Railway Recruitment Board

RRB ALP

Assistant Loco Pilot/Technician

Stage-Ist

PRACTICE BOOK

Chief Editor
A.K. Mahajan
Complied & Written By
RRB Exam Expert Group
Editorial Office
12, Church Lane Prayagraj-211002
Mob. : 9415650134
Email : yctap12@gmail.com
website : www.yctbooks.com / www.yctfastbook.com

Publisher Declaration
Edited and Published by A.K. Mahajan for YCT Publications Pvt. Ltd.
and E:Book by APP YCT BOOKS In order to Publish the book,
full care has been taken by the Editor and the Publisher,
still your suggestions and queries are welcomed.
In the event of any dispute, the judicial area will be Prayagraj.

INDEX

- प्रैक्टिस सेट - 1 5-14
- प्रैक्टिस सेट - 2 15-24
- प्रैक्टिस सेट - 3 25-34
- प्रैक्टिस सेट - 4 35-44
- प्रैक्टिस सेट - 5 45-54
- प्रैक्टिस सेट - 6 55-65
- प्रैक्टिस सेट - 7 66-75
- प्रैक्टिस सेट - 8 76-85
- प्रैक्टिस सेट - 9 86-95
- प्रैक्टिस सेट - 10 96-105
- प्रैक्टिस सेट - 11 106-116
- प्रैक्टिस सेट - 12 117-127
- प्रैक्टिस सेट - 13 128-138
- प्रैक्टिस सेट - 14 139-149
- प्रैक्टिस सेट - 15 150-160

ALP/Technician Online Exam Syllabus

Recruitment Process:

(a) A candidate can apply to only one RRB, and only one online application has to be submitted

(b) The recruitment process shall comprise of the following stages:
   (i) First stage CBT (CBT-1)
   (ii) Second stage CBT (CBT-2)
   (iii) Computer Based Aptitude Test (CBAT)
   (iv) Document Verification (DV) and
   (v) Medical Examination (ME)

(c) Information on examination schedule and venues will be given in due course through official RRB websites, SMS and email.

(d) 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):

(a) CBT-1 will only be a screening exam for shortlisting eligible candidates for CBT-2 based on their normalized marks and merit.

(b) The marks of CBT-1 shall not be counted while preparing the final panel.

(c) 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) 1.01×10^{5}Pa (b) 10.1×10^{5}Pa
(c) 1.01×10^{6}Pa (d) 10.1×10^{6}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 a like 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) BKBPNPO (b) BKBPNKO
(c) BKBPNKP (d) BKPPOKP

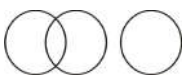
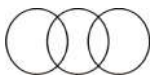
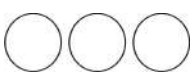
24. **If Q means '+, J means '×', T means '–' and K means '÷', then 52 K 4 Q 6 J 12 T 8 = ?**
(a) 45 (b) 83 (c) 68 (d) 77

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' 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 ≠ 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 ÷ 3) –[{(19 – 1) ÷ 2} – {5 × 20 – (7 × 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 || 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 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 of .....by RBI.

(a) Immovable Property

(b) Foreign Currency

(c) Bunions

(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
$= 1.01325 \times 10^5$ Pa
$\because$ 1 Bar = 1×10^5 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 :-

48 $\xrightarrow{+4}$ 52 $\xrightarrow{\times\frac{1}{2}}$ 26 $\xrightarrow{+4}$ 30 $\xrightarrow{\times\frac{1}{2}}$ 15 $\xrightarrow{+4}$ 19

23.

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

KPBLZ| KPBMZ| KPBN Z|KPBOZ

+1 +1 +1

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

= 52 ÷ 4 + 6 × 12 – 8

= 13 + 6 × 12 – 8

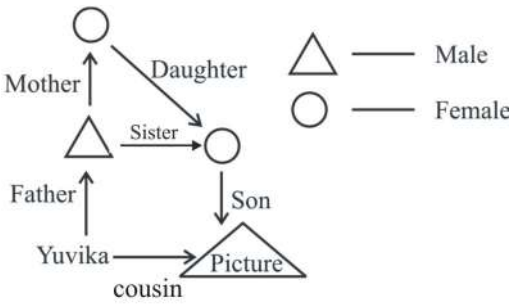
= 13 + 72 – 8

= 85 – 8

= 77

25.

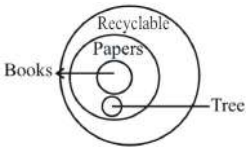
Ans. (c) : According to the question,



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

26.

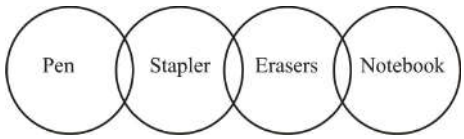
Ans. (b) : On making Venn diagram,



It is clear that only conclusion II follows.

27.

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



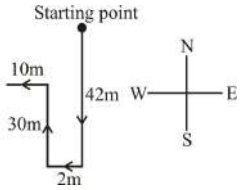
Conclusion :– (I) (×)

(II) (×)

Hence, neither conclusion I nor II follows.

28.

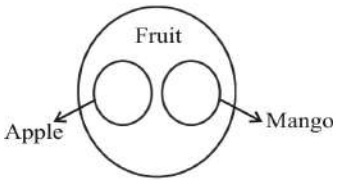
Ans. (d) : According to the question,



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,

7 T
6
5 E
4 Q
3 R
2 Y
1 W

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 increases 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, 504x5y3

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.

504x5y3

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

$x + y - 17 = 0$

$x + y = 17$

Hence, Sum of $x + y = 17$

37.

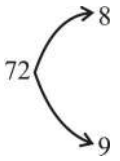
Ans. (c) : Given,

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

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

and On putting p = 2

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

$= \frac{54}{9} = 6$ (Completwly 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

$\therefore$ Numbers x and y = 17 × 7

$\therefore$ x = 17, y = 7

3y – x

= 3 × 7 – 17

= 21 – 17 = 4

41.

Ans. (d) : Given, Amount

₹ 1,470

Anant : Mohan

3 : 4

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 – 22 x = 10800 × 20

22x – 21x = 220000 – 216000

x = 4000

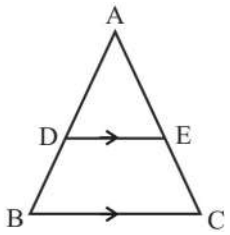
Hence, the present number of females

= (10,000 – 4000)

= 6000

43.

Ans. (d) :



Given,

AD : BD = 2:3

Area of trapezium BDEC = 63cm^2

Let area of Δ ADE = Pcm^2

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 × 3

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

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

× 5 = ×5

By A+B → 10 days = 55 unit

Remaining work = 60 – 55

= 5 unit

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

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

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

45.

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

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

Distance = Speed × Time

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

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 km/h

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

46.

Ans. (c) : Given,

P = ₹ 1280

R = 5%

T = 3 years

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

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

= ₹ 192

47.

Ans. (d) : Let Principal = ₹ P

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) :

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

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

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

49.

Ans. (a) : Let cost price (C.P.) = x

Selling price (S.P.) = 48, Loss = 20%

$$\because \quad x \times \frac{80}{100} = 48$$

$$x = ₹\ 60$$

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.

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

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) : $\cot 3\theta \cdot \cot 6\theta = 1$

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

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

$$\cot 3\theta = \cot (90° - 6\theta)$$

$$3\theta = 90° - 6\theta$$

$$9\theta = 90°$$

$$\theta = 10°$$

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

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,

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

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

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

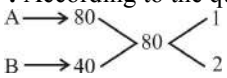
On solving equation (i) and (ii)

$x = 42$, $y = 12$

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

55.

Ans. (b) : According to the question,



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 2½ 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? ($g=9.8ms^{-2}$)
(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 'DOUBBLE' 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) dpkhkdpcpc (d) phdkpchkpc

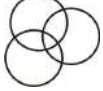
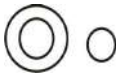
24. **If P denotes '×', T denotes '–', M denotes '+' and B denotes '÷', what will come in place of the question mark (?) in the following equation?**
54 B 9 P 11 T 13 M 17 = ?
(a) 78 (b) 70 (c) 74 (d) 73

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 follows.
(b) Either conclusions I or II follows.
(c) Only conclusions II follows.
(d) Only conclusions I follows.

28. **Ajay is driving in the east direction of 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) 8/19 (b) 9/22
(c) 10/23 (d) 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?**
$(8 + 27 + 64 + ... + 1000) + (2 + 4 + 6 + ... + 20)$
(a) 3136 (b) 3134
(c) 3135 (d) 3133

51. **If $\sin\theta - \text{cosec}\theta = \sqrt{2}$, then the value of $\sin^3\theta - \text{cosec}^3\theta$ 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 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) reinflation (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 headquaters?
(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 (CO_2) 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.

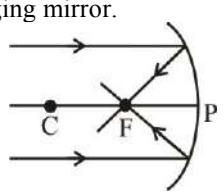
7.
Ans. (c) In the above, Argon (Ar) and Helium (He) are monoatomic while fluorine (F_2) is diatomic and methane (CH_4) is polyatomic.

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,
$v = u - gt$,
$u = 14 m/s$ $\quad v = 0$
$t = ?$ $\quad g = 9.8 m/s^2$
$0 = 14 - 9.8\ t$

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

13.
Ans : (b) Given,
$m = 11$ kg, $\quad h = 6$ m, $\quad g = 9.8\ m/s^2$
P.E. $= mgh$
$= 11 \times 9.8 \times 6 = 646.8$ 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'.

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

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 -

$(11, 117, 2) \Rightarrow (11+2)\times(11-2)$

$= 13\times 9 = 117$ (Mid Number)

and,

$(9, 56, 5) \Rightarrow (9+5)\times(9-5)$

$= 14\times 4 = 56$ (Mid Number)

From option (a),

Same as,

$(12, 108, 6) \Rightarrow (12+6)\times(12-6)$

$= 18\times 6 = 108$ (Mid Number)

18.

Ans. (b) : Just as,

MUTINY $\rightarrow$ (13 21 20 9 14 25)

$\Downarrow$ (Reverse order)

(25 14 9 20 21 13)

And,

MAGIC $\rightarrow$ (13 1 7 9 3)

$\Downarrow$ (Reverse order)

(3 9 7 1 13)

Similarly,

NECTAR$\rightarrow$ (14 5 3 20 1 18)

$\Downarrow$ (Reverse order)

(18 1 20 3 5 14)

Hence, NECTAR is coded as 181203514.

19.

Ans. (d) :

Just as, (in decreasing order)

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

And, (in decreasing order)

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

Same as, (in decreasing order)

D	O	U	B	B	L	E	$\Rightarrow$	U	O	L	E	D	B	B
4	15	21	2	2	12	5		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.

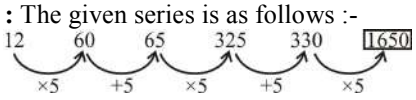
Hence option (c) is different from all other options.

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 :-



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 $\rightarrow$ × , M $\rightarrow$ +

T $\rightarrow$ – ,B $\rightarrow$ ÷

54 B 9 P 11 T 13 M 17

On putting the mathematical signs-

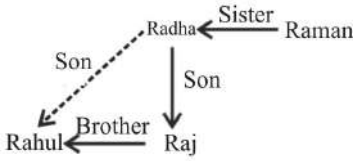
= 54 ÷ 9 × 11 – 13 +17

= 6 × 11 – 13 + 17

= 83 – 13 = 70

25.

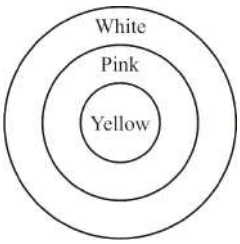
Ans. (b**) :** According to the question, blood relation diagram is as follows.



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) ✓

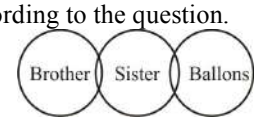
(III) ×

(IV) ×

Hence, only conclusion I and II follow.

27.

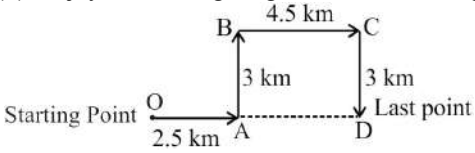
Ans. (b) : According to the question.



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:



OD = OA + AD

= 2.5 + 4.5

= 7 km