{4}\%$ (b) $57\frac{2}{4}\%$
(c) $56\frac{3}{4}\%$ (d) $57\frac{1}{4}\%$
43. Find the curved surface area of a cylinder whose diameter of base is 14 m and height is 24 m.
(Use $\pi = \frac{22}{7}$)
(a) 1065 cm² (b) 1056 cm²
(c) 1560 cm² (d) 1506 cm²
44. Type 1 workers are 2.5 times more efficient than type 2 workers. 12 Type 1 workers can do a piece of work in 10 days. In how many days will 4 workers of Type 1 and 15 workers of type 2 take to complete the same work?
(a) 13 (b) 10 (c) 12 (d) 11
45. Two stations Mumbai and Pune which have a distance of 300 km. Two buses run opposite directions from Mumbai and Pune respectively and cross each other at a distance of 220 km from a station. What is the ratio of their speed?
(a) 13:9 (b) 10:3 (c) 11:4 (d) 14:5
46. If a sum invested at simple interest, double itself in 8 years, how many times of itself will it be in 12 years?
(a) 3 times (b) 4 times
(c) 5 times (d) 3.5 times
47. A fixed amount becomes ₹2420 after two years at a certain rate of compound interest, and ₹2662 after three years, the interest, was calculated on an annual compound basis. Find the amount and rate of interest annually.
(a) ₹1000 and 12% (b) ₹ 2000 and 10%
(c) ₹ 2250 and 15% (d) ₹ 2500 and 5%
48. By selling an item for ₹ 1,729 Rohini made a loss of 30%. At what price should she sell the item to make a gain of 16%?
(a) ₹ 2,856.20 (b) ₹ 2,865.20
(c) ₹ 2,856.50 (d) ₹ 2,866.40
49. A man makes 8% profit by selling a washing machine for ₹21600 at what price should he sell this machine to get 20% profit?
(a) ₹ 28,000 (b) ₹ 23,200
(c) ₹ 26,000 (d) ₹ 24,000
50. If $P = 2 + \sqrt{3}$, $Q = 2 - \sqrt{3}$ then find the value of $\frac{P}{Q}$
(a) $4\sqrt{3} - 5$ (b) $7 - 2\sqrt{6}$
(c) $4\sqrt{6} + 5$ (d) $\frac{7 + 4\sqrt{3}}{1}$

51. Radius r_1 and r_2 the distance between the centers of the two circles is d find the length of their tangent lines.
 (a) $\sqrt{d^2 - (r_1^2 - r_2^2)}$ (b) $\sqrt{d^2 - (r_1 - r_2)^2}$
 (c) $\sqrt{d^2 - (r_1^2 + r_2^2)}$ (d) $\sqrt{d^2 - (r_1 + r_2)^2}$
52. For a given data, if mean and mode are 42 and 60, respectively, then find the median of the data empirical relation.
 (a) 46 (b) 48 (c) 44 (d) 50
53. Which of the following expressions expresses the square root of $(3^{38} + 3^{39})$?
 (a) $6^{38.5}$ (b) $\sqrt{2} \times 3^{19.25}$
 (c) 2×3^{19} (d) $3^{38.5}$
54. The present age of Z is half of A's age. After 5 years the ratio of ages of A and Z will be 11:6. After 3 years what will be the age of Z?
 (a) 25 (b) 30 (c) 28 (d) 22
55. $\frac{3}{5}$ of a vessel is filled with oil. When 20 litres of oil is used then it is $\frac{7}{12}$ full. Find the capacity of the vessel?
 (a) 1200 litres (b) 1400 litres
 (c) 1600 litres (d) 1000 litres
56. Karachi session of Indian National Congress was held in 1931. It was presided over by:
 (a) Jawaharlal Nehru (b) Sardar Patel
 (c) Mahatma Gandhi (d) Dr. BR Ambedkar
57. In which language did the famous medieval literary genius Guru Basava compile his famous literary works?
 (a) Hindi (b) Tamil
 (c) Kannada (d) Telugu
58. Which of the following ancient Indian philosopher mentioned about the smallest particle of matter and named it 'Atom' ?
 (a) Charak (b) Kanad
 (c) Baudhyana (d) Varahamihira
59. Which Article of the Indian Constitution is related with the Executive power of the Union?
 (a) 57 (b) 51 (c) 53 (d) 55
60. Which Article of the Indian Constitution is related with the oath or affirmation by judges of high courts?
 (a) 256 (b) 219 (c) 187 (d) 231
61. Who was the writer of India's National Pledge?
 (a) Ravindra Nath tagore
 (b) Bankim Chandra Chaterjee
 (c) Pydimarri Venkata Subba Rao
 (d) Pingali Venkayya
62. Which river is known as the Yellow River?
 (a) Huang Ho (b) Yangtze
 (c) Mekong (d) Mmur
63. Which of the following cities is known as 'City of Palaces' in India?
 (a) Kolkata (b) Jaipur
 (c) Lucknow (d) Patna
64. Deposit securities for any debt.
 (a) A liability of tender
 (b) Property which has creditor's ownership
 (c) Assets of borrower
 (d) A liability of borrower
65. What is the main feature of mixed farming?
 (a) Cultivation of both cash and food crops
 (b) Cultivation of two or more crops in the same field simultaneously
 (c) Rearing of animal and cultivation of crops together
 (d) Cultivation of different crops in the same field in succession
66. The 'Borlaug Award' is given for outstanding work in the field of:
 (a) Agriculture and environment
 (b) Films
 (c) Medicine
 (d) Sports
67. When is National Good Governance Day celebrated in India?
 (a) 24 December (b) 25 December
 (c) 26 December (d) 31 December
68. 'The Origin of species' was written by:
 (a) Confucius (b) Aristotle
 (c) Charles Darwin (d) Plato
69. Reuters is a news agency. Where is its headquarters located ?
 (a) U.K. (b) U.S.A.
 (c) Australia (d) India
70. 'Kaaba' most sacred place in Islam located in Mecca is also known by the name _____.
 (a) Masjid-Al-Haram
 (b) Masjid-Al- Emir-Abdelkadir
 (c) Abu Darwish Mosque
 (d) Mazar-e-Sharif
71. Akash developed by DRDO is a –
 (a) Surface-to-Air missile system
 (b) Surface-to-Surface missile system
 (c) Air-to-Surface missile system
 (d) Not a missile system
72. The Chinaman style of bowling in Cricket has been named after:
 (a) An Indian bowler of Chinese origin
 (b) An Australian bowler of Chinese origin
 (c) An English bowler of Chinese origin
 (d) West Indies bowler of Chinese origin
73. With which of the following sports is Ezra Cup associated?
 (a) Rugby
 (b) Foot Volleyball
 (c) Polo
 (d) Equestrian show jumping
74. The 'Me-Dam-Me-Phi' festival is celebrated by which community?
 (a) Nyishi (b) Kuki
 (c) Angami (d) Tai-Ahom
75. Chainsoo is a famous food preparation of the state of _____.
 (a) Uttarakhand (b) Arunachal Pradesh
 (c) Maharashtra (d) Telangana

SOLUTION : PRACTICE SET- 15

ANSWER KEY

1. (a)	7. (b)	13. (c)	19. (d)	25. (d)	31. (a)	37. (b)	43. (b)	49. (d)	55. (a)	61. (c)	67. (b)	73. (c)
2. (a)	8. (b)	14. (b)	20. (d)	26. (d)	32. (c)	38. (d)	44. (c)	50. (d)	56. (b)	62. (a)	68. (c)	74. (d)
3. (b)	9. (d)	15. (b)	21. (a)	27. (b)	33. (a)	39. (c)	45. (c)	51. (b)	57. (c)	63. (a)	69. (a)	75. (a)
4. (b)	10. (b)	16. (a)	22. (c)	28. (a)	34. (a)	40. (a)	46. (b)	52. (b)	58. (b)	64. (c)	70. (a)	
5. (b)	11. (d)	17. (d)	23. (d)	29. (c)	35. (d)	41. (a)	47. (b)	53. (c)	59. (c)	65. (c)	71. (a)	
6. (a)	12. (d)	18. (c)	24. (a)	30. (a)	36. (a)	42. (a)	48. (b)	54. (c)	60. (b)	66. (a)	72. (d)	

SOLUTION

1.

Ans. (a) : ENIAC, the first general-purpose electronic computer, stands for: Electronic Numerical Integrator and Computer. John William Mauchly and J. Presper Eckert are the scientists credited with the invention of the Electronic Numerical Integrator and Computer (ENIAC), the first general-purpose electronic digital computer, which was completed in 1946 at the Moore School of Electrical Engineering at the University of Pennsylvania.

2.

Ans : (a) D.N.A was isolated by Friedrich Miescher for first time. DNA is found in chromosomes of living cells. It contains four nucleotides called adenine, guanine, thymine and cytosine.

3.

Ans. (b) The plants in Thallophyta group commonly called algae. These include lichens, algae, fungus, bacteria and slime moulds and bryophytes. Sex organs are simple, single-celled, there is no embryo formation after fertilization.

4.

Ans. (b) The primary function of estrogens is development of female secondary sexual characteristics. These include breasts, endometrium, regulation of the menstrual cycle etc. Estrogens are present in significant amounts in both men and women. They are present in significantly higher amounts in women. In males estrogen helps in maturation of the sperm and maintenance of a healthy libido.

5.

Ans : (b) The small intestine is an important part of human digestive system that starts from stomach and completes at large intestine. Digestion and absorption of food takes place in the small intestine . Cellulose is a component of plants that is non- digestible component for human body. Cellulose is an insoluble fibre that needs longer small intestine for digestion in herbivores

6.

Ans. (a) Oparin theory about the 'origin of life' is related to chemical development.

The Oparin-Haldane hypothesis suggests that life arose gradually from inorganic molecules, with "building blocks" like amino acids forming first and then combining to make complex polymers.

Different views of the origin of life -

1. Panspermia Theory
2. Theory of Spontaneous birth
3. Theory of Life biogenesis
4. Theory of chemical evolution

7.

Ans. (b) : The burning of natural gas is an example of an exothermic reaction. Exothermic reaction are also featured as combustion reactions.

Endothermic reactions are those reactions in which energy is absorbed from surroundings.

8.

Ans. (b) The 'Periodic Table' is a system of showing chemical elements as a table with their corresponding characteristics. The modern periodic table has 18 groups and 7 periods. The atomic number of barium is 56. It is an element of s-block in IIA group of the periodic table.

9.

Ans. (d) : The pH value is a measure of the acidity and basicity of a solution. It is defined as the negative-logarithm of the liquefied hydrogen ions (H^+) concentration. If the pH value of river water is less than 7 then it is considered to be polluted with acidic waste. If the pH is more than 7 then the solution is considered to be alkaline in nature.

10.

Ans : (b) 1 electron with one proton is found in the hydrogen atom. There is no neutron in its nucleus.

11.

Ans. (d) Marine energy or oceanic energy refers to the energy generated by the difference of sea waves, tides, salinity and sea temperature. Water in the world's

oceans forms a huge store of kinetic energy. This energy can be used to power house, transport and industries. Under ocean energy, tidal energy, ocean wave energy and ocean thermal energy are generated.

12.

Ans. (d) Loudness is physiological response of the ear to the intensity of sound. It distinguishes between a loud sound and a soft sound.

Loudness depends on two factors :

- (i) Intensity of sound which is directly proportional to the square of amplitude of the sound wave.
- (ii) Sensitivity of the ear.

13.

Ans : (c) The unit of gravitational acceleration 'g' is the same as the unit of acceleration [i.e. unit of 'g' is ms^{-2}].

14.

Ans : (b) The energy stored in a compressed spring is elastic potential energy. The flowing water is not an example of potential energy because the flowing water has kinetic energy.

15.

Ans : (b) Light year is a unit that used to measure distance. A light-year is the distance that light travels in vacuum in one year (365.25 days). The distance that light travels in one year is about 9.4607×10^{12} kilometers.

16.

<p>Ans.(a) : Such as,</p> <table style="margin-left: auto; margin-right: auto;"> <tr><td>D</td><td>X</td><td>B</td></tr> <tr><td>+3↓</td><td>-5↓</td><td>+7↓</td></tr> <tr><td>G</td><td>S</td><td>I</td></tr> </table> <p>And,</p> <table style="margin-left: auto; margin-right: auto;"> <tr><td>K</td><td>V</td><td>R</td></tr> <tr><td>+3↓</td><td>-5↓</td><td>+7↓</td></tr> <tr><td>N</td><td>Q</td><td>Y</td></tr> </table> <p>Hence ? = MIW</p>	D	X	B	+3↓	-5↓	+7↓	G	S	I	K	V	R	+3↓	-5↓	+7↓	N	Q	Y	<p>Similarly,</p> <table style="margin-left: auto; margin-right: auto;"> <tr><td>J</td><td>N</td><td>P</td></tr> <tr><td>+3↓</td><td>-5↓</td><td>+7↓</td></tr> <tr><td>M</td><td>I</td><td>W</td></tr> </table>	J	N	P	+3↓	-5↓	+7↓	M	I	W
D	X	B																										
+3↓	-5↓	+7↓																										
G	S	I																										
K	V	R																										
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N	Q	Y																										
J	N	P																										
+3↓	-5↓	+7↓																										
M	I	W																										

17.

Ans. (d) : Just as,,
 $5^2 + 3 = 28$

and $7^2 + 3 = 52$

and $9^2 + 3 = 84$

Same as,

$11^2 + 3 = \boxed{124}$

18.

Ans. (c) : Just as,

F R A K = 35
 $6 + 18 + 1 + 11 = 36 - 1 = 35$

And

M A L T = 45
 $13 + 1 + 12 + 20 = 46 - 1 = 45$

Same as,

T R I M = ?
 $20 + 18 + 9 + 13 = 60 - 1 = \boxed{59}$

Note:- 1 has been subtracted by adding the place value of the given letters.

19.

Ans. (d) : Given - 7 % 9 # 2

The above question is follows the condition (ii)

Now, code for-

$7 \% 9 \# 2 \rightarrow \textcircled{Q} \textcircled{A} \textcircled{D} \textcircled{Q}$

20.

Ans. (d) : From the given options,

- (a) $\sqrt{3} = 1.732 =$ irrational number
- (b) $\sqrt{5} = 2.236 =$ irrational number
- (c) $\sqrt{7} = 2.645 =$ irrational number
- (d) $\sqrt{9} = 3.0 =$ rational number

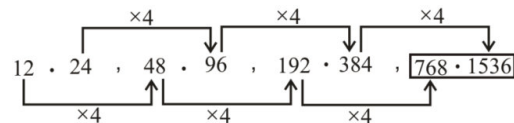
Hence, $\sqrt{9}$ is different from all.

21.

Ans. (a) : In the given figures, option (a) is different from the other. (\sphericalangle) is located in the figure (a), while (\wedge) is located in the other three figures.

22.

Ans. (c) : The given series is as follows-



Hence, $\boxed{? = 768.1536}$

23.

Ans. (d) :

A B C \$ + # D E F & = ? G H I ! 2 * @
 1 2 3 4 5 6 7 8 9 ↓ 9 8 7 6 5 4 3 2 1

Hence, \$ # E = ! H ?

24.

Ans. (a) : Given,

$65, 5, 25 = 190$

From option (a), (+, ×),

Putting the symbol in equation

$65 + 5 \times 25 = 190$

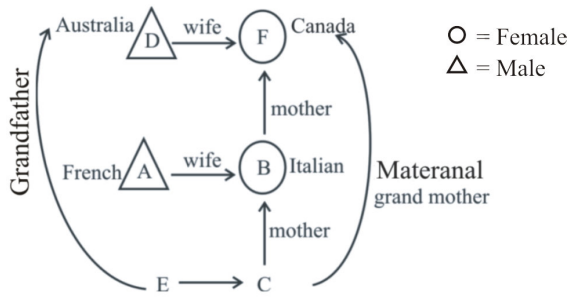
$65 + 125 = 190$

$190 = 190$

L.H.S. = R.H.S.

25.

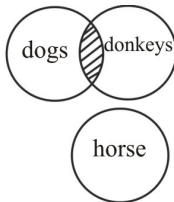
Ans. (d) : As per question, blood relation diagram is as follows-



Hence, it is clear from above diagram that the nationality of A is French and B is his wife.

26.

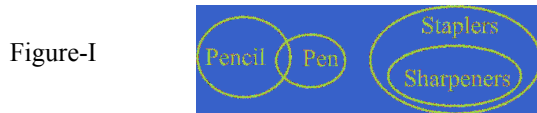
Ans. (d) : Venn diagram according to statements is as follows,



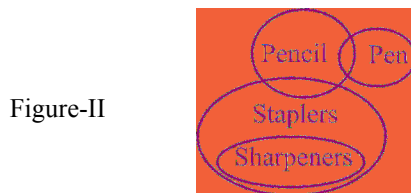
Hence, only conclusion I follows.

27.

Ans. (b) : On making Venn diagram is as follows-



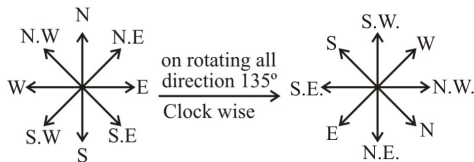
Or



Hence it is clear from Venn diagram that neither conclusion (I) nor (II) follows.

28.

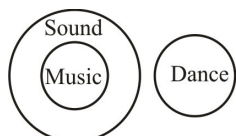
Ans. (a) : According to the question,



Hence, it is clear that North-east is facing in South direction now.

29.

Ans. (c) :



Hence, option (c) is correct.

30.

Ans. (a) :

Coch aing	Subject	1	2	3	4	5
P	Chemistry	-	-	x	-	x
Q	Physics	-	-	x	-	✓
R	Maths	-	-	✓	x	x
S	Biology	-	-	x	-	x
T	English	x	x	x	x	x

Based on the given information it can be said that Mathematics is taught on the third floor.

31.

Ans. (a) : From the given options,

(a) $M \xrightarrow{-2} K \xrightarrow{-5} F$

(b) $R \xrightarrow{-2} P \xrightarrow{-4} L$

(c) $Q \xrightarrow{-2} O \xrightarrow{-4} K$

(d) $W \xrightarrow{-2} U \xrightarrow{-4} Q$

Hence, option (a) is different from the other.

32.

Ans.(c) : Given series is as follows,

(Left) * Y S 2 # C 2 4 & 7 F & 2 @ R 4

∈ G 4 ∈ 9 (Right)

Hence, it is clear from above total number of letters which is immediately preceded by a symbol and also immediately followed by a number.

33.

Ans : (a) The determination of salary in different countries depends on the economic condition of the country and the company and no student can be banned from going abroad. Hence, neither conclusion 1 nor 2 follows.

34.

Ans. (a) : Here the show starts on 1st February and the magician 'X' performs the next day i.e. 2nd February. Magician 'U' does not perform on 3 February and another magician performs between magician U and V's performance.

Thus the magician 'W' performs on the fourth day i.e. the 4th. Thus statement (1) and statement (2) together are sufficient to answer the question.

35.

Ans. (d) : According to the given statement, only assumption II is implicit. Because people will always want to increase their money but according to assumption I the assurance given in advertisement may be genuine means assurance is not always false.

36.

Ans : (a) Let the number be x.
According to the question,
On dividing by 12,

$$\frac{x}{12} = 35$$

$$x = 35 \times 12$$

$$x = 420$$

The number is 420

Dividing 420 by 21-

$$\frac{420}{21} = 20$$

Hence, the correct answer = 20

37.

Ans. (b) : $2^7 \times 3^4 \times 5^3 \times 7$ Number of factors.

$$= (7 + 1)(4 + 1)(3 + 1)(1 + 1)$$

$$= 8 \times 5 \times 4 \times 2$$

$$= 320$$

\therefore Number of even factors = 320 – total no. of odd factors.

$$= 320 - \{(4 + 1)(3 + 1)(1 + 1)\}$$

$$= 320 - \{5 \times 4 \times 2\}$$

$$= 320 - 40$$

$$= 280$$

38.

Ans. (d) : Given-

$$1800 \div 10 \times \{45 \div (17 - 2)\} \times 2 + \{-2(1 + 2)\}$$

$$= 1800 \div 10 \times \{45 \div 15\} \times 2 + \{-2 \times 3\}$$

$$= 1800 \div 10 \times \{3\} \times 2 + \{-6\}$$

$$= 1800 \div 10 \times 6 - 6$$

$$= 180 \times 6 - 6$$

$$= 1080 - 6$$

$$= 1074$$

39.

Ans : (c) Let the fraction be x.

$$x + \frac{5}{16} = 1, \quad x = 1 - \frac{5}{16}$$

$$x = \frac{11}{16}, \quad x = \frac{2 \times 11}{2 \times 16} = \frac{22}{32}$$

Hence, the require fraction is $\frac{22}{32}$.

40.

Ans : (a) LCM of 12, 16, 24 and 36,

2	12,	16,	24,	36
2	6,	8,	12,	18
2	3,	4,	6,	9
2	3,	2,	3,	9
3	3,	1,	3,	9
3	1,	1,	1,	3
	1,	1,	1,	1

$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 3 \times 3 = 144$$

So, 144 min = 2 hours and 24 minutes

So, the first interval = 6:00 + 2:24 = 8:24am

So, at 8:24 am the bells will ring together.

41.

Ans : (a) Let first, second and third part is x, y and z respectively.

$$\therefore x = \frac{3}{5}z \Rightarrow x : z = 3 : 5$$

$$y : z = 4 : 7 \Rightarrow z : y = 7 : 4$$

$$\begin{array}{ccc} x & z & y \\ 3 & 5 & \end{array}$$

$$\frac{7}{21} : \frac{4}{35} : \frac{4}{20}$$

Hence, the first part = $\frac{21}{76} \times 13680 = 3780$

42.

Ans. (a) : Let, radius of circle (r) = 100 units

$$\therefore \text{Area of circle} = \pi r^2 = \pi \times 100 \times 100$$

$$= \pi 10000$$

Radius of circle when reduced by 35% (R) = 65 units

$$\therefore \text{Area of circle} = \pi R^2 = \pi \times 65 \times 65$$

$$= \pi 4225$$

$$\therefore \% \text{ decrease in area} = \frac{\pi(10000 - 4225)}{\pi 10000} \times 100$$

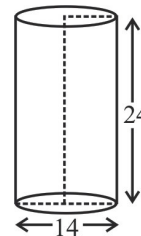
$$= \frac{5775}{100} = 57.75\%$$

$$= 57\frac{3}{4}\%$$

Hence, there will be a decrease of $57\frac{3}{4}\%$ in the area.

43.

Ans. (b) : Curved surface area of a cylinder $\Rightarrow 2\pi rh$



$$\Rightarrow 2 \times \frac{22}{7} \times 7 \times 24$$

$$\Rightarrow 2 \times 22 \times 24$$

$$\Rightarrow 1056$$

44.

Ans : (c) Let it will take x days to complete the work

According to the question,

$$10 \times 12 = \left(4 + \frac{15}{2.5}\right) \times x$$

$$10 \times 12 = \left(\frac{10+15}{2.5}\right) \times x$$

$$2.5 \times 10 \times 12 = 25 \times x$$

$$25 \times 12 = 25 \times x$$

$$x = 12$$

Hence, it will take 12 days to complete the work.

45.

Ans : (c) Total distance = 300 km

Distance from first station = 220 km

Distance from second station = 300 - 220 = 80 km

Ratio of speed = 220 : 80 = 11 : 4

46.

Ans. (b) : Let the principal amount = ₹ P

Rate = R%

And time = T years

So interest of 8 years = 2P

According to the question-

$$2P = \frac{P \times R \times 8}{100}$$

$$R = \frac{200}{8} = 25\%$$

Interest for 12 years-

$$\text{interest} = \frac{P \times 25 \times 12}{100}$$

inteseest = 3P

New amount = P + 3P = 4P

Hence, it will become 4 times of itself in 12 years.

47.

Ans : (b) Let that amount be P and interest rate be r%

$$\text{Amount} = P \left(1 + \frac{r}{100}\right)^n$$

According to the question-

$$2420 = P \left(1 + \frac{r}{100}\right)^2 \quad \text{----(i)}$$

$$2662 = P \left(1 + \frac{r}{100}\right)^3 \quad \text{----(ii)}$$

On dividing equation (ii) by (i)

$$1 + \frac{r}{100} = \frac{2662}{2420}$$

$$r = 10\%$$

From equation (i) -

$$2420 = P \left(1 + \frac{10}{100}\right)^2$$

$$P = 2420 \times \frac{10}{11} \times \frac{10}{11} = ₹2000$$

48.

Ans. (b) : According to the question,

$$\text{CP of article} = 1729 \times \frac{100}{70} = ₹ 2470$$

$$\text{SP of the article at 16\% profit} = \frac{2470 \times 116}{100} = ₹ 2865.20$$

49.

Ans. (d) : Selling price of the washing machine = ₹21600

profit = 8%

$$\text{We know that, Cost price} = \frac{\text{Selling Price}}{(100+\text{Profit})} \times 100$$

$$= \frac{21600}{108} \times 100$$

$$= ₹ 20,000$$

And the selling price of the article to get 20% profit -

$$= 20,000 \times \frac{100+20}{100}$$

$$= ₹ 24,000$$

50.

Ans. (d) : Given,

$$P = 2 + \sqrt{3}$$

$$Q = 2 - \sqrt{3}$$

$$\frac{P}{Q} = \frac{2 + \sqrt{3}}{2 - \sqrt{3}} \times \frac{(2 + \sqrt{3})}{(2 + \sqrt{3})}$$

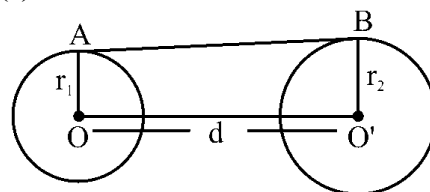
$$= \frac{(2 + \sqrt{3})^2}{(2)^2 - (\sqrt{3})^2}$$

$$= \frac{4 + 3 + 4\sqrt{3}}{4 - 3}$$

$$= \frac{7 + 4\sqrt{3}}{1}$$

51.

Ans : (b)



Length of tangent AB

$$AB = \sqrt{(\text{distance between centre's})^2 - (\text{difference of radius})^2}$$

$$= \sqrt{d^2 - (r_1 - r_2)^2}$$

52.

Ans. (b) : Given, Mean = 42
Mode = 60

We know that,

$$\text{Mode} = 3 \text{ Median} - 2 \text{ Mean}$$

$$\Rightarrow \text{Median} = \frac{\text{Mode} + 2\text{Mean}}{3}$$

$$\Rightarrow \text{Median} = \frac{60 + 2 \times 42}{3}$$

$$\Rightarrow \text{Median} = 48$$

53.

Ans : (c) Given expression,

$$\begin{aligned} & \sqrt{3^{38} + 3^{39}} \\ &= \sqrt{3^{38}(1+3)} \\ &= \sqrt{4 \times 3^{38}} \\ &= \sqrt{2 \times 2 \times 3^{19} \times 3^{19}} \\ &= \boxed{2 \times 3^{19}} \end{aligned}$$

54.

Ans : (c) If the present age of Z and A is x and 2x years.

According to the question,

$$\frac{2x+5}{x+5} = \frac{11}{6}$$

$$12x + 30 = 11x + 55$$

$$x = 25$$

$$\text{Age of Z after 3 years} = x + 3 = 28 \text{ years}$$

55.

Ans : (a) Part of oil present in the vessel = $\frac{3}{5}$ part

Part of left oil after extracting 20 liters of oil from the

$$\text{Vessel} = \frac{7}{12} \text{ part}$$

Therefore, the part which was filled with 20 liters of oil

$$\begin{aligned} &= \frac{3}{5} - \frac{7}{12} \\ &= \frac{36-35}{60} = \frac{1}{60} \text{ part} \end{aligned}$$

\therefore Quantity of oil present in the $\frac{1}{60}$ part of vessel = 20 liters

\therefore Quantity of oil present in vessel

$$= \frac{20 \times 60}{1} = 1200 \text{ liters}$$

Hence the capacity of vessel is 1200 liters.

56.

Ans. (b) : The congress session was held in Karachi on 29 March 1931, which was presided over by Sardar Vallabhbhai Patel. In this session, the 'Delhi Pact' i.e. Gandhi -Irwin Pact was approved. The goal of 'Purna Swaraj' was reiterated and the valor and sacrifice of Bhagat Singh, Rajguru and Sukhdev were praised. However, the congress also reiterated its policy of not supporting any form of political violence. In this session, the Congress adopted two main resolutions, one related to fundamental political rights and the other related to national economic programs. These are as follows-

- (1) Complete freedom of expression and press.
- (2) Freedom to form organization
- (3) Freedom to hold meetings
- (4) Freedom from rent to unprofitable holdings.

57.

Ans. (c): Famous medieval literary genius 'Guru Basav' compiled his famous literary works in Kannada language. Guru Basava was a 12th century statesman, philosopher, poet, social reformer during the reign of the Kalyan/Kalachuri dynasty. 'Basav Puran' is Biographical epic poem of Guru Basava.

58.

Ans. (b) : Maharishi Kanad, founder of Vaisheshika school of Indian philosophy suggested that all matter is composed of very small particles. He named these as paramanu, these were indivisible according to him. These paramanu exhibited two states, state of motion and state of absolute rest.

59.

Ans. (c): Article 53 deals with the Executive power of the Union. Part V, from Article 52 to 78 and 123 of the Indian constitution deals with the Union Executive. The Union executive consists of the President, the Vice-President, the Prime Minister (as the head to aid and advice the President), the Council of Ministers and Attorney General of India.

60.

Ans. (b): The Judges of High Courts are appointed by President with the Consultation of Chief Justice of India and Governor of the concerned state. Article 219 of Indian Constitution specifically provides that every person who is appointed to be a Judge of High Court shall before he enters upon his office, make and subscribe before the Governor of the concerned State or some person appointed in that behalf by him, an oath or affirmation.

61.

Ans. (c): Pydimarri Venkata Subba Rao was a Telugu author who is best remembered as the composer of the National Pledge of India.

62.

Ans. (a) : The Huang Ho River (about 5400 km) is the second largest river of China. Due to the excess of silt the colour of the water becomes yellowish-brown. Hence it is called 'Yellow River'. When the river overflows, it leaves behind a yellow depression. It helps in creating fertile land, which is suitable for farming. This river damages habitat and crops in the plains of northern China and important agricultural areas, that is why it is also called 'Sorrow of China'. Its source is Bayen Har Mountain in Western China.

63.

Ans. (a) : Kolkata is known as 'City of Palaces' because of the number of buildings built by the Britishers during the 19th Century. This city is also known as 'City of Joy'. Udaypur is called as 'City of lake' in India. Surat is known by 'The Silk City' and the 'Diamond City' Jaipur is also known as 'Pink City of India'.

64.

Ans. (c): The supporting security (collateral money for a loan) is the asset of the borrower).

65.

Ans. (c): The main features of mixed farming are: (i) Crops and animals are raised simultaneously. ii) Two or more crops are grown together. (iii) Rotation of crops is practiced. It reduces dependence on external sources such as fertilizers as the crop and animal components in the farm support each other.

66.

Ans. (a) : Borlaug award is awarded to an Indian scientist for their research and contribution to the field of agriculture and the environment. This award was created in 1972 and named in honour of Nobel Laureates and the father of Green Revolution "Norman Borlaug". Norman Borlaug was awarded with the Nobel peace prize in 1970 for a lifetime work to feed a hungry world.

67.

Ans. (b): Good Governance day is observed in India annually on 25 December, the birth anniversary of former Prime Minister Atal Bihari Vajpayee. Good Governance day was established in 2014.

68.

Ans. (c) : The book 'Origin of Species' was written by Charles Darwin. It was published in November, 1859 AD. Charles Darwin gave the "Theory of Evolution".

69.

Ans. (a):

Country	News Agency
U.K.	- Reuters
Australia	- Australian Associated Press
India	- Press Trust of India, Samachar Bharati, United News of India (UNI).

Reuters is an international news organization owed by Thomson Reuters, and it is the largest news agency of the world. The agency was established in London in 1851 by German born Paul Reuter.

70.

Ans. (a): Masjid-Al-Haram is a mosque that completely encircles 'Kaaba' the holiest site of Islam. It is located in the city of Mecca, Saudi Arabia and it is the largest mosque in the world's.

71.

Ans. (a): Akash is surface-to-air missile developed by DRDO. Trishul is a short range surface-to-air missile developed in India. Its operational range is 500 meters to 9 kilometers. The Defence Research and Development Organisation (DRDO) was formed in 1985 and headquartered in DRDO Bhavan, New Delhi.

72.

Ans. (d) : The term is traditionally believed to have originated with the former West Indies Spinner Ellis Achong. Back in 1933, England hosted West Indies in a Test match in Old Trafford. Achong bowled an unexpected delivery from his wrist which got a sharp turn after pitching outside off and got the English batsman Walter Robins stumped. From then, left-arm wrist spinners have been referred to as Chinaman bowlers.

73.

Ans. (c) : The Ezra Cup is a popular Polo tournament conducted annually in India by the Calcutta Polo Club. It claimed that, it is the first official Polo trophy in history. The first Ezra Cup was held in 1880.

74.

Ans. (d) : Me-Dam-Me-Phi is a state holiday in Assam. It is observed on 31 January every year. It is a communal festival for ancestor worship in memory of the departed. It is observed by the Ahom, or Tai-Ahom, ethnic community that is spread across the states of Assam and Arunachal Pradesh.

75.

Ans. (a) : Chainsoo is a famous food of Uttarakhand which is made up of Black Gram.