

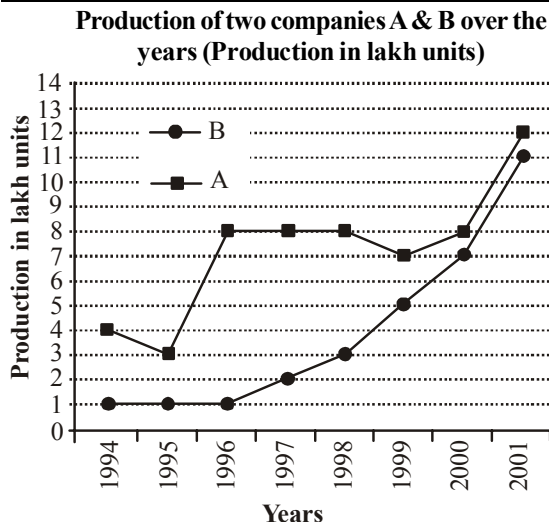
ARITHMETIC

1. In a 225 meter long yard 26 trees are planted at equal distance, one tree being at each end of the yard. What is the distance between two consecutive trees?
(a) 10 meters (b) 8 meters
(c) 12 meters (d) 9 meters
2. A boy was asked to multiply a number by 25. Instead, he multiplied the number by 52 and got the answer 324 more than the correct answer. The number to be multiplied was
(a) 12 (b) 15
(c) 25 (d) 32
3. The number whose square is equal to the difference of the squares of 40 and 32 is
(a) 45.09 (b) 24
(c) 25 (d) 28
4. In a fort there was sufficient food for 200 soldiers for 31 days. After 27 days, 120 soldiers left the fort. For how many extra days will the rest of the food last for the remaining soldiers?
(a) 12 days (b) 10 days
(c) 8 days (d) 6 days
5. 7 is added to a certain number, the sum is multiplied by 5; the product is divided by 9 and 3 is subtracted from the quotient. The remainder left is 12. What is the number?
(a) 20 (b) 30
(c) 40 (d) 5
6. If the selling price of an article is $\frac{4}{3}$ of its cost price, the profit in transaction is
(a) 16.75% (b) 20.50%
(c) 25.50% (d) 33.33%
7. In an election between two candidates, 70% of the voters cast their votes, out of which 2% of the votes were declared invalid. A candidate got 7203 votes which was 60% of the total valid votes. Find the total number of voters enrolled in that election.
(a) 18050 (b) 17500
(c) 17000 (d) 7203
8. A man purchased a bullock and a cart for ₹ 1800. He sold the bullock at a profit of 20% and the cart at a profit of 30%. His total profit was $155\frac{5}{6}$ %. Find the cost price of bullock.
(a) ₹ 650 (b) ₹ 750
(c) ₹ 900 (d) ₹ 800
9. If a sum becomes double in 16 years, how many times will it be in 8 years?
(a) $1\frac{1}{2}$ times (b) $1\frac{1}{3}$ times
(c) $1\frac{3}{4}$ items (d) $1\frac{1}{4}$ times
10. A's salary is 20% lower than B's salary, which is 15% lower than C's salary. By how much percent is C's salary more than A's salary?
(a) 44.05% (b) 45.05%
(c) 46.05% (d) 47.05%
11. 'A' and 'B' can do a piece of work in 30 days while 'B' and 'C' can do the same work in 24 days and 'C' and 'A' in 20 days. They all work for 10 days and 'B' and 'C' leave. How many days more will 'A' take to finish the work?
(a) 12 days (b) 18 days
(c) 20 days (d) 22 days
12. A man can row $9\frac{1}{3}$ Kmph in still water and finds that it takes him thrice as much time to row up than as to row down the same distance in the river. The speed of the current is
(a) $3\frac{1}{3}$ Kmph (b) $3\frac{1}{9}$ Kmph
(c) $4\frac{2}{3}$ Kmph (d) $4\frac{1}{3}$ Kmph
13. ₹ 800 becomes ₹ 956 in 3 years at a certain rate of interest. If the rate of interest is increased by 4% what amount will ₹ 800 become in 3 years?
(a) ₹ 1020 (b) ₹ 1052
(c) ₹ 1282 (d) ₹ 1080
14. If the manufacturer gains 10%, the wholesale dealer gains 15% and the retailer gains 25%, find the cost of production of a table. The retail price of table is ₹ 1265
(a) ₹ 800 (b) ₹ 1000
(c) ₹ 950 (d) ₹ 1180

15. Ram borrows ₹ 8000 at 12% p.a. simple interest and Mohan borrows ₹ 9100 at 10% p.a. simple interest. In how many years will their borrowed amounts (debt) be equal?
 (a) 18 (b) 20
 (c) 22 (d) 24
-
- DIRECTIONS(Q. 16) :** What approximate value should come in place of the question mark (?) in the following questions? (Note : You are not expected to calculate the exact value.)
-
16. $8787 \div 343 \times \sqrt{50} = ?$
 (a) 250 (b) 140
 (c) 180 (d) 100
17. Average age of 36 children of the class is 15 years. 12 more children joined whose average age is 16 years. What is the average age of all the 48 children together?
 (a) 15.25 years (b) 15.5 years
 (c) 15.3 years (d) 15.4 years
18. A right circular cone and a right circular cylinder have equal base and equal height. If the radius of the base and the height are in the ratio 5 : 12, then the ratio of the total surface area of the cylinder to that of the cone is
 (a) 3 : 1 (b) 13 : 9
 (c) 17 : 9 (d) 34 : 9
19. Of the following quadratic equations, which is the one whose roots are 2 and -15 ?
 (a) $x^2 - 2x + 15 = 0$ (b) $x^2 + 15x - 2 = 0$
 (c) $x^2 + 13x - 30 = 0$ (d) $x^2 - 30 = 0$
20. Which of the following equations has real roots?
 (a) $3x^2 + 4x + 5 = 0$
 (b) $x^2 + x + 4 = 0$
 (c) $(x-1)(2x-5) = 0$
 (d) $2x^2 - 3x + 4 = 0$
21. If $\frac{3-5x}{x} + \frac{3-5y}{y} + \frac{3-5z}{z} = 0$, the value of $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$ is
 (a) -5 (b) 5
 (c) 2 (d) 3
22. If $a + b + c = 2s$ then find the value of $(s-a)^3 + (s-b)^3 + 3(s-a)(s-b)c$ is
 (a) c (b) c^2
 (c) c^3 (d) $2c^2$
23. The value of k for which the line $x + 2y = 9$ and $kx + 4y = -5$ are parallel is
 (a) $k = 2$ (b) $k = 1$
 (c) $k = -1$ (d) $k = 3$
24. There are 60 terms in an A.P. of which the first term is 8 and the last term is 185. The 31st term is
 (a) 56 (b) 94
 (c) 85 (d) 98
25. ABCD is a cyclic quadrilateral, AB is a diameter of the circle. If $\angle ACD = 50^\circ$, the value of $\angle BAD$ is
 (a) 30° (b) 40°
 (c) 50° (d) 60°
26. D and E are the mid-points of AB and AC of $\triangle ABC$. If $\angle A = 80^\circ$, $\angle C = 35^\circ$, then $\angle EDB$ is equal to
 (a) 100° (b) 115°
 (c) 120° (d) 125°
27. The perimeters of two similar triangles ABC and PQR are 36 cm, and 24 cm, respectively. If PQ = 10 cm, then the length of AB is :
 (a) 16 cm (b) 12 cm
 (c) 14 cm (d) 15 cm
28. Two isosceles triangles have equal vertical angles and their areas are in the ratio 9 : 16. The ratio of their corresponding heights is :
 (a) 3 : 4 (b) 4 : 3
 (c) 2 : 1 (d) 1 : 2
29. In a circle of radius 17 cm, two parallel chords are drawn on opposite sides of a diameter. The distance between the chords is 23 cm. If length of one chord is 16 cm, then the length of the other one is:
 (a) 15 cm (b) 23 cm
 (c) 30 cm (d) 34 cm
30. Two numbers are in the ratio of 15 : 11. If their H.C.F. is 13, find the numbers.
 (a) 195, 11 (b) 195, 143
 (c) 195, 15 (d) 143, 13
31. The speed of a boat in still water is 15 km/h and the rate of stream is 5 km/h. The distance travelled downstream in 24 minutes is
 (a) 4 km (b) 8 km
 (c) 6 km (d) 16 km
32. If $x = r \sin \theta \cos \phi$, $y = r \sin \theta \sin \phi$, $z = r \cos \theta$, then $x^2 + y^2 + z^2$ is equal to
 (a) $r^2 \cos^2 \phi$ (b) $r^2 \sin^2 \theta + r^2 \cos^2 \phi$
 (c) r^2 (d) $\frac{1}{r^2}$

33. If $\cot \theta = \frac{7}{24}$ and $\pi < \theta < \frac{3\pi}{2}$, then the value of $\cos \theta - \sin \theta$ is
- (a) $\frac{19}{25}$ (b) $\frac{18}{35}$
 (c) $\frac{17}{25}$ (d) $\frac{18}{25}$
34. If $x + y = z$, find the value of $\cos^2 x + \cos^2 y + \cos^2 z$.
- (a) $1 + 2 \sin x \sin y \sin z$
 (b) $1 - 2 \sin x \sin y \sin z$
 (c) $1 + 2 \cos x \cos y \cos z$
 (d) $1 - 2 \cos x \cos y \cos z$
35. If $\sin^2 x + \sin x = 1$, then the value of $\cos^{12} x + 3 \cos^{10} x + 3 \cos^8 x + \cos^6 x - 1$ is equal to
- (a) 1 (b) 0
 (c) -1 (d) 2
36. If $3 \sin \theta + 5 \cos \theta = 4$, then $(3 \cos \theta - 5 \sin \theta)$ is equal to
- (a) 2 (b) $\pm 3\sqrt{2}$
 (c) 5 (d) 8
37. The angle of elevation of the top of a tower from two points at distances m and n metres are complementary. If the two points and the base of the tower are on the same straight line, then the height of the tower is :
- (a) $\sqrt{mn}$ metres (b) mn metres
 (c) $\frac{m}{n}$ metres (d) None of these

DIRECTIONS (Qs. 38-40) : Study the following graph to answer the given questions.



38. For Company A, what is the per cent decrease in production from 1994 to 1995?
- (a) 75 (b) 50
 (c) 25 (d) 10
39. In 2001, the production of Company B is approximately what per cent of that in 2000?
- (a) 60 (b) 157
 (c) 192 (d) 50
40. For Company A, in which year is the percentage increase/decrease in the production from the previous year the highest?
- (a) 2001 (b) 1995
 (c) 1999 (d) 1996

GENERAL INTELLIGENCE & REASONING

DIRECTIONS (Qs. 41-42) : In each of the following questions, select the related word/letters/number from the given alternatives :

41. Spider : Insect :: Crocodile : ?
- (a) Reptile (b) Mammal
 (c) Frog (d) Carnivore
42. Steel : Alloy :: Zinc : ?
- (a) Metal (b) Non-metal
 (c) Salt (d) Halogen

DIRECTIONS (Qs. 43-44) : In each of the following questions, four words have been given, out of which three are alike in some manner and the fourth one is different. Choose out the odd one.

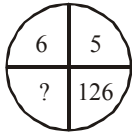
43. (a) Travelled (b) Sailed
 (c) Walked (d) Rode
44. (a) Car (b) Autorickshaw
 (c) Van (d) Taxi

DIRECTIONS (Q. 45) : In each of the following questions, a series is given, with one/two term(s) missing. Choose the correct alternative from the given ones that will complete the series.

45. WTPMIFB ? ?
- (a) ZV (b) XU
 (c) YU (d) YV
46. In the following question, number of letters are skipped in between by a particular rule. Which of the following observes the rule?
- (a) ACZXFG (b) CFXURI
 (c) CFIURX (d) CXFUIR

DIRECTIONS (Qs. 47-48): In each of the following questions select the missing number from the given responses.

47.



- (a) 127 (b) 31
(c) 217 (d) 328

48.

2	1	2
21	22	?
1	2	5
20	23	43

- (a) 40 (b) 48
(c) 50 (d) 36

DIRECTIONS (Qs. 49-50): In each of the following questions various terms of a series are given with one term missing as shown by (?). Choose the missing term.

49. J2Z, K4X, I7V, ?, H16R, M22P

- (a) I11T (b) L11S
(c) L12T (d) L11T

50. Q1F, S2E, U6D, W21C, ?

- (a) Y66B (b) Y44B
(c) Y88B (d) Z88B

51. If DELHI is coded as 73541 and CALCUTTA as 82589662, then how can CALICUT be coded?

- (a) 5279431 (b) 5978013
(c) 8251896 (d) 8543691

52. If in a certain language, PLAYER is coded as QNDCJX, then how SINGER will be coded in the same language?

- (a) TKQKJX (b) TKJKQX
(c) TKQKXJ (d) TKQXJK

53. Pointing to a photograph Vikas said "She is the daughter of my grandfather's only son". How is the related to Vikas in the photograph?

- (a) Father (b) Brother
(c) Sister (d) Mother

54. M is the son of P. Q is the granddaughter of O who is the husband of P. How is M related to O?

- (a) Son (b) Daughter
(c) Mother (d) Father

55. Siddharth and Murali go for jogging from the same point. Siddharth goes towards the east covering 4 kms. Murali proceeds towards the

West for 3 kms. Siddharth turns left and covers 4 kms and Mxurali turns to the right to cover 4 kms. Now what will be the distance between Siddharth and Murali?

- (a) 14 kms (b) 6 kms
(c) 8 kms (d) 7 kms

56. A rat run 20' towards East and turns to right runs 10', and turns to right turns 9', and again turns to left runs 5' and then turns to left runs 12' and finally turns to left and runs 6'. Now what direction is the rat facing?

- (a) EAST (b) NORTH
(c) WEST (d) SOUTH

57. A, B, C, D, E, F & G are sitting in line facing the East. C is immediate right of D. B is at an extreme end and has E as his neighbour. G is between E and F. D is sitting third from the south end. Who are the persons sitting at the extreme ends?

- (a) A & E (b) A & B
(c) F & B (d) C & D

58. Five boys are sitting in a row, A is on the right of B, E is on the left of B, but to the right of C. If A is on the left D, who is sitting in the middle?

- (a) E (b) B
(c) A (d) C

59. From the given alternative words, select the word which can be formed using the letters of the given word:

'DETERMINATION'

- (a) DECLARATION (b) NATIONAL
(c) TERMINATED (d) DEVIATION

60. From the given alternative words. Select the word which **cannot** be formed using the letters of the given word:

'REFORMATION'

- (a) REFRAIN (b) MOTION
(c) REFRACT (d) FORMAT

61. Arrange the following words as per order in the dictionary.

1. Dissident 2. Dissolve
3. Dissent 4. Dissolute
5. Dissolution

- (a) 3, 1, 4, 5, 2 (b) 3, 2, 1, 4, 5
(c) 3, 1, 4, 2, 5 (d) 3, 2, 4, 5, 1

62. Arrange the following words as per order in dictionary.

1. Noble 2. Nobiliary
3. Noblesse 4. Nobility
5. Nobble

- (a) 1, 4, 3, 2, 5 (b) 3, 4, 1, 2, 5
(c) 5, 2, 4, 1, 3 (c) 2, 4, 3, 5, 1

63. Meena correctly remembers that her father's birthday is after eighteenth May but before twentysecond May. Her brother correctly remembers that their father's birthday is before twenty-fourth May but after twentieth May. On which date in May was definitely their father's birthday?

(a) Twentieth (b) Nineteenth
(c) Eighteenth (d) None of these

64. Nitin correctly remembers that Nidhi's birthday is before Friday but after Tuesday. Derek correctly remembers that Nidhi's birthday is after Wednesday but before Saturday. On which of the following day does Nidhi's birthday definitely fall?

(a) Monday (b) Tuesday
(c) Wednesday (d) Thursday

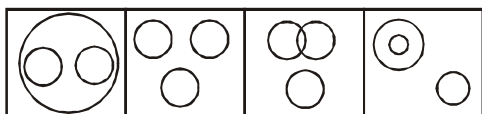
65. If John celebrated his victory day on Tuesday, 5th January 1965, when will he celebrate his next victory day on the same day?

(a) 5th January 1970 (b) 5th January 1971
(c) 5th January 1973 (d) 5th January 1974

66. After 9'O clock at what time between 9 p.m and 10 p.m. will the hour and minute hands of a clock point in opposite direction?

(a) 15 minutes past 9
(b) 16 minutes past 9
(c) $16\frac{4}{11}$ minutes past 9
(d) $17\frac{1}{11}$ minutes past 9

67. Which of the following diagrams represents the relationship among Sun, Moon and Star?



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

68. In a survey of a town, it was found that 65% of the people surveyed watch the news on T.V., 40% read a newspaper and 25% read a newspaper and watch the news on T.V. What per cent of the people surveyed neither watch the news on T.V. nor read a newspaper?

(a) 5% (b) 10%
(c) 20% (d) 15%

DIRECTIONS (Qs. 69-70): In each of the following question, two statements are given followed by conclusion I, II or more. 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 conclusions definitely follows from the given statements.

69. Statements:

1. All students are girls.
2. No girl is dull.

Conclusions:

- I. There are no boys in the class.
- II. No student is dull.
- (a) Only conclusion II follows.
- (b) Both conclusions I and II follow.
- (c) Neither conclusion I nor conclusion II follows.
- (d) Only conclusion I follows.

70. Statements:

1. All teachers are aged.
2. Some women are teachers.

Conclusions:

- I. All aged are women.
- II. Some women are aged.
- (a) Only conclusion I follows.
- (b) Only conclusion II follows.
- (c) Neither conclusion I nor II follows.
- (d) Both conclusions I and II follow.

71. Some equations have been solved on the basis of certain system. Find the correct answer for the unsolved equation on that basis. If $94 + 16 = 42$, $89 + 23 = 78$, then $63 + 45 = ?$

(a) 18 (b) 28
(c) 38 (d) 48

72. If '-' stands for '÷' '+' stands for '×' '÷' for '-' and '×', which one of the following equations is correct?

(a) $30 - 6 + 5 \times 4 \div 2 = 27$
(b) $30 + 6 - 5 \div 4 \times 2 = 30$
(c) $30 \times 6 \div 5 - 4 + 2 = 32$
(d) $30 \div 6 \times 5 + 4 - 2 = 40$

73. In a certain office, $\frac{1}{3}$ of the workers are women,

$\frac{1}{2}$ of the women are married and $\frac{1}{3}$ of the married

women have children. If $\frac{3}{4}$ of the men are married

and $\frac{2}{3}$ of the married men have children, then what part of workers are without children?

- (a) $\frac{5}{18}$ (b) $\frac{4}{9}$
 (c) $\frac{11}{18}$ (d) $\frac{17}{36}$

74. In a family, mother's age is twice that of daughter's age. Father is 10 years older than mother. Brother is 20 years younger than his mother and 5 years older than his sister. What is the age of the father?
 (a) 62 years (b) 60 years
 (c) 58 years (d) 55 years

DIRECTIONS (Qs. 75) : A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as shown in two matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, e.g.

75. 'F' can be represented by 14, 21, etc. 'S' can be represented by 58, 96, etc. Similarly, identify the word TRIP.

MATRIX-I

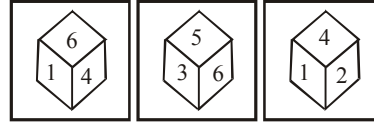
	0	1	2	3	4
0	D	E	F	I	N
1	I	N	D	E	F
2	E	F	I	N	D
3	N	D	E	F	I
4	F	I	N	D	E

MATRIX-II

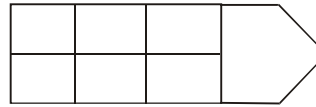
	5	6	7	8	9
5	O	P	R	S	T
6	S	T	O	P	R
7	P	R	S	T	O
8	T	O	P	R	S
9	R	S	T	O	P

- (a) 78, 76, 21, 76 (b) 59, 57, 41, 56
 (c) 85, 88, 33, 89 (d) 66, 69, 40, 69

76. Three position of a dice are given. Find out which number is found opposite the number 2 in given cube.

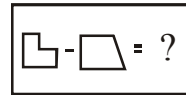


- (a) 6 (b) 5
 (c) 3 (d) 1
 77. How many rectangles are there in the given diagram?

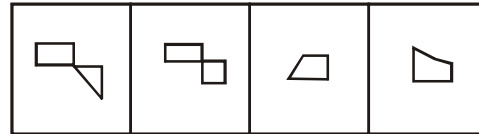


- (a) 4 (b) 7
 (c) 9 (d) 18
 78. In the question, part one of the problem figure is subtracted. Select the option that shows the correct shape after subtraction.

Question Figure:



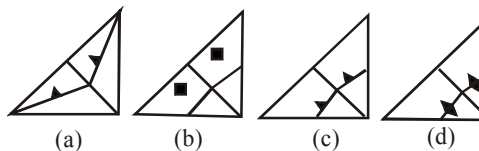
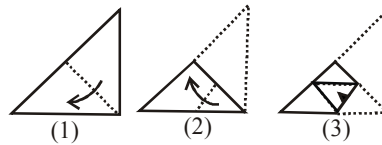
Answer Figure:



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

DIRECTION (Q. 79) : In the following questions, a square sheet of paper is folded along the dotted lines and then cuts are made on it. How would the sheet look when opened? Select the correct figure from the given choices.

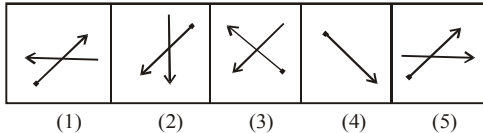
- 79.



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

DIRECTIONS (Q.80) : In each of the following questions there are given five figures. If two of these figures are interchanged in a question, the five figures are arranged in a certain order. You have to select from the four given alternatives the correct answer for each question.

80.



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

GENERAL AWARENESS

81. Soft copy refers to
(a) printed output (b) music sounds
(c) screen output (d) digitizing
82. A program that enables you to perform calculations involving rows and columns of numbers is called a
(a) spreadsheet program
(b) word processor
(c) graphics package
(d) window
83. WWW stands for
(a) World Work Web (b) Wide Work Web
(c) Wide World Web (d) World Wide Web
84. The physical components of a computer system is
(a) Software (b) Hardware
(c) ALU (d) Control Unit
85. Which is a graphical representation of an application?
(a) Windows 95
(b) Windows Explorer
(c) Icon
(d) Taskbar
86. Which of the following provides essential security for a computer network?
(a) Firewall (b) Fire screen
(c) Fireguard (d) Fireline
87. What is liveware?
(a) Misspelled, it must be live wire.
(b) Software embedded into the hardware.
(c) The users working on the computer system.
(d) A computer in perfect working condition.
88. Who won the Gyanpith award for the first time and when was it?
(a) G Sankara Kurup in 1965
(b) G Sankara Kurup in 1971
(c) Tara Shankar Banerjee in 1965
(d) Tara Shankar Banerjee in 1971
89. Aardvark is one of the first word in English dictionary. What does it mean or what is it?
(a) a nocturnal mammal of South Africa
(b) a vulture of South America
(c) Name of an ancient civilization
(d) A devil in the mythology
90. What is silverfish?
(a) A silvery freshwater fish
(b) Leaf of silver oak
(c) A small silvery wingless insect
(d) An American fox with a silvery fur
91. Which of the following is correct?
(a) Osteology is the study of bones
(b) Philately is the study of coins
(c) Limnology is the study of oceans
(d) Ethology is the study of human races.
92. Which of the following is not correct?
(a) Ammeter measures the strength of electric current.
(b) Lactometer measures the relative density of milk.
(c) Rain gauge measures rain fall.
(d) Hygrometer measures sound under water.
93. Which of the following is the unit of distance in navigation?
(a) Knot (b) Nautical mile
(c) Bar (d) Angstrom
94. The only country in the world where home delivery and redirection of postal articles exists:
(a) Brazil (b) England
(c) India (d) Romania
95. Which prefix is often used with scientific terms to indicate that something is the same, equal or constant?
(a) iso (b) mega
(c) meta (d) quasi
96. The study of phenomena at very low temperatures is called
(a) heat transfer (b) morphology
(c) crystallography (d) cryogenics
97. The branch of medical science which is concerned with the study of disease as it affects a community of people is called
(a) epidemiology (b) oncology
(c) paleontology (d) pathology

98. Superconductivity is a material property associated with
 (a) cooling a substance without a phase change
 (b) frictionless liquid flow
 (c) a loss of thermal resistance
 (d) a loss of electrical resistance
99. If a metal can be drawn into wires relatively easily it is called
 (a) malleable (b) ductile
 (c) extractive (d) tactile
100. Cystitis is the infection of which of the following?
 (a) liver (b) urinary bladder
 (c) pancreas (d) lung
101. Which of the following is primarily composed of calcium carbonate?
 (a) Fish scales (b) Shark teeth
 (c) Oyster Shells (d) Whale bones
102. Water flows through a horizontal pipe at a constant volumetric rate. At a location where the cross sectional area decreases, the velocity of the fluid
 (a) increases (b) decreases
 (c) stays the same (d) none of the above
103. Yeast, used in making bread is a
 (a) fungus (b) plant
 (c) bacteria (d) seed
104. A cyclone is an engineering device that is used to
 (a) transport materials
 (b) segregate particles
 (c) control switching devices
 (d) model fractals
105. A gas used as a disinfectant in drinking water is
 (a) Hydrogen (b) Oxygen
 (c) Fluorine (d) Chlorine
106. Which is the longest bone in the human body?
 (a) Fibula (b) Radius
 (c) Stapes (d) Femur
107. The Baglihar Hydroelectric power project in J & K is built across the river.
 (a) Beas (b) Chenab
 (c) Jhelum (d) Sutlej
108. Which among the following is not a gallantry medal?
 (a) Ashok Chakra (b) Arjuna Award
 (c) Param Vir Chakra (d) Shaurya Chakra
109. Which computer was the first to use the magnetic drum for memory?
 (a) IBM - 650 (b) IBM - 7090
 (c) IBM - 701 (d) IBM - 360
110. When a particle and an antiparticle come in contact with each other, they
 (a) repel each other
 (b) annihilate each other
 (c) go undisturbed
 (d) spin about a common axis
111. How do most insects respire?
 (a) Through skin (b) Through gills
 (c) By tracheal system (d) By lungs
112. The drainage pattern developed on folded sedimentary rock is termed as
 (a) Trellis (b) Dendritic
 (c) Radial (d) Deranged
113. One of these trains connects Mumbai and Aurangabad. Name it.
 (a) Sabarmati Express (b) Deviri Express
 (c) Ashram Express (d) Janata Express
114. Which Railway Zone has introduced Biodiesel for train operations?
 (a) Western Railway
 (b) Central Railways
 (c) South Western Railways
 (d) Southern Railways
115. Where is the Indian Railways Institute of Civil Engineering Institute situated?
 (a) Pune (b) Chennai
 (c) Nasik (d) Sikandrabad
116. Name the robot who created a new record by solving the famous rubik's cube puzzle.
 (a) Sub1 (b) Icuber
 (c) Tilted Twister (d) RuBot2
117. What is the Theme of 2016 World Pneumonia Day?
 (a) Keep the Promise, Stop Pneumonia Now
 (b) We Think We Can
 (c) Stop Pneumonia for Better Life
 (d) Promise To Stop Pneumonia
118. Economic Editors' Conference-2016 was organized in which state?
 (a) Haryana (b) New delhi
 (c) Maharashtra (d) Punjab
119. Prime Minister Narendra Modi has inaugurated the first ever International Agro-biodiversity Congress, (IAC) in which city on November 6, 2016?
 (a) Udaipur (b) Chennai
 (c) New Delhi (d) Hyderabad
120. What are the currency notes would no longer be legal tender from midnight 8th November 2016 announced by the PM Narendra Modi?
 (a) ₹ 50 and ₹ 1000 (b) ₹ 500 and ₹ 100
 (c) ₹ 500 and ₹ 1000 (d) ₹ 50 and ₹ 100

Hints & Explanations

1. (d) Distance between two consecutive trees

$$= \frac{225}{25} = 9 \text{ meters.}$$

2. (a) Let the number be x .

$$25x + 324 = 52x$$

$$52x - 25x = 324$$

$$27x = 324$$

$$x = 12$$

3. (b) $(40)^2 - (32)^2 = 1600 - 1024 = 576$

Hence, 24 is the required number.

4. (b) Let rest of the food last for the x days.

$$\therefore 200 \times 4 = (200 - 120) \times x$$

$$200 \times 4 = 80 \times x$$

$$x = \frac{800}{80} = 10 \text{ days.}$$

5. (a) Let the number be x

$$\frac{5(7+x)}{9} - 3 = 12$$

$$\frac{5(7+x)}{9} = 15$$

$$7+x = \frac{15 \times 9}{5} = 27$$

$$x = 27 - 7 = 20$$

6. (d) Let C.P. = ₹ x , then S.P. = ₹ $\frac{4x}{3}$

$$\text{Gain} = ₹ \left(\frac{4x}{3} - x \right) = ₹ \frac{x}{3}$$

$$\therefore \text{Gain \%} \left(\frac{\frac{x}{3}}{x} \times 100 \right) = 33.33\%$$

7. (b) Let the total number of votes enrolled be x .

Then, number of votes cast = 70% of valid votes = 98% of (70% of x)

$$60\% \text{ of } [98\% \text{ of } 70\% \text{ of } x] = 7203$$

$$\frac{70}{100} \times \frac{98}{100} \times \frac{60}{100} \times x = 7203$$

$$x = \frac{7203 \times 100 \times 100 \times 100}{70 \times 98 \times 60}$$

$$x = 17500$$

8. (b) Let CP of bullock = ₹ x

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

$$\text{CP of cart} = (1800 - x)$$

$$P = 30\%$$

$$\text{SP} = \frac{(1800 - x) \times 130}{100}$$

$$\begin{aligned} \text{Total SP} &= \frac{1800 \times \left(100 + \frac{155}{6} \right)}{100} \\ &= ₹ 226500 \end{aligned}$$

$$\therefore \frac{120}{100} + \frac{(1800 - x) \times 130}{100} = 226500$$

$$\therefore x = 750$$

Hence, cost price of bullock = ₹ 750

9. (a) S.I. = $2P - P = P$

$$P = \frac{P \times R \times 16}{100}$$

$$R = \frac{25}{4} \%$$

$$\text{(S.I.) For 8 years} = \frac{P \times \frac{25}{4} \times 8}{100} = \frac{P}{2}$$

$$\text{Amount} = P + \frac{P}{2} = \frac{3P}{2}$$

Amount increased by $1\frac{1}{2}$ times.

10. (d) $A = B - 20\% \text{ of } B = 0.8B$

$$B = C - 15\% \text{ of } C = 0.85C$$

$$A = 0.8 \times 0.85C = 0.68C$$

$$\begin{aligned} \frac{C - A}{A} \times 100 &= \frac{C - 0.68C}{0.68C} \times 100 = \frac{32}{68} \times 100 \\ &= 49.05\% \end{aligned}$$

11. (b) Let A, B and C individually complete the work in x, y and z days respectively.

$$\frac{1}{x} + \frac{1}{y} = \frac{1}{30} \quad \dots(1)$$

$$\frac{1}{y} + \frac{1}{z} = \frac{1}{24} \quad \dots(2)$$

$$\frac{1}{z} + \frac{1}{x} = \frac{1}{20} \quad \dots(3)$$

adding equ (1), (2) and (3)

$$2\left(\frac{1}{x} + \frac{1}{y} + \frac{1}{z}\right) = \frac{1}{8} \Rightarrow \frac{1}{x} + \frac{1}{y} + \frac{1}{z} = \frac{1}{16} \quad \dots(4)$$

A, B and C together complete the work in 16 days.

In 10 days they completed $\frac{10}{16} = \frac{5}{8}$ Part

$$\text{Remaining work} = 1 - \frac{5}{8} = \frac{3}{8}$$

Subtracting equ (2) from (4)

$$\text{we get, } \frac{1}{x} = \frac{1}{48} \text{ or } x = 48$$

A alone can finish the Remaining work in

$$\frac{3}{8} \times 48 = 18 \text{ days}$$

12. (c) Distance covered by man = D Km
Speed of Man in still water = x Kmph

$$\text{Speed of current} = \frac{28}{3} \text{ Kmph}$$

According to question,

$$\frac{D}{\frac{28}{3} - x} = 3 \left(\frac{D}{\frac{28}{3} + x} \right)$$

$$\Rightarrow \frac{28}{3} + x = 3 \left(\frac{28}{3} - x \right) \Rightarrow 4x = 2 \times \frac{28}{3}$$

$$\Rightarrow x = \frac{14}{3} \text{ or } 4\frac{2}{3} \text{ Kmph}$$

13. (b) S.I. = ₹ (956 - 800) = ₹ 156;
P = 800, T = 3 yrs.

$$\therefore R = \left(\frac{100 \times 156}{800 \times 3} \right) \% = 6.5\%$$

$$\text{New rate} = (6.5 + 4) = 10.5\%$$

$$\text{New, S.I} = ₹ \left(\frac{800 \times 10.5 \times 3}{100} \right) = ₹ 252$$

$$\therefore \text{New amount} = 800 + 252 = 1052$$

14. (a) Let the cost of production of a table = ₹ x.

$$x \times \frac{110}{100} \times \frac{115}{100} \times \frac{125}{100} = 1265$$

$$x = \frac{1265 \times 1000000}{110 \times 115 \times 125} = ₹ 800$$

15. (c) Simple interest for Ram =

$$\frac{8000 \times 12 \times 1}{100} = 960$$

Simple interest for Mohan =

$$\frac{9100 \times 10 \times 1}{100} = 910$$

Let 'x' be the years when borrowed amount be equal.

$$8000 + 960x = 9100 + 910x$$

$$50x = 9100 - 8000$$

$$50x = 1100$$

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

16. (c) $8787 \div 343 \times \sqrt{50} = ?$

$$\Rightarrow 25 \times 7 = ?$$

$$\therefore ? = 175 \approx 180$$

17. (a) Required average age

$$= \left(\frac{15 \times 36 + 12 \times 16}{36 + 12} \right) \text{ years}$$

$$= \left(\frac{540 + 192}{48} \right) \text{ years} = \left(\frac{732}{48} \right) \text{ years}$$

$$= 15.25 \text{ years.}$$

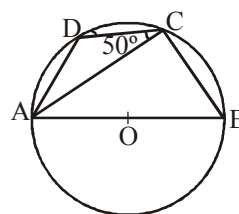
18. (c) Let the radius of the base are 5k and 12k respectively

$$\therefore \frac{\text{Total surface area of the cylinder}}{\text{Total surface area of the cone}}$$

$$= \frac{2\pi r \times h + 2\pi r^2}{\pi r \sqrt{r^2 + h^2} + \pi r^2}$$

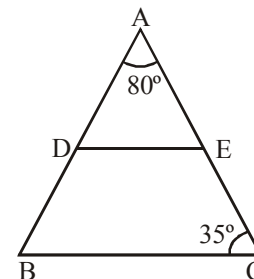
- $$= \frac{2h+2r}{\sqrt{r^2+h^2}+r} + \frac{24k+10k}{\sqrt{25k^2+144k^2}+5k}$$
- $$= \frac{34k}{13k+5k} = \frac{34k}{18k} = \frac{17}{9}$$
19. (c) Sum of roots $= 2 - 15 = -13$
 Product of roots $= 2 \times (-15) = -30$
 Required equation
 $= x^2 - x(\text{sum of roots}) + \text{product of roots} = 0$
 $\Rightarrow x^2 + 13x - 30 = 0$
20. (c) Roots of a quadratic equation
 $ax^2 + bx + c = 0$ are real if $b^2 - 4ac \geq 0$
 Let us work with options as follows.
 Option (a): $3x^2 + 4x + 5 = 0$
 $b^2 - 4ac = (4)^2 - 4(3)(5) = -44 < 0$.
 Thus, roots not real.
 Option (b): $x^2 + x + 4 = 0$
 $b^2 - 4ac = (1)^2 - 4(1)(4) = 1 - 16 = -15 < 0$
 Thus, root not real.
 Option (c): $(x-1)(2x-5) = 0 \Rightarrow 2x^2 - 7x + 5 = 0$
 $b^2 - 4ac = (-7)^2 - 4 \times 2 \times 5 = 49 - 40 = 9 > 0$
 thus roots are real.
 or $x = 1$ and $x = \frac{5}{2}$ are real roots.
 Option (d): $2x^2 - 3x + 4 = 0$
 $b^2 - 4ac = (-3)^2 - 4(2)(4) = 9 - 32 = -23$
 Thus, roots not real.
 Hence, option (c) is correct.
21. (b) $\frac{3-5x}{x} + \frac{3-5y}{y} + \frac{3-5z}{z} = 0$
 $\Rightarrow \frac{3}{x} - \frac{5x}{x} + \frac{3}{y} - \frac{5y}{y} + \frac{3}{z} - \frac{5z}{z} = 0$
 $\Rightarrow \frac{3}{x} + \frac{3}{y} + \frac{3}{z} - 15 = 0 \Rightarrow 3\left(\frac{1}{x} + \frac{1}{y} + \frac{1}{z}\right) = 15$
 $\Rightarrow \frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 5$

22. (c) $a + b + c = 2s$
 $c = 2s - a - b = (s-a) - (s-b)$
 $\therefore (s-a)^3 + (s-b)^3 + 3(s-a)(s-b)c$
 $= (s-a)^3 + (s-b)^3 + 3(s-a)(s-b)[(s-a) + (s-b)]$
 (Put the value of c)
 $= [(s-a) + (s-b)]^3 = (2s-a-b)^3$
 $(a+b+c-a-b)^3 = c^3$ (Put the value of 2s)
23. (a) Since, the given lines are parallel, we have
 $\frac{1}{k} = \frac{2}{4}$
 $\therefore k = 2$
24. (d) Let d be the common difference; then 60th term
 $= 8 + 59d = 185$
 $\Rightarrow 59d = 177 \Rightarrow d = 3 \Rightarrow 31\text{st term} = 8 + 30 \times 3 = 98$.
25. (b) In $\triangle ABC$, $\angle ACB = 90^\circ$



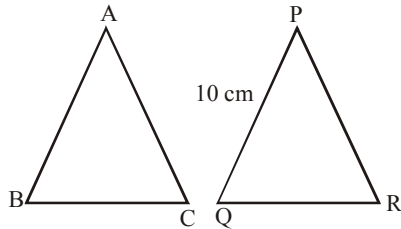
$\therefore \angle ACB + \angle ACD$
 $\Rightarrow 90^\circ + 50^\circ = 140^\circ$
 As angle made by triangle in semicircle is equal to 90° .
 $\therefore$ In quad. ABCD $\angle BAD + \angle BCD = 180^\circ$
 angle of (opp. pair of quad is equal to 180°)
 $\angle BAD = 180^\circ - 140^\circ = 40^\circ$

26. (b) DE is parallel to BC
 So $\angle AED = \angle C = 35^\circ$



Since $\angle A = 80^\circ$
 Then $\angle ADE = 65^\circ$
 $\angle EDB$ is supplement to $\angle ADE$.
 So, $\angle EDB = 180^\circ - \angle ADE$
 $= 180^\circ - 65^\circ = 115^\circ$

27. (d)



ΔABC and ΔPQR are similar.

$$\frac{AB}{PQ} = \frac{\text{Perimeter of } \Delta ABC}{\text{Perimeter of } \Delta PQR} \Rightarrow \frac{AB}{PQ} = \frac{36}{24}$$

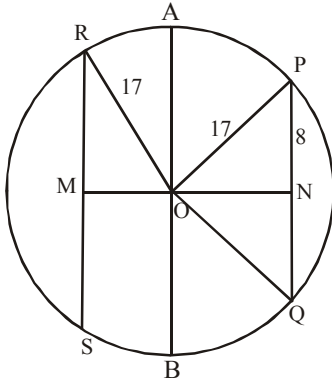
$$\text{or } AB = \frac{36}{24} \times 10 = 15$$

28. (a) For the two similar triangles, we have

$$\frac{h_1^2}{h_2^2} = \frac{\text{Area of 1st } \Delta}{\text{Area of 2nd } \Delta} = \frac{9}{16}$$

$$\Rightarrow h_1 : h_2 = 3 : 4$$

29. (c) Let PQ and RS be two parallel chords of the circle on the opposite sides of the diameter AB and PQ = 16 cm



Now, PN = 8 (Since ON is the perpendicular bisector)

In ΔPON ,

$$ON^2 = OP^2 - PN^2$$

$$= (17)^2 - (8)^2 = 289 - 64 = 225$$

$$\text{or } ON = 15 \Rightarrow \therefore OM = 23 - 15 = 8$$

In ΔORM ,

$$RM^2 = OR^2 - OM^2$$

$$= 17^2 - 8^2 = 289 - 64 = 225$$

$$\text{or } RM = 15 \Rightarrow RS = 15 \times 2 = 30 \text{ cm}$$

30. (b) Let the required numbers be $15x$ and $11x$. Then their HCF is x . So, $x = 13$.
 $\therefore$ The numbers are (15×13) and (11×13) i.e., 195 and 14331. (b) Downstream speed = $15 + 5 = 20$ km/h.
 $\therefore$ Required distance = $20 \times \frac{24}{60} = 8$ km.32. (c) $x^2 + y^2 + z^2 = r^2 \sin^2 \theta \cos^2 \phi + r^2 \sin^2 \theta \sin^2 \phi + r^2 \cos^2 \theta$
 $= r^2 \sin^2 \theta (\cos^2 \phi + \sin^2 \phi) + r^2 \cos^2 \theta$
 $= r^2 \sin^2 \theta + r^2 \cos^2 \theta$
 $= r^2 (\sin^2 \theta + \cos^2 \theta) = r^2$ 33. (c) $\cot \theta = \frac{7}{24}$

$$\operatorname{cosec}^2 \theta = 1 + \cot^2 \theta = 1 + \frac{49}{576}$$

$$= \frac{625}{576} = \left(\frac{25}{24}\right)^2$$

$$\therefore \operatorname{cosec}^2 \theta = \pm \frac{25}{24}$$

$$\therefore \sin \theta = \pm \frac{24}{25}$$

$$\cos^2 \theta = 1 - \sin^2 \theta = 1 - \frac{576}{625} = \frac{49}{625}$$

$$\cos \theta = \pm \frac{7}{25}$$

$$\text{as } \pi < \theta < \frac{3\pi}{2}$$

$\therefore \sin \theta$ and $\cos \theta$ both are negative.

$$\therefore \sin \theta = \frac{-24}{25}, \cos \theta = \frac{-7}{25}$$

$$\therefore \cos \theta - \sin \theta = \frac{-7}{25} + \frac{24}{25} = \frac{17}{25}$$

34. (c) $x + y = z$
Now, $\cos^2 x + \cos^2 y + \cos^2 z$
 $= 1 + (\cos^2 x - \sin^2 y) + \cos^2 z$
 $= 1 + \cos(x + y) \cdot \cos(x - y) + \cos^2 z$
 $= 1 + \cos z \cos(x - y) + \cos^2 z = 1 + \cos z [\cos(x - y) + \cos z]$
 $= 1 + \cos z \cos[(x - y) + \cos(x + y)]$
 $= 1 + \cos z \left[2 \cos \frac{(x - y + x + y)}{2} \cdot \cos \frac{(x - y - x - y)}{2} \right]$
 $= 1 + 2 \cos z \cdot \cos x \cdot \cos y$
 $= 1 + 2 \cos x \cdot \cos y \cdot \cos z$

35. (b) $\sin^2 x + \sin x = 1$
 $\Rightarrow \sin x = 1 - \sin^2 x = \cos^2 x$
 $= \cos^6 x [\cos^6 x + 3 \cos^4 x + 3 \cos^2 x + 1] - 1$
 $= \sin^3 x [\sin^3 x + 3 \sin^2 x + 3 \sin x + 1] - 1$
 $= \sin^3 x [\sin x + 1]^3 - 1 = [\sin x (\sin x + 1)]^3 - 1$
 $= [\sin^2 x + \sin x]^3 - 1 = 1 - 1 = 0$

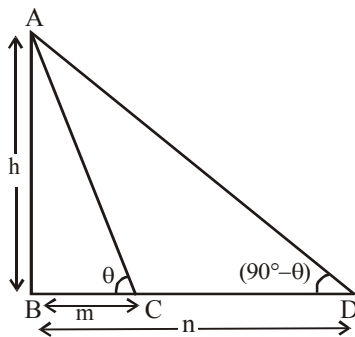
36. (b) $3 \sin \theta + 5 \cos \theta = 4$ and $3 \cos \theta - 5 \sin \theta = k$ (say)

On squaring and adding above equations, we get

$$9 + 25 = 16 + k^2$$

$$\Rightarrow k^2 = 18 \Rightarrow k = \pm 3\sqrt{2}$$

37. (a) Let the height of the tower be h and angles of elevation be θ and $(90^\circ - \theta)$.



Now, $\tan \theta = \frac{h}{m}$... (i)

and $\tan (90^\circ - \theta) = \frac{h}{n}$ or $\cot \theta = \frac{h}{n}$... (ii)

From (i) and (ii), we have

$$\tan \theta \cdot \cot \theta = \frac{h}{m} \times \frac{h}{n} \Rightarrow h^2 = mn \Rightarrow h = \sqrt{mn}$$

38. (c) $\text{Reqd \% decrease} = \frac{4-3}{4} \times 100 = 25\%$

39. (b) $\text{Reqd \%} = \frac{11}{7} \times 100 \approx 157\%$

40. (d) From the graph's slope, it is obvious that the maximum % increase is in the year 1996, i.e., 166.67%.

41. (a) Second denotes the class to which the first belongs.

42. (a) Steel is an alloy, and zinc is a metal.

43. (a) : All others are different modes of travel.

44. (b) : All except Autorickshaw have four wheels.

45. (c) $W \xrightarrow{-3} T \xrightarrow{-4} P \xrightarrow{-3} M \xrightarrow{-4} I$

$$\xrightarrow{-3} F \xrightarrow{-4} B \xrightarrow{-3} Y \xrightarrow{-4} U$$

46. (d)

$$A \xrightarrow{+2} C \xrightarrow{+23} Z \xrightarrow{-2} X \xrightarrow{-18} F \xrightarrow{+1} G$$

$$C \xrightarrow{+3} F \xrightarrow{+18} X \xrightarrow{-3} U \xrightarrow{-3} R \xrightarrow{-9} I$$

$$C \xrightarrow{+3} F \xrightarrow{+3} I \xrightarrow{+12} U \xrightarrow{-3} R \xrightarrow{+6} X$$

$$C \xrightarrow{+21} X \xrightarrow{-18} F \xrightarrow{+15} U \xrightarrow{-12} I \xrightarrow{+9} R$$

47. (c) $(5)^3 + 1 = 125 + 1 = 126$

$$(6)^3 + 1 = 216 + 1 = 217$$

48. (a) $(21 + 1) - 2 = 22 - 2 = 20$

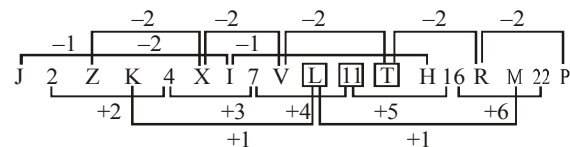
$$(22 + 2) - 1 = 24 - 1 = 23$$

$$(? + 5) - 2 = 43$$

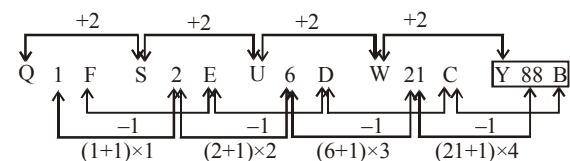
$$\Rightarrow ? = (43 + 2) - 5$$

$$\Rightarrow ? = 45 - 5 = 40$$

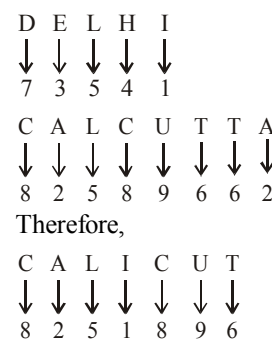
49. (d) The sequence is as follows :



50. (c)



51. (c)

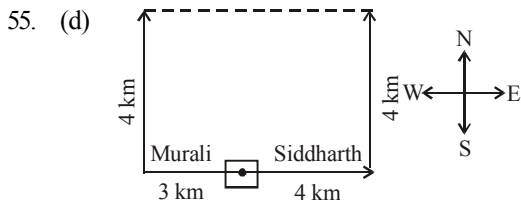


Therefore,

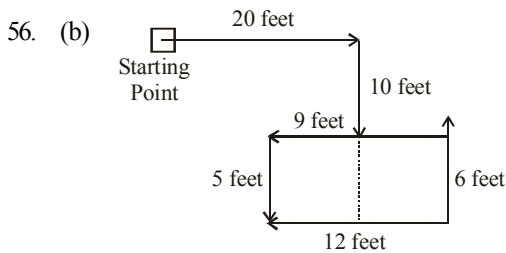


52. (a)
 53. (c) The only son of grandfather (paternal) of Vikas means father of Vikas. Therefore, the girl is sister of Vikas.
 54. (a) O is the husband of P. M is the son of P.

Therefore, M is the son of O.

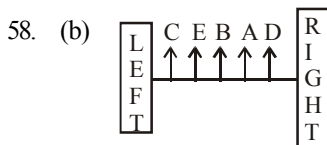
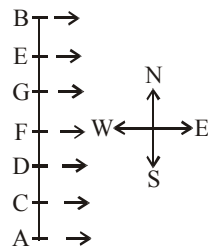


Required distance = $3 + 4 = 7$ km



The rat is facing towards north.

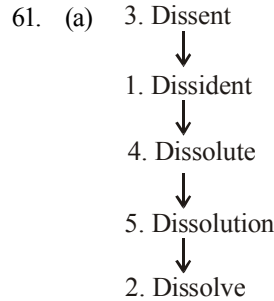
57. (b) Sitting arrangement of A, B, C, D, E, F and G:



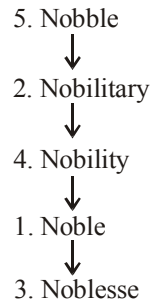
B is in the middle.

59. (c) There is no 'C' letter in the given word.
 There is no 'L' letter in the given word.
 There is no 'V' letter in the given word.

60. (c) There is no 'C' letter in the keyword.



62. (c) Arrangement of words as per dictionary:



63. (d) According to Meena, 19th, 20th or 21st
 ... (1)
 According to her brother, 21st, 22nd or 23rd
 ... (2)

Combining the two, we get 21st.

64. (d) According to Nitin, Nidhi's birthday falls on Wed or Thu
 ... (i)
 According to Derek, Nidhi's birthday falls on Thu or Fri
 ... (ii)

65. (b) 5th January 1965 $\Rightarrow$ Tuesday
 5th January 1966 $\Rightarrow$ Wednesday
 5th January 1967 $\Rightarrow$ Thursday
 5th January 1968 $\Rightarrow$ Friday
 5th January 1969 $\Rightarrow$ Sunday
 Since, 1968 is a Leap Year.
 5th January 1970 $\Rightarrow$ Monday
 5th January 1971 $\Rightarrow$ Tuesday

66. (c) At 9'O clock, the minute hand is $9 \times 5 = 45$ minute – spaces behind the hour hand.
 Therefore, the minute hand will have to gain $45 - 30 = 10$ minute space over the hour hand.
 $\therefore$ Gain of 55 minute spaces equals 60 minutes.

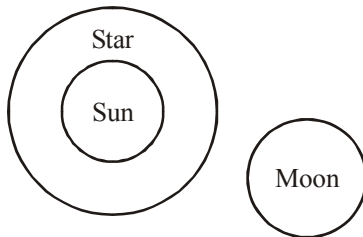
$\therefore$ Gain of 15 minute spaces equals

$$= \frac{60}{55} \times 15 = \frac{180}{11} = 16 \frac{4}{11}$$

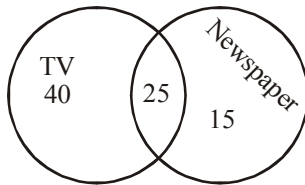
Therefore, hour and minute hands of a clock point in opposite direction after 9'O clock

at $16 \frac{4}{11}$ minutes past 9.

67. (d) Sun is a star. Moon is a satellite.



68. (c)



Required percentage
 $= 100 - (40 + 25 + 15) = 20\%$

69. (b) All students are girls.

No girl is dull

$A + E \Rightarrow E$ -type of Conclusion

"No student is dull"

This is Conclusion II.

All students, without exception are girls.
 Therefore, there are no boys who are students.

70. (b) First Premise is Universal Affirmative (A-type).
 Second Premise is Particular Affirmative (I-type).

Some women are teachers.

All teachers are aged.

$I + A \Rightarrow I$ -type of Conclusion

"Some women are aged"

This is Conclusion II.

71. (c) $9 \times 4 + 1 \times 6 = 36 + 6 = 42$
 $8 \times 9 + 2 \times 3 = 72 + 6 = 78$

Similarly

$$6 \times 3 + 4 \times 5 = 18 + 20 = 38$$

72. (a) $30 - 6 + 5 \times 4 \div 2 = 27$

$$\Rightarrow 30 \div 6 \times 5 + 4 - 2 = 27$$

$$\Rightarrow 25 + 4 - 2 = 27$$

$$30 + 6 - 5 \div 4 \times 2 = 30$$

$$\Rightarrow 30 \times 6 \div 5 - 4 + 2 = 30$$

$$\Rightarrow 36 - 4 + 2 \neq 30$$

$$30 \times 6 \div 5 - 4 + 2 = 32$$

$$\Rightarrow 30 + 6 - 5 \div 4 \times 2 \neq 32$$

73. (c) Suppose total number of workers in the office = x

$$\text{Number of woman workers} = \frac{x}{3}$$

$\therefore$ Number of man workers =

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

Number of married woman workers

$$= \frac{x}{3} \times \frac{1}{2} = \frac{x}{6}$$

Number of married woman workers who have children

$$= \frac{x}{6} \times \frac{1}{3} = \frac{x}{18}$$

Number of married man workers

$$= \frac{2x}{3} \times \frac{3}{4} = \frac{x}{2}$$

Number of married man workers who have children

$$= \frac{x}{2} \times \frac{2}{3} = \frac{x}{3}$$

Number of workers who have children

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

$$= \frac{6x + x}{18} = \frac{7x}{18}$$

Number of workers without children

$$= x - \frac{7x}{18} = \frac{18x - 7x}{18} = \frac{11}{18}x$$

74. (b) Suppose the age of daughter is x years.

Age of brother = $x + 5$ years

Age of mother = $2x$ years

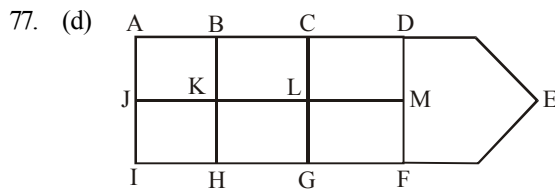
$$\therefore 2x - 20 = x + 5$$

$$\Rightarrow 2x - x = 5 + 20$$

$x = 25$ years
 Age of mother $= 2x = 2 \times 25$
 $= 50$ years
 Age of father $= 50 + 10$
 $= 60$ years
 75. (b) $T \Rightarrow 59, 66, 78, 85, 97$
 $R \Rightarrow 57, 69, 76, 88, 95$
 $I \Rightarrow 03, 10, 22, 34, 41$
 $P \Rightarrow 56, 68, 75, 87, 99$

Option	T	R	I	P
(a)	78	76	21	76
(b)	59	57	41	56
(c)	85	88	33	89
(d)	66	69	40	69

76. (a) The number 1, 3, 4, and 5 are on the adjacent faces of number 6. Therefore, 2 lies opposite 6.



The rectangles are:
 ABKJ; JKHI; BCLK;
 KLGH; CDML; LMFG;
 ACGI; ACLJ; JLGI;
 BDFH; BDMK; KMFH;
 ADFI; ADMJ; JMFH
 ABHI; BCGH and CDFG are squares
 We know that every square is a rectangle .
 But its reverse is not always true.

78. (c)
 79. (d)
 80. (c) By interchanging fig 2 and 3 movement of the two arrows become sequential. Arrow with a dot moves anticlockwise through 90° and other arrow moves anticlockwise through 45° .
 81. (c) 82. (a) 83. (d)
 84. (b) 85. (c) 86. (a)

87. (b) 88. (a) 89. (a)
 90. (c) 91. (a) 92. (d)
 93. (b) 94. (c) 95. (a)
 96. (d) 97. (a) 98. (c)
 99. (b) 100. (b) 101. (c)
 102. (a) 103. (a) 104. (b)
 105. (d)
 106. (d) The head of the femur articulates with the acetabulum in the pelvic bone forming the hip joint, while the distal part of the femur articulates with the tibia and patella forming the knee joint. By most measures the femur is the strongest bone in the body. The femur is also the longest bone in the body.

107. (b) Baglihar Dam, also known as Baglihar Hydroelectric Power Project, is a run-of-the-river power project on the Chenab River in the southern Doda district of the Indian state of Jammu and Kashmir. The project is estimated to cost USD \$1 billion. The first phase of the Baglihar Dam was completed in 2004. With the second phase completed on 10 October 2008, Prime Minister Manmohan Singh of India dedicated the 900-MW Baglihar hydroelectric power project to the nation.

108. (b) The Arjuna Awards were instituted in 1961 by the government of India to recognize outstanding achievement in National sports. The award carries a cash prize of ₹ 500,000, a bronze statuette of Arjuna and a scroll.

109. (a) 110. (b) 111. (c)
 112. (b) A dendritic drainage pattern refers to the pattern formed by the streams, rivers, and lakes in a particular drainage basin. It usually looks like the branching pattern of tree roots and it mainly develops in regions underlain by homogeneous material.
 113. (b) Deviri Express
 114. (c)
 115. (a) Pune
 116. (a) Sub1
 117. (a) Keep the Promise, Stop Pneumonia Now
 118. (b) New Delhi
 119. (c) New Delhi
 120. (c) ₹ 500 and ₹ 1000