

ARITHMETIC

1. Which is the smallest of the following numbers ?

- (a) $\sqrt{7}$ (b) $\frac{1}{\sqrt{7}}$
 (c) $\frac{\sqrt{7}}{7}$ (d) $\frac{1}{7}$

2. If $x^{1/3} + y^{1/3} = z^{1/3}$, then $(x + y - z)^3 + 27xyz$ is equal to?

- (a) 3 (b) 0
 (c) 1 (d) 2

3. A bag contains ₹ 216 in the form of one rupee, 50 paise and 25 paise coins in the ratio of 2 : 3 : 4. The number of 50 paise coins is :

- (a) 96 (b) 144
 (c) 114 (d) 141

4. In a mixture of 45 litres, the ratio of milk and water is 4 : 1. How much water must be added to make the mixture ratio 3 : 2 ?

- (a) 72 litres (b) 24 litres
 (c) 15 litres (d) 1.5 litres

5. A started a business with ₹ 4500 and another person B joined after some period with ₹ 3000. Determine this period after B joined the business if the profit at the end of the year is divided in the ratio 2 : 1

- (a) After 3 months (b) After 4 months
 (c) After 6 months (d) After $2\frac{1}{2}$ months

6. A cistern has two taps (which fill it in 12 min and 15 min, respectively) and an exhaust tap. When all three taps are opened together, it takes 20 min to fill the empty cistern. How long will the exhaust tap take to empty it ?

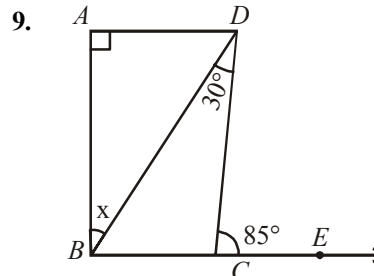
- (a) 20 min (b) 16 min
 (c) 12 min (d) 10 min

7. 12 men complete a work in 18 days. Six days after they had started working, 4 men joined them. How many days will all of them take to complete the remaining work ?

- (a) 10 days (b) 12 days
 (c) 15 days (d) 9 days

8. A motor boat whose speed is 15 km/h in still water goes 30 km downstream and comes back in four and a half hours. The speed of the stream is :

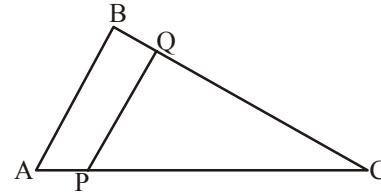
- (a) 46 km/h (b) 6 km/h
 (c) 7 km/h (d) 5 km/h



If $AD \parallel BE$, $\angle DCE = 85^\circ$ and $\angle BDC = 30^\circ$, then what is the value of x ?

- (a) 30° (b) 35°
 (c) 45° (d) 55°

- 10.



In the given triangle, AB is parallel to PQ . $AP = c$, $PC = b$, $PQ = a$, $AB = x$. What is the value of x ?

- (a) $a + \frac{ab}{c}$ (b) $a + \frac{bc}{a}$
 (c) $b + \frac{ca}{b}$ (d) $a + \frac{ac}{b}$

11. What is the number of points in the plane of a $\triangle ABC$ which are at equal distance from the vertices of the triangle?

- (a) 0 (b) 1
 (c) 2 (d) 3

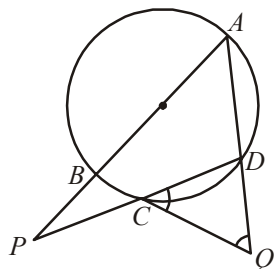
12. An obtuse angle made by a side of a parallelogram $PQRS$ with other pair of parallel sides is 150° . If the perpendicular distance between these parallel sides (PQ and SR) is 20 cm, what is the length of the side RQ ?

- (a) 40 cm (b) 50 cm
 (c) 60 cm (d) 70 cm

13. $ABCD$ is a square. The diagonals AC and BD meet at O . Let K, L be the points on AB such that $AO = AK$ and $BO = BL$. If $\theta = \angle LOK$, then what is the value of $\tan \theta$?

- (a) $1/\sqrt{3}$ (b) $\sqrt{3}$
(c) 1 (d) $1/2$

14. In the given figure, if $\frac{x}{3} = \frac{y}{4} = \frac{z}{5}$, where $\angle DCQ = x$, $\angle BPC = y$ and $\angle DQC = z$, then what are the values of x, y and z , respectively?



- (a) $33^\circ, 44^\circ$ and 55° (b) $36^\circ, 48^\circ$ and 60°
(c) $39^\circ, 52^\circ$ and 65° (d) $42^\circ, 56^\circ$ and 70°

15. For what value of k , will the expression $3x^3 - kx^2$

$+ 4x + 16$ be divisible by $\left(x - \frac{k}{2}\right)$?

- (a) 4 (b) -4
(c) 2 (d) 0

16. a, b, c and d are four consecutive numbers. If the sum of a and d is 103, what is the product of b and c ?

- (a) 2652 (b) 2562
(c) 2970 (d) 2550

17. If the HCF of $x^3 + mx^2 - x + 2m$ and $x^2 + mx - 2$ is a linear polynomial, then what is the value of m ?

- (a) 1 (b) 2
(c) 3 (d) 4

18. If mean of y and $\frac{1}{y}$ is M , then what is the mean

of y^3 and $\frac{1}{y^3}$?

- (a) $\frac{M(M^2 - 3)}{3}$ (b) M^3
(c) $M^3 - 3$ (d) $M(4M^2 - 3)$

19. If $b \tan \theta = 0$, the value of $\frac{a \sin \theta - b \cos \theta}{a \sin \theta + b \cos \theta}$

- (a) $\frac{a-b}{a^2+b^2}$ (b) $\frac{a+b}{a^2+b^2}$
(c) $\frac{a^2+b^2}{a^2-b^2}$ (d) $\frac{a^2-b^2}{a^2+b^2}$

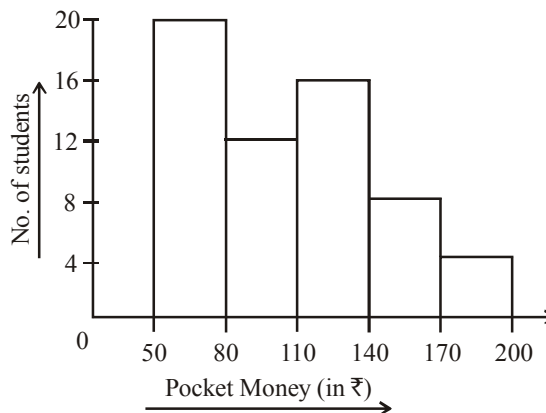
20. The highest possible value of $\sin \theta + \cos \theta$ is –

- (a) 1 (b) $\sqrt{2}$
(c) 2 (d) $\sqrt{3}/2$

21. If $a \cos \theta - b \sin \theta = c$, then what is the value of $a \sin \theta + b \cos \theta$?

- (a) $\pm \sqrt{a^2 + b^2 + c^2}$ (b) $\pm \sqrt{a^2 - b^2 + c^2}$
(c) $\pm \sqrt{a^2 + b^2 - c^2}$ (d) $\sqrt{b^2 + c^2 - a^2}$

DIRECTIONS (Qs. 22-23): The adjacent histogram shows the average pocket money received by 60 students for a span of one month. Study the diagram and answer the question.



22. Maximum number of students received pocket money between

- (a) 50–80 (b) 140–170
(c) 80–110 (d) 110–140

23. The number of students who received pocket money upto ₹ 140 is

- (a) 20 (b) 32
(c) 48 (d) 56

24. Semi-circular lawns are attached to all the edges of a rectangular field measuring $42 \text{ m} \times 35 \text{ m}$. The area of the total field is :

- (a) 3818.5 m^2 (b) 8318 m^2
(c) 5813 m^2 (d) 1358 m^2

25. A steel wire has been bent in the form of a square of area 121 cm^2 . If the same wire is bent in the form of a circle, then the area of the circle will be:

- (a) 130 cm^2 (b) 136 cm^2
(c) 145 cm^2 (d) None of these

26. $9^6 - 11$ when divided by 8 would leave a remainder of :
 (a) 0 (b) 1
 (c) 2 (d) 3
27. $\left(\sqrt{\frac{625}{784}} - \sqrt{\frac{16}{49}}\right) \div \sqrt{\frac{81}{144}} = ?$
 (a) $\frac{21}{28}$ (b) $\frac{7}{3}$
 (c) $\frac{3}{7}$ (d) $\frac{27}{112}$
28. The L.C.M. of two number is 630 and their H.C.F. is 9. If the sum of numbers is 153, their difference is
 (a) 17 (b) 23
 (c) 27 (d) 33
29. The average age of the family of five members is 24. If the present age of youngest member is 8 yr, then what was the average age of the family at the time of the birth of the youngest member ?
 (a) 20 yr (b) 16 yr
 (c) 12 yr (d) 18 yr
30. A dishonest dealer professes to sell his goods at cost price, but he uses a weight of 960 g for the kg weight. Find his gain per cent.
 (a) 4% (b) $4\frac{1}{6}\%$
 (c) 96% (d) 40%
31. A and B started a business by investing ₹ 35,000 and ₹ 20,000 respectively. B left the business after 5 months and C joined the business with a sum of ₹ 15,000. The profit earned at the end of the year is ₹ 84,125. What is B's share of profit?
 (a) ₹14133 (b) ₹15,000
 (c) ₹13,460 (d) Cannot be determined
32. A, B and C can do a work in 6, 8 and 12 days respectively. Doing that work together they get an amount of ₹ 1350. What is the share of B in that amount?
 (a) ₹450 (b) ₹168.75
 (c) ₹337.50 (d) ₹718.75
33. An aeroplane flies along the four sides of a square at the speeds of 200, 400, 600 and 800 km/h. Find the average speed of the plane around the field.
 (a) 384 km/h (b) 370 km/h
 (c) 368 km/h (d) None of these
34. A square carpet with an area 169 m² must have 2 metres cut-off one of its edges in order to be a perfect fit for a rectangular room. What is the area of rectangular room?
 (a) 180 m² (b) 164 m²
 (c) 152 m² (d) 143 m²
35. A man purchases two watches at ₹ 560. He sells one at 15% profit and other at 10% loss. Then he neither gains nor loss. Find the cost price of each watch.
 (a) ₹224, ₹300 (b) ₹200, ₹300
 (c) ₹224, ₹336 (d) ₹200, ₹336
36. If 6 men and 8 boys can do a piece of work in 10 days while 26 men and 48 boys can do the same in 2 days, the time taken by 15 men and 20 boys in doing the same type of work will be:
 (a) 4 days (b) 5 days
 (c) 6 days (d) 7 days
37. A train running between two stations A and B arrives at its destination 10 minutes late when its speed is 50 km/h and 50 minutes late when its speed is 30 km/h. What is the distance between the stations A and B ?
 (a) 40 km (b) 50 km
 (c) 60 km (d) 70 km
38. If $\frac{3a+5b}{3a-5b} = 5$, then a : b is equal to :
 (a) 2 : 1 (b) 5 : 3
 (c) 3 : 2 (d) 5 : 2
39. $\left(x + \frac{1}{x}\right)\left(x - \frac{1}{x}\right)\left(x^2 + \frac{1}{x^2} - 1\right)\left(x^2 + \frac{1}{x^2} + 1\right)$ is equal to
 (a) $x^6 + \frac{1}{x^6}$ (b) $x^8 + \frac{1}{x^8}$
 (c) $x^8 + \frac{1}{x^8}$ (d) $x^6 - \frac{1}{x^6}$
40. The value of $\tan 4^\circ \cdot \tan 43^\circ \cdot \tan 47^\circ \cdot \tan 86^\circ$ is
 (a) 2 (b) 3
 (c) 1 (d) 4

GENERAL INTELLIGENCE & REASONING

DIRECTIONS (Qs. 41-43) : In questions, select the related word/letters/number from given alternatives.

41. Uttarakhand : Dehradun :: Mizoram : ?
 (a) Aizawl (b) Kohima
 (c) Shillong (d) Darjeeling
42. YQXP : JBIA :: OVNU : ?
 (a) FAGZ (b) HRIS
 (c) DKCJ (d) DNEO
43. 1 : 1 :: 10 : ?
 (a) 12 (b) 110
 (c) 210 (d) 1000

44. The following numbers fall in a group. Which one does not belong to the group?
53, 63, 83, 73
(a) 53 (b) 63
(c) 83 (d) 73
45. Which one is the same as Mumbai, Kolkata and Cochin?
(a) Delhi (b) Kanpur
(c) Chennai (d) Sholapur

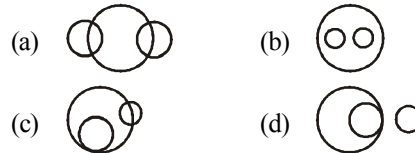
DIRECTION (Qs. 46-47): In question, a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

46. CEG, JLN, QSU, ___?
(a) QOS (b) TVY
(c) HJL (d) UVW
47. 285, 253, 221, 189, ?
(a) 150 (b) 182
(c) 157 (d) 156
48. In a certain code language PRESENTATION is written as ENESTAITPRON. How would INTELLIGENCE be written in that code language?
(a) TETGLLTNENCE (b) LLKKTGTTEBTB
(c) LLENLLTNTETG (d) LLTEIGENINCE
49. A word is given in capital letters. It is followed by four words. Out of these four words, three can not be formed from the letters of the word in capital letters. Point out the word which cannot be formed.
SUPERINTENDENT
(a) DENTIST (b) PERTINENT
(c) TEENER (d) RETENTION

DIRECTIONS (Qs.50) : Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?

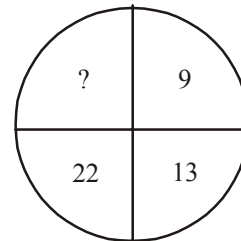
50. ba _ ba _ bbaa _ bbb _ _ aa
(a) baabab (b) babbaa
(c) baaaab (d) bababa
51. Rakesh ranks 15th from the top and 45th from the bottom in a class. How many students are there in the class?
(a) 64 (b) 59
(c) 54 (d) None of these
52. Moni is daughter of Sheela. Sheela is the wife of my wife's brother. How is Moni related to my wife?
(a) Cousin (b) Niece
(c) Sister (d) Sister-in-law
53. Ram moves from a point X to 20 metres towards North. Then he moves 40 metres towards West. Then he moves 20 metres North. Then he moves 40 metres towards East and then 10 metres towards right and he reaches to a point Y. Find the distance and direction of Y from X ?

- (a) 30 metres, North (b) 30 metres, South
(c) 40 metres, North (d) 40 metres, South
54. Which figure represents the relation among Currency, Rupee and Dollar ?



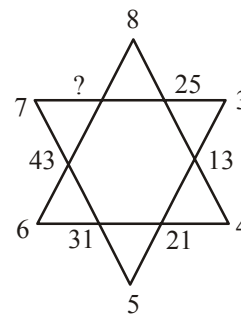
DIRECTIONS (Qs. 55-56) : In questions, find the missing number from the given responses.

55.



- (a) 40 (b) 38
(c) 39 (d) 44

56.



- (a) 56 (b) 57
(c) 58 (d) 59
57. Nitin's age was equal to square of some number last year and the following year it would be cube of a number. If again Nitin's age has to be equal to the cube of some number, then for how long he will have to wait?
(a) 10 years (b) 38 years
(c) 39 years (d) 64 years
58. Six persons are sitting in a circle. A is facing B, B is to the right of E and left of C. C is to the left of D. F is to the right of A. Now D exchanges his seat with F and E with B. Who will be sitting to the left of D ?
(a) D (b) E
(c) A (d) B

DIRECTION (Qs. 59): In question, one statement is given, followed by four Arguments, I, II, III and IV. You have to consider the statements to be true, even if they seem to be at variance from commonly known facts. You are to decide which of the given Arguments can definitely be drawn from the given statement(s). Indicate your answer.

59. Statement:

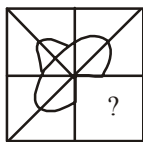
Should little children be loaded with such heavy school bags?

Arguments:

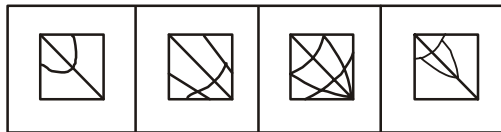
- I. Yes, heavy bag means more knowledge.
 - II. No, heavy school bags spoil the posture of the children.
 - III. Yes, children need to be adapted for earning knowledge.
 - IV. No, a heavy bag never ensures knowledge gathering.
- (a) I and III appear to be strong arguments.
 (b) I and III are poor arguments
 (c) II and IV are strong arguments
 (d) I and IV are strong arguments

DIRECTION (Qs. 60) : In question, which answer figure will complete the pattern in the question figure?

60. Question figure :

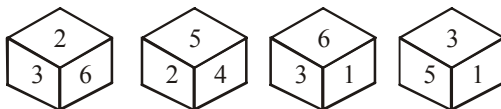


Answer Figures :



- (a) (b) (c) (d)

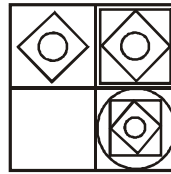
61. Four different positions of dice are as shown below. What number is opposite to face 3 ?



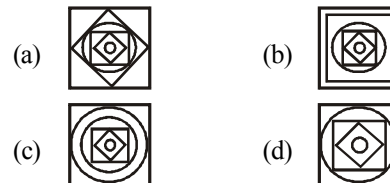
- (a) 4 (b) 3
(c) 2 (d) 6

DIRECTIONS (62-63) : In each of the following questions, which answer figure will complete the question figure?

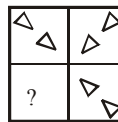
62. Question Figure:



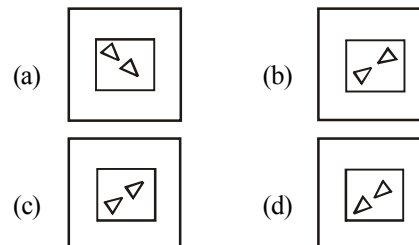
Answer Figures:



63. Question Figure :



Answer Figures:

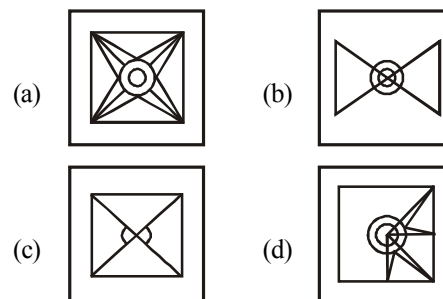


DIRECTIONS (Qs. 64) : In the following questions, select the answer figure in which the question figure is hidden/embedded.

64. Question Figure:



Answer Figures :



65. A word is represented by only one set of numbers as given in anyone of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in the two matrices given below. The columns and rows of matrix I are numbered from 0 to 4 and that of matrix II numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column e.g., 'C' can be represented by 00, 12, 23, etc. and 'M' can be represented by 56, 67, 77, etc. Similarly, you have to identify the set for the given word - GOD.

Matrix-I

	0	1	2	3	4
0	C	D	E	F	G
1	G	D	C	G	E
2	E	F	G	C	D
3	G	C	F	D	E
4	D	C	F	G	E

Matrix-II

	5	6	7	8	9
5	L	M	N	O	P
6	O	L	M	N	P
7	L	O	M	P	N
8	N	O	P	M	L
9	P	L	M	N	O

- (a) 10, 11, 65 (b) 95, 79, 12
(c) 30, 65, 40 (d) 00, 10, 75
66. If the following series is written in the reverse order, which number will be fourth to the right of the seventh number from the left?
7, 3, 9, 7, 0, 3, 8, 4, 6, 2, 1, 0, 5, 11, 13
(a) 0 (b) 5
(c) 9 (d) 11
67. In a certain code language 'ne ri so' means 'good rainy day', 'si ne po' means 'day is wonderful' and 'ri jo' means 'good boy'. Which of the following means 'rainy' in the code?
(a) ne (b) si
(c) ri (d) so
68. If SMOOTH is coded as 135579, ROUGH as 97531 and HARD as 9498, then SOFT will be coded as
(a) 1527 (b) 1347
(c) 4998 (d) 8949
69. Saroj is mother-in-law of Vani who is sister-in-law of Deepak. Rajesh is father of Ramesh, the only brother of Deepak. How is Saroj related to Deepak?

- (a) Mother-in-law (b) Wife
(c) Aunt (d) Mother

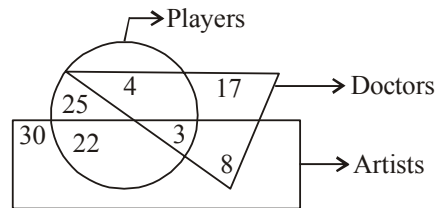
70. A directional post is erected on a crossing. In an accident, it was turned in such a way that the arrow which was first showing east is now showing south. A passerby went in a wrong direction thinking it is west. In which direction is he actually travelling now?
(a) North (b) South
(c) East (d) West

DIRECTIONS (Qs. 71-72) : Study the following information to answer the given questions.

P, Q, R, S, T, V, X and Y are seated in a straight line facing North, P sits fourth to the left of V. V sits either sixth from the left end of the line or fourth from the right end of the line. S sits second to right of R. R is not an immediate neighbour of V. T and Q are immediate neighbours of each other but neither T nor Q sits at extreme ends of the line. Only one person sits between T and X. X does not sit at the extreme end of the line.

71. What is the position of Q with respect to P?
(a) Fifth to the right
(b) Immediate neighbour
(c) Second to right
(d) Third to left
72. Which of the following represents persons seated at the two extreme ends of the line?
(a) P, V (b) Y, S
(c) R, V (d) R, Y

DIRECTIONS (Qs. 73-75) : Each of the following questions is based on the diagram given below. Study the diagram carefully and answer the questions.



In the above diagram, rectangle represents 'artists', circle represents 'players' and triangle represents 'doctors'.

73. How many players are neither artists nor doctors?
(a) 25 (b) 22 (c) 4 (d) 29
74. How many artists are players?
(a) 22 (b) 3 (c) 25 (d) 8
75. How many artists are neither doctors nor players?
(a) 22 (b) 8
(c) 25 (d) 30

DIRECTIONS (Qs. 76-77): Study the following sequence carefully and answer the questions given below:

ME5PB2A7KN9TRU46IJDF1Q3W8VISZ

76. How many such numbers are there in the above sequence, each of which is both immediately preceded by and immediately followed by a consonant ?
 (a) None (b) One
 (c) Two (d) More than three
77. If the order of the first twenty letters/numbrs in the above sequence is reversed and the remaining letters/numbers are kept unchanged, which of the following will be the fourteenth letter/number from the right end after the rearrangement?
 (a) B (b) 6 (c) 2 (d) 1

DIRECTIONS (Qs. 78-80) : Study the following information to answer the given questions.

Eight friends, A, B, C, D, E, F, G and H are sitting in a circle facing the centre, not necessarily in the same order. D sits third to the left of A. E sits to the immediate right of A. B is third to the left of D. G is second to the right of B. C is an immediate neighbour of B. C is third to the left of H.

78. Who amongst the following is sitting exactly between F and D ?
 (a) C (b) E (c) H (d) A
79. Three of the following four are alike in a certain way based on the information given above and so form a group. Which is the one that does not belong to that group ?
 (a) DC (b) AH (c) EF (d) CB
80. Who amongst the following is sitting second to the left of H?
 (a) E (b) B
 (c) A (d) None of these

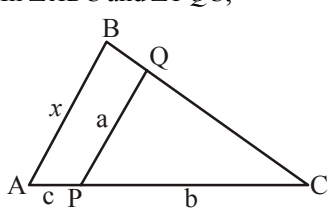
GENERAL AWARENESS

81. Which Article of the Indian Constitution guarantees rights to arrested persons ?
 (a) Article 22 (b) Article 35
 (c) Article 20 (d) Article 42
82. For a person having hypermetropia, the near point is
 (a) Greater than 20 cm (b) Lesser than 25cm
 (c) Greater than 25cm (d) Lesser than 30cm
83. Cryogenic is a science deals with
 (a) High Temperatures (b) Low Pressure
 (c) High Pressure (d) Low Temperature
84. is an active factor of production
 (a) Product (b) Labour
 (c) Wages (d) Price

85. When total utility becomes maximum, then marginal utility will be
 (a) Maximum
 (b) Minimum
 (c) Either maximum or minimum
 (d) Zero
86. Revealed Preference Theory was propounded by
 (a) Robbins (b) Smith
 (c) Samuelson (d) Schumpeter
87. One Carat of diamond is equal to
 (a) 200m (b) 100m
 (c) 150m (d) 300m
88. Wood Spirit is which of the following ?
 (a) Ethyl Alcohol (b) Propanol
 (c) Methyl Alcohol (d) Butanol
89. Which of the following is chief source of Napthalene ?
 (a) Moth balls (b) Mothflakes
 (c) Tar Camphor (d) Coal tar
90. Study of crop production is
 (a) Entology (b) Ecology
 (c) Botany (d) Agronomy
91. Who was the last guru of the Sikhs ?
 (a) Guru Granth Sahib
 (b) Guru Gobind Singh
 (c) Guru Angad
 (d) Guru Amar Das
92. Tattvabodhini Sabha was founded by in 1839
 (a) Swami Vivekanand
 (b) Keshav Chandra Sen
 (c) Dabendranath Tagore
 (d) Swami Sahajanand
93. After the revolt of 1857, British pursued the policy of
 (a) Divide and Policies
 (b) Rules and Regulation
 (c) Divide and Rule
 (d) Unity and Poliy
94. Prithvi-I missile was inducted into the in 1994
 (a) Indian Army (b) Indian Air Force
 (c) Indian Navy (d) All of these
95. 2018 FIFA World Cup to be held in
 (a) China (b) Russia
 (c) India (d) Brazil
96. is issued by the court in case of illegal detention of a person
 (a) Quo Warranto (b) Habeas Corpus
 (c) Mandamus (d) Certiorari
97. At the time of Emergency, the Indian State become unitary from
 (a) Semi Federal (b) Federal
 (c) Unitary (d) Quasi-federal

98. The book titled 'The Life and Death of Adolf Hitler' is penned by
 (a) Z.A. Bhutto (b) James Cross Giblin
 (c) J.M. Barrie (d) Gunnar Myrdal
99. Bos Taurus is a scientific name of
 (a) Buffalo (b) Horse
 (c) Cow (d) Cat
100. includes all prokaryotic organism likes bacteria, cyanobacteria and archaebacteria
 (a) Animalia (b) Protista
 (c) Monera (d) Planatae
101. is the Kuchipudi dancer
 (a) Anupama Mohan (b) Bimbavati Devi
 (c) Arush Mudgal (d) Swapnasundari
102. Which of the following is not a chief organ of the United Nations Organisations?
 (a) International Labour Organisation
 (b) Security Council
 (c) International Court of Justice
 (d) General Assembly
103. The treaty of Mangalore was signed between
 (a) the English East India Company and Haidar Ali
 (b) the English East India Company and Tipu Sultan
 (c) Haidar Ali and the Zamorin of Calicut
 (d) the French East India Company and Tipu Sultan
104. World's largest Charkha (spinning wheels) that was unveiled at Terminal 3 of the Indira Gandhi International Airport (IGI), New Delhi is made of the teak wood of which country?
 (a) Burma (b) Sri Lanka
 (c) Nepal (d) Ukraine
105. The Union Cabinet recently approved The High Courts (Alteration of Names) Bill, 2016 to be introduced in the Parliament. The bill will facilitate the changing of the names of which two high courts?
 (a) Bombay High Court and Calcutta High Court
 (b) Bombay High Court and Madras High Court
 (c) Calcutta High Court and Madras High Court
 (d) Bombay High Court and Gauhati High Court
106. Linux is an example of
 (a) Freeware
 (b) Open source software
 (c) Shareware
 (d) Complimentary
107. A is used to read handwritten or printed text to make a digital image that is stored in memory.
 (a) Printer (b) Laser beam
 (c) Scanner (d) Touchpad
108. You organize files by storing them in
 (a) Archives (b) Lists
 (c) Indexes (d) Folders
109. What is the default file extension for all Word documents?
 (a) WRD (b) TXT
 (c) DOC (d) FIL
110. A device that connects to a network without the use of cables is said to be
 (a) Distributed (b) Non-Wired
 (c) Centralized (d) Wireless
111. In which of the following cities are located 3 zonal headquarters of Indian Railways?
 (a) Guwahati (b) Mumbai
 (c) New Delhi (d) Kolkata
112. Who of the following is known for having designed the first railway timetables?
 (a) George Bradman
 (b) George Bernard Shaw
 (c) George Bradshaw
 (d) George Brummel
113. Which of the following is the largest railway junction in India?
 (a) Delhi (b) Bhatinda
 (c) Mathura (d) Allahabad
114. Which of the following is the eastern-most division of the Indian Railways?
 (a) Tinsukia (b) Lumding
 (c) Rangiya (d) Katihar
115. Over which of the following rivers is the world's highest railway bridge in Kashmir being constructed?
 (a) Chenab (b) Jhelum
 (c) Sutlej (d) Indus
116. Which country won the women's Hockey Junior World Cup 2016 held in Santiago, Chile?
 (a) Netherland (b) Argentina
 (c) Russia (d) Sweden
117. When is the International Civil Aviation Day observed?
 (a) December 5 (b) December 7
 (c) December 8 (d) December 6
118. Who was sworn-in as the Chief Minister of Tamil Nadu in December 2016?
 (a) E. Muthuswamy
 (b) O. Panneerselvam
 (c) Sasikala
 (d) Edappadi K. Palaniswami
119. Who won the 2016 Women's Asia Cup T20?
 (a) India (b) Pakistan
 (c) Bangladesh (d) None of the above
120. Which nation's Prime Minister announced his surprise resignation on 5 December 2016, saying it is the right time to leave politics?
 (a) Italy (b) New Zealand
 (c) Spain (d) France

Hints & Explanations

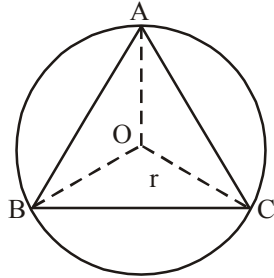
1. (d) Clearly, $\frac{1}{7} < \frac{1}{\sqrt{7}} = \frac{\sqrt{7}}{7} < \sqrt{7}$
 $\Rightarrow \frac{1}{7}$ is the smallest number.
2. (b) The given equation $= x^{1/3} + y^{1/3} = z^{1/3}$
 cubing both sides
 $(x^{1/3} + y^{1/3})^3 = z$
 $\Rightarrow x + y + 3(x^{2/3})(y^{1/3}) + 3(x^{1/3})(y^{2/3}) = z$
 $\Rightarrow x + y + 3[(x^{2/3})(y^{1/3}) + (x^{1/3})(y^{2/3})] = z$
 $\Rightarrow x + y + 3(x^{1/3})(y^{1/3})(x^{1/3} + y^{1/3}) = z$
 putting $x^{1/3} + y^{1/3} = z^{1/3}$
 $\Rightarrow x + y + 3(x^{1/3})(y^{1/3})(z^{1/3}) = z$
 $\Rightarrow x + y - z = -3(x^{1/3})(y^{1/3})(z^{1/3})$
 $\Rightarrow (x + y - z)^3 = -27(x^{1/3})(y^{1/3})(z^{1/3})^3$
 $\Rightarrow (x + y - z)^3 = -27xyz$ (cubing both sides)
 $\Rightarrow (x + y - z)^3 = +27xyz = 0$
3. (b) Let the no. of one rupee, 50 paise and 25 paise coins be $2x$, $3x$ and $4x$ respectively.
 According to question,
 $\text{₹} \left(2x + \frac{3x}{2} + \frac{4x}{4} \right) = \text{Rs. } 216$
 $\Rightarrow \frac{8x + 6x + 4x}{4} = 216$
 $\therefore x = 48$
 $\therefore$ Number of 50 paise coins $= 48 \times 3 = 144$
4. (c) Quantity of milk $= 45 \times \frac{4}{5} = 36$ litres
 Quantity of water $= 45 \times \frac{1}{5} = 9$ litres
 Let x litres of water be added to make the ratio 3 : 2
 Then, $\frac{36}{9+x} = \frac{3}{2}$
 $\Rightarrow 72 = 27 + 3x \Rightarrow x = 15$ litres
5. (a) Let B joined after x months.
 Then, $4500 \times 12 : 3000(12-x) = 2 : 1$
 Ratio of their investments
 $= \frac{4500 \times 12}{3000(12-x)} = \frac{2}{1}$
 $\Rightarrow x = 3$
6. (d) Let the exhaust tap empties the tank in x minutes.
 Then, $\frac{1}{12} + \frac{1}{15} - \frac{1}{x} = \frac{1}{20}$ or
 $\frac{1}{x} = \frac{1}{12} + \frac{1}{15} - \frac{1}{20}$
 or $\frac{1}{x} = \frac{5+4-3}{60} = \frac{6}{60} = \frac{1}{10}$ or $x = 10$ min
7. (d) In 1 day, work done by 12 men $= \frac{1}{18}$
 In 6 days, work done by 12 men $= \frac{6}{18} = \frac{1}{3}$
 Remaining work $= \frac{2}{3}$
 Now, $m_1 \times d_1 \times w_2 = m_2 \times d_2 \times w_1$
 or $12 \times 18 \times \frac{2}{3} = 16 \times d_2 \times 1$
 or $d_2 = \frac{4 \times 18 \times 2}{16} = 9$ days
8. (d) Let the speed of the stream be x km/h.
 Then, upstream speed $= (15 - x)$ km/h.
 and downstream speed $= (15 + x)$ km/h.
 Now, $\frac{30}{(15+x)} + \frac{30}{(15-x)} = 4.5$
 Solving these equations, we get $x = 5$ km/h.
9. (b) $AD \parallel BE$
 $\therefore \angle ADC = \angle DCE$ (alternate angles)
 $\Rightarrow \angle ADB + 30^\circ = 85^\circ$
 $\Rightarrow \angle ADB = 55^\circ$
 and $\angle BAD = 90^\circ$ (given)
 Now, in $\triangle ABD$,
 $\angle ABD + \angle ADB + \angle BAD = 180^\circ$
 $\Rightarrow x + 55^\circ + 90^\circ = 180^\circ$
 $\Rightarrow x = 180^\circ - 145^\circ = 35^\circ$
10. (d) In $\triangle ABC$ and $\triangle PQC$,

 $\therefore \frac{PC}{AC} = \frac{PQ}{AB}$

$$\Rightarrow \frac{b}{c+b} = \frac{a}{x}$$

$$\therefore x = \frac{a(c+b)}{b} = \frac{ac}{b} + a$$

11. (b) Number of points is one, because circumcentre is the only point in the plane of a triangle, which is equidistant from the vertices of the triangle.

$$OA = OB = OC = r$$



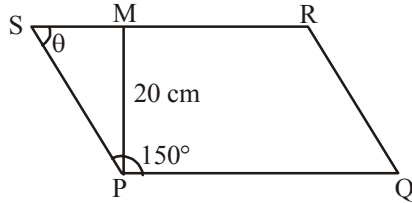
12. (a) Given that, $\angle SPQ = 150^\circ$ and $PM = 20$ cm

In parallelogram PQRS,

$$\angle RSP + \angle SPQ = 180^\circ \text{ (interior angles)}$$

$$\angle RSP = 180^\circ - 150^\circ = 30^\circ$$

$$\Rightarrow \angle RSP = \theta = 30^\circ$$



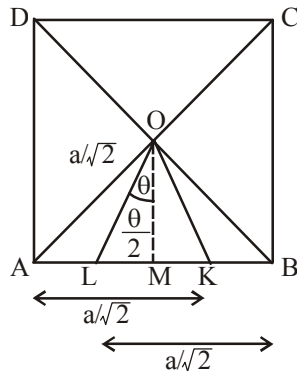
In $\triangle PSM$,

$$\sin \theta = \sin 30^\circ = \frac{PM}{SP}$$

$$\Rightarrow \frac{1}{2} = \frac{20}{SP} \Rightarrow SP = 40 \text{ cm}$$

$$\therefore RQ = SP = 40 \text{ cm.}$$

13. (c) Let sides of the square be a.



$$\text{Then, } AC = a\sqrt{2} \text{ and } AO = OC = \frac{a}{\sqrt{2}}$$

$$\text{Here, } AM = \frac{a}{2}$$

$$\therefore LM = \frac{a}{\sqrt{2}} - \frac{a}{2} \text{ and } OM = \frac{a}{2}$$

$$\text{In } \triangle OML, \tan \frac{\theta}{2} = \frac{\frac{a}{\sqrt{2}} - \frac{a}{2}}{\frac{a}{2}} = \frac{\frac{\sqrt{2}-1}{2}}{\frac{1}{2}}$$

$$= \sqrt{2} - 1$$

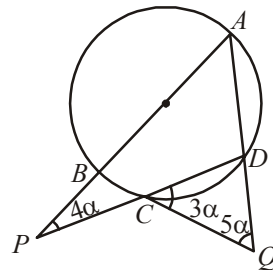
$$\therefore \tan \theta = \frac{2 \tan \frac{\theta}{2}}{1 - \tan^2 \frac{\theta}{2}} = \frac{2(\sqrt{2}-1)}{1 - (2+1-2\sqrt{2})}$$

$$= \frac{2(\sqrt{2}-1)}{1-3+2\sqrt{2}} = \frac{2(\sqrt{2}-1)}{2\sqrt{2}-2}$$

$$\Rightarrow \tan \theta = 1$$

14. (b) Given $\frac{x}{3} = \frac{y}{4} = \frac{z}{5} = \alpha$ (say)

$$\therefore x = 3\alpha, y = 4\alpha \text{ and } z = 5\alpha$$



$$\text{Since, } \angle DCQ = \angle BCP = 3\alpha$$

(vertically opposite angle)

$$\text{In } \triangle DCQ, \angle CDQ = 180^\circ - (3\alpha + 5\alpha) = 180^\circ - 8\alpha \text{ by}$$

property of cyclic quadrilateral,

$$\angle QDC = \angle CBA = 180^\circ - 8\alpha$$

$$\Rightarrow \angle PBC = 8\alpha$$

In $\triangle PBC$,

$$\angle P + \angle B + \angle C = 180^\circ$$

$$\therefore 4\alpha + 8\alpha + 3\alpha = 180^\circ$$

$$\Rightarrow \alpha = \frac{180^\circ}{15} \Rightarrow \alpha = 12^\circ$$

$$\therefore x = 36^\circ, y = 48^\circ, z = 60^\circ$$

15. (b) The expression $3x^3 - kx^2 + 4x + 16$ is divisible by $x - \frac{k}{2}$.

Then, $x = \frac{k}{2}$ satisfy the equation

$$\Rightarrow 3\left(\frac{k}{2}\right)^3 - k\left(\frac{k}{2}\right)^2 + 4\left(\frac{k}{2}\right) + 16 = 0$$

$$\Rightarrow \frac{3k^3 - 2k^3 + 16k + 128}{8} = 0$$

$$\Rightarrow k^3 + 16k + 128 = 0$$

$$\Rightarrow (k+4)(k^2 - 4k + 32) = 0$$

$$\Rightarrow k+4 = 0$$

$$\Rightarrow k = -4$$

16. (a) Here $d = a + 3$

$$a + a + 3 = 103$$

$$2a = 100$$

$$a = 50$$

So, numbers are 50, 51, 52 and 53

$$\therefore b \times c = 51 \times 52 = 2652$$

17. (a) Let $f_1(x) = x^3 + mx^2 - x + 2m$

$$\text{and } f_2(x) = x^2 + mx - 2$$

$$\text{Let } m = 1$$

$$\therefore f_1(x) = x^3 + x^2 - x + 2$$

$$\text{and } f_2(x) = x^2 + x - 2 = (x+2)(x-1)$$

$$\text{When } x = 1,$$

$$f(1) = 1 + 1 - 1 + 2 \neq 0$$

$$\text{When } x = -2,$$

$$f(-2) = (-2)^3 + (-2)^2 - (-2) + 2 = 0$$

Required value of m is 1.

18. (d) Mean of y and $\frac{1}{y} = M$

$$\Rightarrow \frac{y + \frac{1}{y}}{2} = M \Rightarrow y + \frac{1}{y} = 2M \quad \dots (i)$$

Now, mean of y^3 and $\frac{1}{y^3}$ is

$$\frac{y^3 + \frac{1}{y^3}}{2} = \frac{\left(y + \frac{1}{y}\right)^3 - 3\left(y + \frac{1}{y}\right)}{2}$$

$$\Rightarrow \frac{y^3 + \frac{1}{y^3}}{2} = \frac{(2M)^3 - 6M}{2}$$

$$= \frac{(2M)[(2M)^2 - 3]}{2} = M(4M^2 - 3)$$

19. (b) $\tan \theta = \frac{a}{b}$

$$\frac{a \sin \theta - b \cos \theta}{a \sin \theta + b \cos \theta} = \frac{a \tan \theta - b}{a \tan \theta + b}$$

$$= \frac{a \times \frac{a}{b} - b}{a \times \frac{a}{b} + b} = \frac{a^2 - b^2}{a^2 + b^2}$$

20. (b) Let $y = \sin \theta + \cos \theta$

$$\therefore \frac{dy}{d\theta} = \cos \theta - \sin \theta, y \text{ is maximum when}$$

$$\frac{dy}{d\theta} = 0$$

$$\cos \theta = \sin \theta \Rightarrow \theta = 45^\circ$$

$$\therefore \text{maximum } y = \sin 45^\circ + \cos 45^\circ$$

$$= \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} = \frac{2}{\sqrt{2}} = \sqrt{2}$$

21. (c) Given, $a \cos \theta - b \sin \theta = c$

On squaring both sides, we get

$$a^2 \cos^2 \theta + b^2 \sin^2 \theta - 2ab \cos \theta \sin \theta = c^2$$

$$\Rightarrow a^2 (1 - \sin^2 \theta) + b^2 (1 - \cos^2 \theta) - 2ab \sin \theta \cos \theta = c^2$$

$$\Rightarrow a^2 + b^2 - c^2 = a^2 \sin^2 \theta + b^2 \cos^2 \theta + 2ab \sin \theta \cos \theta$$

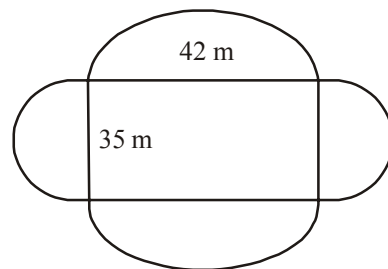
$$\Rightarrow (a \sin \theta + b \cos \theta)^2 = a^2 + b^2 - c^2$$

$$\Rightarrow a \sin \theta + b \cos \theta = \pm \sqrt{a^2 + b^2 - c^2}$$

22. (a)

23. (c) $20 + 12 + 16 = 48$

24. (a) Area of the field = Area of rectangle + Area of circle with diameter 35 m + Area of circle with diameter 42 m.



$$= 42 \times 35 + 2 \times \frac{1}{2} \times \frac{22}{7} \times (21)^2 + 2 \times \frac{1}{2} \times \frac{22}{7} \times (17.5)^2$$

$$= 1470 + 1386 + 962.5 = 3818.5 \text{ m}^2$$

25. (d) Perimeter of the square = circumference of the circle

$$\text{We have, } 4 \times 11 = 2\pi r \Rightarrow r = \frac{4 \times 11}{2 \times \pi}$$

$$\text{Area of the circle} = \pi r^2$$

$$= \pi \times \left(\frac{4 \times 11}{2 \times \pi} \right)^2 = 49\pi$$

$$= 154 \text{ cm}^2$$

26. (c) When $9^6 - 1$ is divided by 8, the remainder is zero.

$$\therefore 9^6 - 1 \text{ is divided by 8, the remainder is } 1 + 1 = 2.$$

27. (c) $\left(\sqrt{\frac{625}{784}} - \sqrt{\frac{16}{49}} \right) = \frac{\sqrt{625}}{\sqrt{784}} - \frac{\sqrt{16}}{\sqrt{49}} = \frac{25}{28} - \frac{4}{7} = \frac{9}{28}$

$$\sqrt{\frac{81}{144}} = \frac{\sqrt{81}}{\sqrt{144}} = \frac{9}{12} = \frac{3}{4}$$

$$\text{Hence, } ? = \frac{9}{28} \div \frac{3}{4} = \frac{9}{28} \times \frac{4}{3} = \frac{3}{7}$$

28. (c) Let numbers be x and y .
 $\therefore$ Product of two numbers = their (LCM $\times$ HCF)

$$\Rightarrow xy = 630 \times 9$$

$$\text{Also, } x + y = 153 \text{ (given)}$$

$$\text{since } x - y = \sqrt{(x + y)^2 - 4xy}$$

$$\Rightarrow x - y = \sqrt{(153)^2 - 4(630 \times 9)}$$

$$= \sqrt{23409 - 22680} = \sqrt{729} = 27$$

29. (b) Total age of the family of five members = $24 \times 5 = 120$

$$\text{Total age of the family of five members before 8 years}$$

$$= 120 - 5 \times 8 = 120 - 40 = 80$$

$$\text{So, Required average age} = \frac{80}{5} = 16 \text{ yr}$$

30. (b) Error = $1 \text{ kg} - 960 \text{ g}$
 $= 1000 \text{ g} - 960 \text{ g} = 40 \text{ g}.$

$$\therefore \text{Gain \%} = \frac{40}{1000 - 960} \times 100$$

$$= \frac{40}{960} \times 100 = 4 \frac{1}{6} \%$$

31. (c) Ratio of equivalent capitals of A, B and C for 1 month

$$= 35000 \times 12 : 20000 \times 5 : 15000 \times 7$$

$$= 35 \times 12 : 20 \times 5 : 15 \times 7 = 84 : 20 : 21$$

$$\text{Sum of the ratios} = 84 + 20 + 21 = 125$$

$$\therefore \text{B's share} = ₹ \left(\frac{20}{125} \times 84125 \right) = ₹ 13460$$

32. (a) A's one day's work = $\frac{1}{6}$

$$\text{B's one day's work} = \frac{1}{8}$$

$$\text{C's one day's work} = \frac{1}{12}$$

$$\text{A's share : B's share : C's share}$$

$$= \frac{1}{6} : \frac{1}{8} : \frac{1}{12}$$

Multiplying each ratio by the L.C.M. of their denominators, the ratios become 4 : 3 : 2

$$\therefore \text{B's share} = \frac{1350 \times 3}{9} = ₹ 450$$

33. (a) Let each side of the square be x km and let the average speed of the plane around the field be y km/h. Then,

$$\frac{x}{200} + \frac{x}{400} + \frac{x}{600} + \frac{x}{800} = \frac{4x}{y}$$

$$\Rightarrow \frac{25x}{2400} = \frac{4x}{y} \Rightarrow y = \left(\frac{2400 \times 4}{25} \right) = 384.$$

$$\therefore \text{Average speed} = 384 \text{ km/h.}$$

34. (d) Side of square carpet = $\sqrt{\text{Area}}$

$$= \sqrt{169} = 13 \text{ m}$$

After cutting of one side,

$$\text{Measure of one side} = 13 - 2 = 11 \text{ m}$$

and other side = 13 m (remain same)

$$\therefore \text{Area of rectangular room} = 13 \times 11 = 143 \text{ m}^2$$

35. (c) Here, in whole transaction, there is neither gains nor loss, therefore,

Amount of gain in one watch

$$= \text{Amount of loss in other watch}$$

$$\Rightarrow 0.15 \times \text{CP}_1 = 0.10 \times \text{CP}_2$$

$$\Rightarrow \frac{\text{CP}_1}{\text{CP}_2} = \frac{0.10}{0.15} = \frac{2}{3}$$

$$\text{Also } \text{CP}_1 + \text{CP}_2 = 560$$

$$\therefore \text{CP}_1 = \frac{2}{(2+3)} \times 560 = ₹ 224$$

$$\text{and } \text{CP}_2 = 560 - 224 = ₹ 336$$

36. (a) Let 1 man's 1 day's work = x and
1 boy's 1 day's work = y .

$$\text{Then, } 6x + 8y = \frac{1}{10} \text{ and } 26x + 48y = \frac{1}{2}.$$

Solving these two equations, we get :

$$x = \frac{1}{100} \text{ and } y = \frac{1}{200}.$$

$\therefore$ (15 men + 20 boys)'s 1 day's work

$$= \left(\frac{15}{100} + \frac{20}{200} \right) = \frac{1}{4}.$$

$\therefore$ 15 men and 20 boys can do the work in 4 days.

37. (b) Let the distance between the two stations be x km.

$$\text{Then, } \frac{x}{50} - \frac{10}{6} = \frac{x}{30} - \frac{50}{6}$$

$$\Rightarrow \frac{x}{50} - \frac{1}{6} = \frac{x}{30} - \frac{5}{6}$$

$$\text{or } \frac{x}{30} - \frac{x}{50} = \frac{2}{3} \quad \text{or } x = 50 \text{ km}$$

Thus distance between the station A and B = 50 km

38. (d) $\frac{3a+5b}{3a-5b} = \frac{5}{1}$

By componendo and dividendo,

$$\frac{3a+5b+3a-5b}{3a+5b-3a+5b} = \frac{5+1}{5-1}$$

$$\Rightarrow \frac{6a}{10b} = \frac{6}{4} \Rightarrow \frac{a}{b} = \frac{6}{4} \times \frac{10}{6} = \frac{5}{2}$$

39. (d) $\left(x + \frac{1}{x}\right) \left(x - \frac{1}{x}\right)$

$$\left(x^2 + \frac{1}{x^2} - 1\right) \left(x^2 + \frac{1}{x^2} + 1\right)$$

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

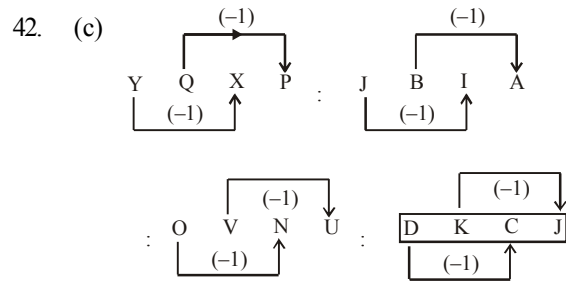
$$= \left(x^2 - \frac{1}{x^2}\right) \left[\left(x^4 + \frac{1}{x^4} + 2 - 1\right)\right]$$

$$= \left(x^2 - \frac{1}{x^2}\right) \left(x^4 + \frac{1}{x^4} + 1\right) = x^6 - \frac{1}{x^6}$$

40. (c) $\tan 4^\circ \cdot \tan 43^\circ \cdot \tan 47^\circ \cdot \tan 86^\circ$
 $= \tan 4^\circ \cdot \tan 43^\circ \cdot \tan (90^\circ - 43^\circ) \cdot \tan (90^\circ - 4^\circ)$
 $= \tan 4^\circ \cdot \tan 43^\circ \cdot \cot 43^\circ \cdot \cot 4^\circ = 1$

$$[\tan (90^\circ - \theta) = \cot \theta; \tan \theta, \cot \theta = 1]$$

41. (a) Dehradun is capital of Uttarakhand.
Similarly, Aizawl is capital of Mizoram.



43. (d) As, $(1)^3 : 1$

Similarly,
 $(10)^3 : 1000$

44. (b) Here, only 63 is not belonging to group because it is divisible by 3.

45. (c) Mumbai, Kolkata and Cochin all are coastal city. Similarly, Chennai is also a coastal city.

46. (c)

$$C \xrightarrow{+2} E \xrightarrow{+2} G \quad J \xrightarrow{+2} L \xrightarrow{+2} N \quad Q \xrightarrow{+2} S \xrightarrow{+2} U$$

$$\text{Similarly, } H \xrightarrow{+2} J \xrightarrow{+2} L$$

47. (c) $\begin{array}{ccccccc} 285 & 253 & 221 & 189 & 157 \\ \hline & -32 & -32 & -32 & -32 \end{array}$

48. (d)

$$\begin{array}{cccccc} \text{P R E S E N T A T I O N} & \rightarrow & \text{E N E S T A I T P R O N} \\ 1 & 2 & 3 & 4 & 5 & 6 & 3 & 2 & 4 & 5 & 1 & 6 \end{array}$$

Similarly,

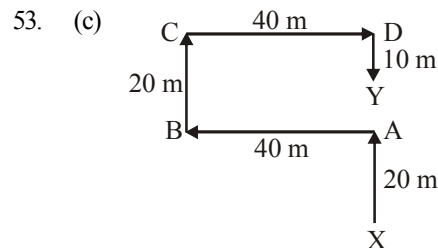
$$\begin{array}{cccccc} \text{I N T E L L I G E N C E} & \rightarrow & \text{L L T E I G E N I N C E} \\ 1 & 2 & 3 & 4 & 5 & 6 & 3 & 2 & 4 & 5 & 1 & 6 \end{array}$$

49. (d) RETENTION

50. (b) ba/ b ba a / b bbaaa/ b bbb a a aa

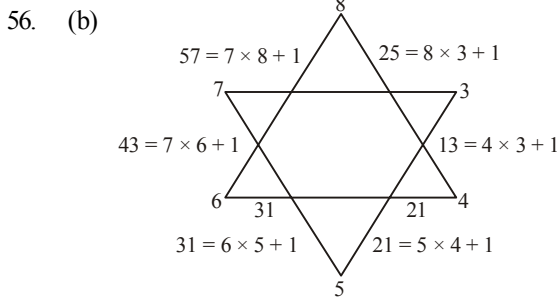
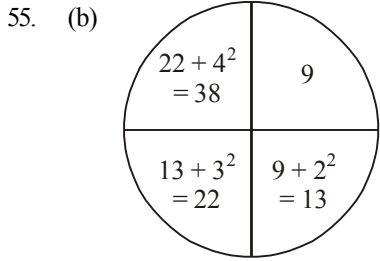
51. (b) Clearly, no. of students in the class = $14 + 1 + 44 \Rightarrow 59$.

52. (b)

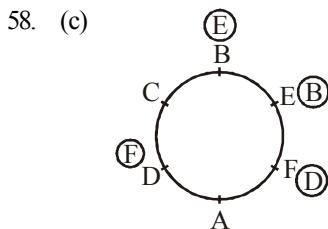


Required distance = $XY = AX + AY$
 $= 20 + 10$
 $= 30 \text{ m, North}$

54. (b) Dollar —  Rupee
 Currency



57. (b) Clearly, we have to first find two numbers whose difference is 2 and of which the smaller one is a perfect square and the bigger one a perfect cube.
 Such numbers are 25 and 27.
 Thus, Nitin is now 26 years old. Since the next perfect cube after 27 is 64,
 So required time period = $(64 - 26) \text{ years} = 38 \text{ years}$.



Now, A is to the left of D.

59. (c) Arguments:
 I. (✗) It does not tell about real meaning.
 II. (✓) Heavy bags spoil the posture of the children.

III. (✗) More load does not mean to get more knowledge

IV. (✓) knowledge can not be gained by taking more load.

60. (d)
 61. (a) The numbers 1, 2, 5 and 6 are on the adjacent faces of the number 3. So, the number 4 lies opposite 3.
 62. (a) 63. (c) 64. (a)
 65. (c) $G \Rightarrow 04, 10, 22, 30, 43$
 $O \Rightarrow 58, 65, 76, 86, 99$
 $D \Rightarrow 01, 11, 24, 33, 40$

Option	G	O	D
(a)	10	11	65
(b)	95	79	42
(c)	30	65	40
(d)	00	10	75

66. (a) The given series when written in the reverse order becomes.
 13, 11, 5, 0, 1, 2, 6, 4, 8, 3, 0, 7, 9, 3, 7
 The 7th number from the left is 6. The 4th number to the right of 6 is 0.
 67. (d)

ne ri so → good rainy day
 si ne po → day is wonderful
 ri jo → good boy

So, the code for rainy is 'so'.

68. (a) As,

S M O O T H
 ↓ ↓ ↓ ↓ ↓ ↓
 1 3 5 5 7 9

R O U G H
 ↓ ↓ ↓ ↓ ↓
 9 7 5 3 1

and

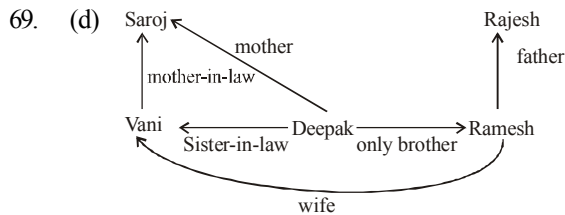
H A R D
 ↓ ↓ ↓ ↓
 9 4 9 8

It clearly shown that only first option contains 1527.

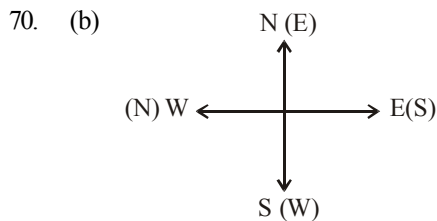
So,

S O F T
 ↓ ↓ ↓ ↓
 1 5 2 7

Thus, the correct code for soft will be 1527.



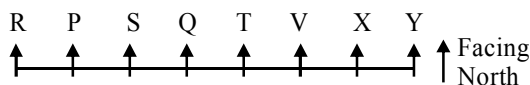
So, it is clear from the above family tree that saroj is Mother to Deepak.



When the arrow turns, East becomes South, North becomes East, West becomes North and South becomes West.

So, the traveller must be actually travelling in the South thinking it is West.

(Q.No. 71–72): On the basis of given information, the final sitting arrangement of eight persons in a straight line facing North is as following

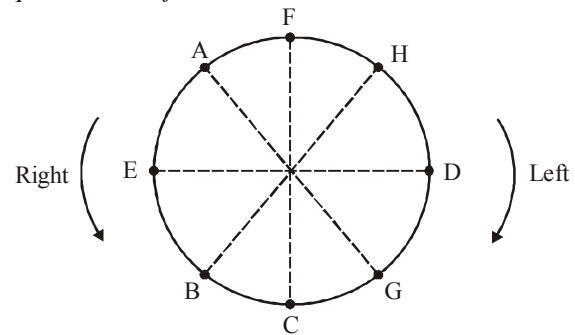


71. (c) Q is second to the right of P.
 72. (d) R and Y are sitting at the two extreme ends of the line.
 73. (a) There are 25 players who are neither artists nor doctors because this is the only region of the circle which is not common with either rectangle or triangle.
 74. (c) Required number = $22 + 3 = 25$
 75. (d) There are 30 artists who are neither doctors nor players because this is the only region of the rectangle which is not common with either circle or triangle.
 76. (d) Four members in the sequence.
 ME 5 PB 2 A 7 K N 9 T R U 4 6 I J D F 1 Q 3
W 8 V I S Z

77. (a) FDIJ164URT9NK7A2 B P5EM1Q3
 W8VISZ

B 14th from right end.

(Q. Nos 78-80) Arrangement according to the question is as follows



78. (c) Clearly, H is sitting exactly between F and D.
 79. (d) DGC AFH EAF C None B
 ↑ ↑ ↑ ↑
 Skipped Skipped Skipped No Member
 is skipped in between

So, CB does not belong to the group.

80. (d) Clearly, G is sitting second to the left of H.
 81. (a) Article 22 proceeds to guarantee certain fundamental rights to every arrested person.
 82. (c) Hypermetropia Myopia is corrected by spectacles having concave lens. Near point of a person suffering from hypermetropia is more than 25cm.
 83. (d) Cryogenics is the study of the production and behaviour of materials at very low temperatures.
 84. (b) Some of the important factors of production are: (i) Land (ii) Labour (iii) Capital (iv) Enterprnuer. Land is a passive factor whereas labour is an active factor of production
 85. (d) When total utility is maximum at the 5th unit, marginal utility is zero
 86. (c) Revealed preference theory, pioneered by American economist Paul Samuelson, is a method of analyzing choices made by individuals
 87. (a) One carat is equal to 0.2 grams
 88. (c) Wood spirit is a poisonous colorless liquid used as a solvent and fuel; ingestion may cause blindness or death. Called also methyl or wood alcohol.

89. (d) Naphthalene is an organic compound with formula $C_{10}H_8$. It is the simplest polycyclic. Naphthalene is the most abundant single component of coal tar.
90. (d) Agronomy is the science and technology of producing and using plants for food, fuel, fiber, and land reclamation
91. (b) Guru Gobind Singh was The Tenth Nanak or the last of the Sikhpreachers to live.
92. (c) The Tattwabodhini Sabha ("Truth Propagating/Searching Society") was a group started in Calcutta on 6 October 1839 as a splinter group of the Brahmo Samaj, reformers of Hinduism and Indian Society. The founding member was Debendranath Tagore
93. (c) After the revolt, the British pursued the policy of divide and rule, towards the general populace.
94. (a) Prithvi (Sanskrit: prthvi "Earth") is a tactical surface-to-surface short-range ballistic missile. This class of Prithvi missile was inducted into the Indian Army in 1994
95. (b) FIFA's decision to award Russia the right to host the 2018 World Cup surprised many - including some of the country's leaders
96. (b) Habeas corpus ("You may have the body") is a recourse in law whereby a person can report an unlawful detention or imprisonment before a court, usually through a prison official
97. (d) Professor K.C. Wheare, who regards the American constitution as the model of a true federation has described the Indian constitution as 'quasi federal', that is 'a unitary state with subsidiary federal features rather than a federal state with subsidiary unitary features
98. (b) Many people believe Hitler was the personification of evil. In this Sibert Medal-winning biography, James Cross Giblin penetrates this façade and presents a picture of a complex person-at once a brilliant, influential politician and a deeply disturbed man. Giblin explores the forces that shaped the man as well as the social conditions that furthered his rapid rise to power.
99. (c) Cows are raised in many different countries around the world, mainly for the cowsnatural resources such as milk, meat
100. (c) Monera Kingdom- All the organisms of this kingdom are prokaryotes
101. (a) Anupama Mohan is one of the best-known disciples of Kuchipudi.
102. (a) 103. (b) 104. (a) 105. (b) 106. (b)
107. (c) 108. (d) 109. (d) 110. (d) 111. (d)
112. (c) 113. (c) 114. (a) 115. (a)
116. (b) Argentina, Argentina women's hockey team defeated Netherlands women's team to win the women's Hockey Junior World Cup 2016 in Santiago, Chile.
117. (b) December 7, Every year 7th December was celebrated as the International Civil Aviation Day since 1994 to promote safety, efficiency of air transport. 2016 Theme: "Working together to ensure no country is left behind".
118. (b) 119. (a) 120. (b)