4 Practice Set

ARITHMETIC

1. What is the value of

$\sqrt{7.84}+\sqrt{0.0784}+\sqrt{0.000784}+\sqrt{0.00000784}$?

(a) 3.08 (b) 3.108
(c) 3.1008 (d) 3.1108

2. A three-digit number is divisible by 11 and has its digit in the unit's place equal to 1. The number is 297 more than the number obtained by reversing the digits. What is the number ?

(a) 121 (b) 231
(c) 561 (d) 451

3. What is 40% of 50% of $\frac{3}{4}$ of 3200 ?

(a) 480 (b) 560
(c) 420 (d) 600

4. A bag contains 5 white and 7 black balls and a man draws 4 balls at random. The odds against these being all black is :

(a) 7 : 92 (b) 92 : 7
(c) 92 : 99 (d) 99 : 92

5. A trader marked a watch 40% above the cost price and then gave a discount of 10%. He made a net profit of ₹ 468 after paying a tax of 10% on the gross profit. What is the cost price of the watch?

(a) ₹ 1200 (b) ₹ 1800
(c) ₹ 2000 (d) ₹ 2340

6. 42 men take 25 days to dig a pond. If the pond would have to be dug in 14 days, then what is the number of men to be employed?

(a) 67 (b) 75
(c) 81 (d) 84

7. If the diameter of a wire is decreased by 10%, by how much per cent (approximately) will the length be increased to keep the volume constant?

(a) 5% (b) 17%
(c) 20% (d) 23%

8. From a series of 50 observations, an observation with value 45 is dropped but the mean remains the same. What was the mean of 50 observations?

(a) 50 (b) 49
(c) 45 (d) 40

9. Mr Duggal invested ₹20,000 with rate of interest @ 20 pcpa. The interest was compounded half-yearly for the first one year and in the next year it was compounded yearly. What will be the total interest earned at the end of two years?

(a) ₹ 8,800 (b) ₹ 9,040
(c) ₹ 8,040 (d) ₹ 9,800

10. If the area of a circle, inscribed in an equilateral triangle is 4π cm^2, then what is the area of the triangle?

(a) $12\sqrt{3}$ cm^2 (b) $9\sqrt{3}$ cm^2
(c) $8\sqrt{3}$ cm^2 (d) 18 cm^2

11. In a right angled ΔABC, $\angle C = 90^\circ$ and CD is perpendicular to AB. If $AB \times CD = CA \times CB$, then $\frac{1}{CD^2}$ is equal to

(a) $\frac{1}{AB^2}-\frac{1}{CA^2}$ (b) $\frac{1}{AB^2}-\frac{1}{CB^2}$
(c) $\frac{1}{BC^2}-\frac{1}{CA^2}$ (d) $\frac{1}{BC^2}-\frac{1}{CA^2}$, if $CA>CB$

12. E is the mid-point of the median AD of a ΔABC, *If* BE produced meets the side AC at F, then CF is equal to

(a) $\frac{AC}{3}$ (b) $\frac{2AC}{3}$
(c) $\frac{AC}{2}$ (d) None of these

13. If three vertices of a regular hexagon are chosen at random, then the chance that they form an equilateral triangle is :

(a) $\frac{1}{3}$ (b) $\frac{1}{5}$
(c) $\frac{1}{10}$ (d) $\frac{1}{2}$

14. A ladder of 17 ft length reaches a window which is 15 ft above the ground on one side of the street. Keeping its foot at the same point the ladder is turned to the other side of the street and now it reaches a window 8 ft high. What is the width of the street?

(a) 23 ft (b) 15 ft
(c) 25 ft (d) 30 ft

15. What is the value of

$$\frac{1}{1+\sqrt{2}}+\frac{1}{\sqrt{2}+\sqrt{3}}+...+\frac{1}{\sqrt{15}+\sqrt{16}}\ ?$$

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

16. If $x+\left(\frac{1}{x}\right)=p$, then what is $x^6+\left(\frac{1}{x^6}\right)$ equal to?

(a) p^6+6p (b) p^6-6p
(c) $p^6+6p^4+9p^2+2$ (d) $p^6-6p^4+9p^2-2$

17. If $(x+y+z=0)$, then what is $(x+y)(y+z)(z+x)$ equal to?

(a) $-xyz$
(b) $x^2+y^2+z^3$
(c) $x^3+y^3+z^3+3xyz$
(d) xyz

18. If $2x^2\cos 60^\circ-4\cot^2 45^\circ-2\tan 60^\circ=0$, then what is the value of x?

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

19. If $\sin\theta+\text{cosec}\,\theta=2$, then what is the value of $\sin^4\theta+\cos^4\theta$?

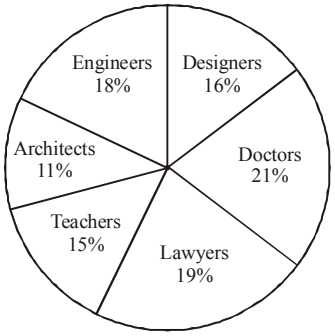
(a) 2 (b) 2^2
(c) 2^3 (d) 1

20. What is the expression :
$(\sin^4 x-\cos^4 x+1)\,\text{cosec}^2 x$ equal to?

(a) 1 (b) 2
(c) 0 (d) –1

DIRECTIONS (Q. 21-23) : *Study the following Pie-chart carefully and answer the questions given below.*

Survey conducted on 10500 people to find out various Professionals in the town and percentage of Female Professionals amongst them
Various Professionals = 10500



Percentage of Female Professionals

Doctors	20%
Engineers	60%
Architects	40%
Teachers	80%
Lawyers	40%
Designers	35%

21. What is the difference between the total number of male and female professionals in the town ?

(a) 1284 (b) 1134
(c) 1054 (d) 1164

22. Female Doctors are what per cent of the female Teachers in the town?

(a) 42 (b) 28
(c) 15 (d) 35

23. What is the ratio of the number of male Architects to the number of male Teachers in the town ?

(a) 11 : 5 (b) 3 : 2
(c) 5 : 11 (d) 2 : 3

24. The ratio of the length and the breadth of a rectangle is 4 : 3 and the area of the rectangle is 1728 sq cm. What is the ratio of the breadth and the area of the rectangle ?

(a) 1 : 38 (b) 1 : 24 (c) 1 : 42 (d) 1 : 48

25. A person has four iron bars whose lengths are 24 m, 36 m, 48 m and 72 m respectively. This person wants to cut pieces of same length from each of four bars. What is the least number of total pieces if he is to cut without any wastage?

(a) 10 (b) 15 (c) 20 (d) 25

26. The sum of first 20 odd natural numbers is equal to :

(a) 210 (b) 300 (c) 400 (d) 420

27. $\sqrt{24^4}+224=?\times 20^2$

(a) 20 (b) 4 (c) 2 (d) 16

28. The HCF and LCM of two numbers are 44 and 264 respectively. If the first number is devided by 2, the quotient is 44. What is the other number?

(a) 108 (b) 44
(c) 124 (d) 132

29. In a class, there are 32 boys and 28 girls. The average age of the boys in the class is 14 yr and the average age of the girls in the class is 13 yr. What is the average age of the whole class ? (Rounded off to two digits after decimal)

(a) 13.50 (b) 13.53
(c) 12.51 (d) 13.42

30. A man sold two watches for Rs 1000 each. On one he gains 25% and on the other 20% loss. Find how much % does he gain or lose in the whole transaction?

(a) $\frac{100}{41}$% loss

(b) $\frac{100}{41}$% gain

(c) No gain, no loss

(d) Cannot be determined

31. Sarita started a boutique investing an amount of ₹ 50,000. Six months later Neeta joined her with an amount of ₹ 80,000. At the end of one year they earned a profit of ₹ 18, 000. What is Sarita's share in the profit?

(a) ₹ 9000 (b) ₹ 8000

(c) ₹ 12000 (d) ₹ 10000

32. A man can do a piece of work in 10 days but with the assistance of his son, the work is done in 8 days. In how many days, his son alone can do the same piece of work?

(a) 15 days (b) 22 days

(c) 30 days (d) 40 days

33. A man is walking at a speed of 10 km per hour. After every kilometre, he takes rest for 5 minutes. How much time will he take to cover a distance of 5 kilometres?

(a) 48 min. (b) 50 min.

(c) 45 min. (d) 55 min.

34. A cylindrical bucket of height 36 cm and radius 21 cm is filled with sand. The bucket is emptied on the ground and a conical heap of sand is formed, the height of the heap being 12 cm. The radius of the heap at the base is :

(a) 63 cm (b) 53 cm

(c) 56 cm (d) 66 cm

35. By selling 66 metres of cloth a man loses the selling price of 22 metres. Find the loss per cent.

(a) 20% (b) 25%

(c) 30% (d) 35%

36. 2 men and 3 boys can do a piece of work in 10 days while 3 men and 2 boys can do the same work in 8 days. In how many days can 2 men and 1 boy to the work ?

(a) $12\frac{1}{2}$ days (b) $11\frac{1}{2}$ days

(c) $15\frac{1}{2}$ days (d) $13\frac{1}{2}$ days

37. A car covers 420 km with a constant speed. If its speed were 10 km/h more it would have taken one hour less to cover the distance. Find the speed of the car.

(a) 60 km/h (b) 55 km/h

(c) 50 km/h (d) 48 km/h

38. If $\frac{x}{2y} \quad \frac{6}{7}$, the value of $\frac{x-y}{x} \quad \frac{14}{19}$ is :

(a) $\frac{13}{19}$ (b) $\frac{15}{19}$

(c) 1 (d) $1\frac{1}{19}$

39. If for two real constasnts a and b, the expression $ax^3 + 3x^2 - 8x + b$ is exactly divisible by $(x + 2)$ and $(x - 2)$, then

(a) a = a, b = 12 (b) a = 12, b = 2

(c) a = 2, b = – 12 (d) a = – 2, b = 12

40. The value of $(1 + \sec 20° + \cot 70°)(1 - \text{cosec } 20° + \tan 70°)$ is

(a) –1 (b) 2

(c) 1 (d) 0

GENERAL INTELLIGENCE & REASONING

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

41. ACE : BDF : : GIK : ?

(a) HJL (b) AXP

(c) CFG (d) GFC

42. hive : bee :: eyrie : ?

(a) Pigeon (b) Sparrow

(c) Parrot (d) Eagle

DIRECTIONS (Qs. 43-44) : *In questions, find the odd word/letters/number pair from the given alternatives.*

43. (a) vwqp (b) yxmn

(c) gfkl (d) cbrs

44. (a) (324,18) (b) (441, 72)

(c) (117, 81) (d) (186,14)

45. Which one of the given responses would be a meaningful order of the following words?

1. Sowing 2. Tilling

3. Reaping 4. Weeding

(a) 3, 1, 2, 4 (b) 2, 1, 4, 3

(c) 1, 2, 4, 3 (d) 1, 3, 2, 4

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

46. –1, 0, ?, 8, 15, 24

(a) 4 (b) 3

(c) 2 (d) 1

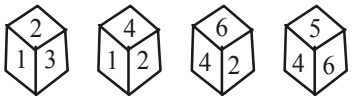
47. 24, 35, 20, 31, 16, 27, __, __
(a) 9, 9 (b) 5, 30
(c) 8, 25 (d) 12, 23

48. In a language FIFTY is written as CACTY, CAR as POL, TAR as TOL, how can TARIFF be written in that language?
(a) TOEFEL (b) TOEFDD
(c) TOLADD (d) TOLACC

49. Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?
rtx _ sx _ z _ txy _ _ yz
(a) y y r x s (b) y y s x r
(c) y y r s x (d) y y x r s

50. A is in the east of B which is in the North of C. If D is in the South of C., then in which direction of A, is D.
(a) North – West (b) South
(c) East – East (d) South–West

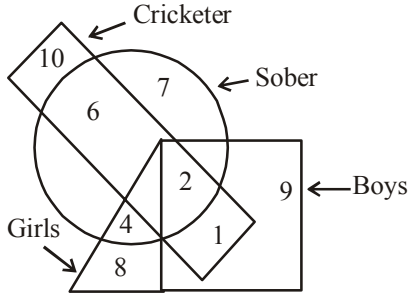
51. Four positions of a dice are given below, Identify the number at the bottom then top is 6.
Question figures



(a) 1 (b) 3
(c) 4 (d) 5

52. Introducing a boy, a girl said, "He is the son of the daughter of the father of my uncle." How is the boy related to the girl?
(a) Brother (b) Nephew
(c) Uncle (d) Son-in-law

53. In the following figure, the boys who are cricketer and sober are indicated by which number ?

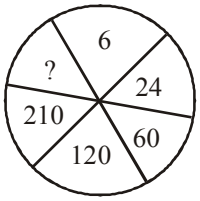


(a) 6 (b) 5
(c) 4 (d) 2

54. Some equations are solved on the basis of a certain system. Find the correct answer for the unsolved equation on that basis.
5 * 6 = 35, 8 * 4 = 28, 6 * 8 = ?
(a) 46 (b) 34
(c) 23 (d) 38

DIRECTIONS (55-56) : *In each of the following questions, select the missing number from the given responses.*

55.



(a) 330 (b) 336
(c) 428 (d) 420

56.

12	15	16
03	04	05
04	06	04
40	66	?

(a) 104 (b) 320
(c) 25 (d) 84

57. Six girls are standing in such a way that they form a circle, facing the centre. Subbu is to the left of Pappu, Revathi is between Subbu and Nisha, Aruna is between Pappu and Keertana. Who is to the left of Pappu ?
(a) Keertana (b) Nisha
(c) Aruna (d) Subbu

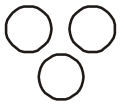
DIRECTIONS (Qs. 58) : *In the following question, two statements are given followed by four conclusions I, II, III and IV. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any follow from the given statements.*

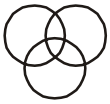
58. Statements :
I. Some cats are dogs.
II. No dog is a toy.
Conclusions :
I. Some dogs are cats.
II. Some toys are cats.
III. Some cats are not toys.
IV. All toys are cats.
(a) Only Conclusions I and either II or III.
(b) Only Conclusions II and III follow
(c) Only Conclusions I and II follow
(d) Only Conclusion I follows

59. At present, the ratio between the ages of Arun and Deepak is 4 : 3. After 6 years, Arun's age will be 26 years. What is the age of Deepak at present?
(a) 15 years (b) 19 years
(c) 24 years (d) 12 years

DIRECTION (Qs. 60): *In Question which one of the following diagrams represents the correct relationship among :*

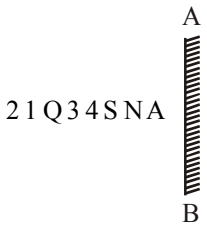
60. Lion, Fox and Carnivorous

(a)  (b) 

(c)  (d) 

DIRECTIONS (61-62) : *In each of the following questions, if a mirror is placed on the line AB, then which of the answer figures is the right image of the given figure?*

61. Question Figure:

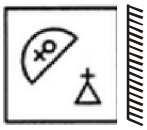


Answer Figures:

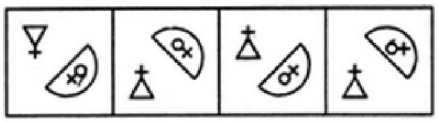
(a)  (b)

(c) (d) AN S4 ε Q12

62. Question Figure:

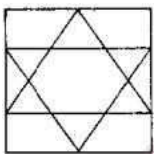


Answer Figures:



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

63. How many triangles are there in the following square ?

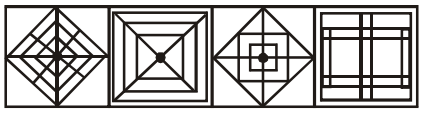


(a) 7 (b) 12

(c) 6 (d) 9

64. Find out the alternative figure which contains figure (X) as its part.

(X)



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

DIRECTION (Qs. 65) : *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 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., 'E' can be represented by 01, 13 etc., and 'L' can be represented by 56, 77 etc. Similarly, you have to identify the set for the word given in each question.*

65. **Matrix I**

	0	1	2	3	4
0	Z	M	G	R	C
1	J	L	D	B	G
2	M	B	C	M	H
3	R	L	N	G	I
4	B	D	M	R	J

Matrix I

	5	6	7	8	9
5	X	K	T	E	S
6	Q	A	U	X	P
7	U	V	O	W	E
8	T	Y	A	F	U
9	O	O	E	V	A

LANE

(a) 11, 66, 33, 96 (b) 31, 87, 32, 97

(c) 31, 66, 33, 97 (d) 11, 67, 32, 97

66. 'Talk' is related to 'Speak' in a certain way. Similarly, 'Honest' is related to 'Truthful'. Following the same logic, 'Listen' is related to '.....'.

(a) Music (b) Ears

(c) Hear (d) Ignore

67. Three of the following are alike in a certain way and form a group. Find the odd one out.
(a) Bird (b) Insect
(c) Aeroplane (d) Kite

68. If the 1st half of the English alphabet is written in the backward order, then find the 15th letter to the left of 20th letter from left.
(a) H (b) I
(c) Y (d) X

69. Select the combination of numbers so that letters arranged accordingly will form a meaningful word.

R	A	C	E	T
1	2	3	4	5

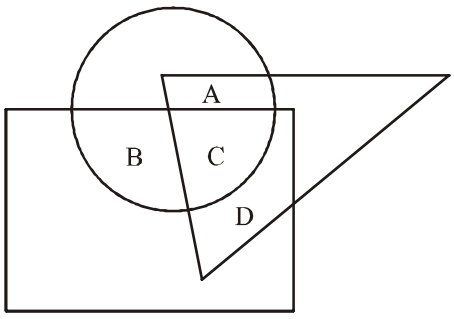
(a) 1, 2, 3, 4, 5 (b) 3, 2, 1, 4, 5
(c) 5, 2, 3, 4, 1 (d) 5, 1, 2, 3, 4

70. Veena walked 5m towards north, took a left turn and walked 7 m. She took a left turn again and walked 8m before taking a left turn and walking 7 m. She then took a final left turn and walked 1 m before stopping. How far is Veena from the starting point ?
(a) 3m (b) 6m (c) 4m (d) 2m

71. A, B, C, D and E each has different heights. D is only shorter than B. E is shorter than A and C. Who is the shortest of them?
(a) E (b) A
(c) C (d) Data inadequate

72. ENGLAND is written as 1234526 and FRANCE as 785291. How will GREECE be written in this coding scheme ?
(a) 381191 (b) 381911
(c) 394132 (d) 562134

73. In the following diagram, the triangle represents doctors, the circle represents players and the rectangle represents singers. Which region represents doctors who are singers but not players?



(a) A (b) B
(c) C (d) D

74. Pointing to a photograph Arun said, 'She is the mother of my brother's son's wife's daughter.' How is Arun related to the lady's husband?
(a) Uncle (b) Daughter-in-law
(c) Cousin (d) Brother

75. How many such pairs of letters are there inthe word 'KINDNESS' each of which have as many letters between them in word as in the alphabets?
(a) Nil (b) One
(c) Two (d) Three

DIRECTIONS (Qs. 76-77) : *In each of the questions given below a group of digits is given followed by four combinations of letters/symbols. You have to find out which of the four combinations correctly represents the group of digits based on the letter/ symbol codes and the conditions given below. If none of the four combinations represents the group of digits correctly, give (e) i.e. "None of these" as the answer.*

Digit:	3	9	6	2	8	7	5	4	1
Symbol :	K	T	$	F	H	#	%	D	M

Conditions for the coding the group of digits:
1. If the first digit is odd and last digit is even, the codes for the first and the last digits are to be interchanged.
2. If the first as well as the last digit is even, both are to be coded by the code for last digit.
3. If the first as well as the last digit is odd, both are to be coded as 'X'.

76. 564923
(a) %$DTFK (b) K$DTFK
(c) X$DTFX (d) K$DTF%

77. 658247
(a) $%HFD# (b) #%HFD$
(c) %$HFD# (d) %#HFD$

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

P, T, V, R, M, D, K and W are sitting around a circular table facing the centre. V is second to the left of T. T is fourth to the right of M. D and P are not immediate neighbours of T. D is third to the right of P. W is not an immediate neighbour of P. P is to the immediate left K.

78. Who is second to the left of K?
(a) P (b) R
(c) M (d) W

79. Who is to the immediate left of V?
(a) D (b) M
(c) W (d) Data inadequate

80. Who is the third to the right of V?
(a) T (b) K
(c) P (d) None of these

GENERAL AWARENESS

81. Which one of the following is a programme that converts high level language to machine language?
(a) Linker (b) Assembler
(c) Interpreter (d) Compiler

82. Classification of an enterprise into public or private sector is based on
(a) number of employees in the enterprise
(b) ownership of assets of the enterprise
(c) employment conditions for workers in the enterprise
(d) nature of products manufactured by the enterprise

83. Which one of the following glands produces the growth hormone (somatotrophin)?
(a) Adrenal (b) Pancreas
(c) Pituitary (d) Thyroid

84. Who among the following was elected as the President of All India Khilafat Conference met at Delhi in 1919?
(a) Motilal Nehru (b) Mahatma Gandhi
(c) M A Jinnah (d) Shaukat Ali

85. Which one of the following Indian states does not have a common international border with Bangladesh?
(a) Manipur (b) Paschim Banga
(c) Tripura (d) Asom

86. Who among the following is the author of the book. 'The Namesake'?
(a) Arundhati Roy (b) Amitava Ghosh
(c) Jhumpa Lahiri (d) Kiran Desai

87. Who among the following was not a member of the Constituent Assembly?
(a) Sardar Vallabhbhai Patel
(b) Acharya JB Kriplani
(c) Lok Nayak Jayprakash
(d) K M Munshi

88. Carbon dioxide is called a greenhouse gas because
(a) its concentration remains always higher than other gases
(b) it is used in photosynthesis
(c) it absorbs infrared radiation .
(d) it emits visible radiation

89. Laser is a device to produce
(a) a beam of white light
(b) coherent light
(c) microwaves
(d) X-rays

90. In the human body, Cowper's glands form a part of which one of the following system?
(a) Digestive system
(b) Endocrine system
(c) Reproductive system
(d) Nervous system

91. Mist is a result of which one of the following
(a) Condensation (b) Evaporation
(c) Sublimation (d) Saturation

92. 'Dyarchy' was first introduced in India under
(a) Morley-Minto reforms
(b) Montford reforms
(c) Simon Commision plan
(d) Government of India Act, 1935

93. When Lord Mountbatten became the first Governor-General of India, who among the following became the Governor-General for Pakistan?
(a) Lord Mountbatten
(b) Muhammad Ali Jinnah
(c) Liaquat Ali Khan
(d) Shaukat Ali

94. Fiscal Policy in India is formulated by
(a) the Reserve Bank of India
(b) the Planning Commission
(c) the Finance Ministry
(d) the Securities and Exchange Board of India

95. Fat can be separated from milk in a cream separation because of
(a) cohesive force (b) gravitational force
(c) centrifugal force (d) centripetal force

96. The average fixed cost curve will always be
(a) a rectangular hyperbola
(b) a downward sloping convex to the origin curve
(c) a downward sloping straight line
(d) a U-shaped curve

97. Malaria in the human body is caused by which one of the following organisms?
(a) Bacteria (b) Virus
(c) Mosquito (d) Protozoan

98. The focal length of convex lens is
(a) the same for all colours
(b) shorter for blue light than for red
(c) shorter for red light than for blue
(d) maximum for yellow light

99. The Name of Ram Prasad Bismil is associated with
(a) Kanpur Conspiracy Case
(b) Alipore Conspiracy Case
(c) Kakori Conspiracy Case
(d) Meerut Conspiracy Case

100. The Indian Research Station 'Himadri' is located at
(a) Siachen (b) Darjeeling
(c) Arctic Region (d) Antarctica

101. What is the theme of the first-ever "National Yoga Olympiad", which has been organized by the NCERT?
(a) Yoga for Peace and Dhyana
(b) Yoga for Health and Harmony
(c) Yoga fo r Kriya and Harmony
(d) Yoga for Emotional and Mental development

102. Mohammad Shahid is associated with which sports?
(a) Hockey (b) Badminton
(c) Wrestling (d) Boxing

103. KG Subramanyan, who passes away recently, was a famous personality of which field?
(a) Art (b) Journalism
(c) Sports (d) Politics

104. Who has won the 2016 wins Iceland's presidential election?
(a) Davíd Oddsson
(b) Olafur Ragnar Grimsson
(c) Gudni Johannesson
(d) Andri Snaer Magnason

105. Which of the following countries has become the newest member of the Missile Technology Control Regime (MTCR)?
(a) Canada (b) India
(c) Brazil (d) Poland

106. What is the keyboard short-cut for new slide?
(a) Ctrl + M (b) Ctrl + N
(c) Ctrl + Shift + N (d) Ctrl + S

107. Vertical space between lines of text in document is called
(a) Double space (b) Line gap
(c) Single space (d) Line spacing

108. Full form of CD-RW is
(a) Compact Drum, Read, Write
(b) Compact Diskette, Read, Write
(c) Compact Disc, Read-only then Write
(d) Compact Disc-Rewritable

109. Password makes users capable
(a) To enter into system quickly
(b) To use time efficiently
(c) To retain the secrecy of files
(d) To make file structure simple

110. Files deleted from hard disc are sent to
(a) Dustbin (b) Floppy Disc
(c) Clip board (d) Recycle bin

111. Fairy Queen, the world's oldest steam locomotive in regular operation, plies between New Delhi and -
(a) Shimla (b) Alwar
(c) Kalka (d) Gwalior

112. Who of the following was the first Railway Minister of independent India?
(a) John Mathai
(b) Lal Bahadur Shastri
(c) Jawaharlal Nehru
(d) Shanmugham Shetty

113. Shatabdi Express trains were introduced in 1989 to commemorate the 100th anniversary of which of the following personalities?
(a) Swami Vivekanand
(b) Mahatma Gandhi
(c) Jawaharlal Nehru
(d) Rabindranath Tagore

114. Who was the Governor General of India when Railways were first introduced in India?
(a) Lord Canning
(b) Lord Dalhousie
(c) Lord William Bentick
(d) Lord Ripon

115. In which city is the Wheel and Axle Plant of the Indian Railways located?
(a) Kapurthala (b) Varanasi
(c) Bangalore (d) Rae Barelly

116. Who won the 2016 World Chess Championship?
(a) Sergey Karjakin
(b) Garry Kasparov
(c) Viswanathan Anand
(d) Magnus Carlsen

117. What was the theme of the 2016 World AIDS Day?
(a) Getting to zero
(b) The time to act is now
(c) Hands up for #HIVprevention
(d) None of the above

118. The UNESCO recently added rumba dance to its coveted list of Intangible Cultural Heritage. The dance belongs to which of the following countries?
(a) Brazil (b) Colombia
(c) Cuba (d) Argentina

119. Which words was picked by Dictionary.com as the Word of the Year for 2016?
(a) Post Truth (b) Xenophobia
(c) Chatbot (d) Adulting

120. Indian railways will introduced which system to check collisions between tracks to reduce train accidents by keeping a record of the track maintenance and will also provide better visibility during foggy days?
(a) Rail Saver (b) Tri-Netra
(c) i-Netra (d) Track Saver

Hints & Explanations

1. (d)

$$\sqrt{7.84}+\sqrt{0.0784}+\sqrt{0.000784}+\sqrt{0.00000784}$$

$$=\sqrt{\frac{784}{100}}+\sqrt{\frac{784}{10000}}+\sqrt{\frac{784}{1000000}}+\sqrt{\frac{784}{100000000}}$$

$$=\frac{28}{10}+\frac{28}{100}+\frac{28}{1000}+\frac{28}{10000}$$

$$=2.8+0.28+0.028+0.0028=3.1108$$

2. (d) On taking option (d).
The reverse digit of 451 is 154.
Now, 154 + 297 = 451 is equal to the original number.

3. (a) 40% of 50% of $\frac{3}{4}$ of 3200

$$=\frac{4}{10}\times\frac{5}{10}\times\frac{3}{4}\times 3200=4\times5\times3\times8=480$$

4. (b) There are 7 + 5 = 12 balls in the bag and the number of ways in which 4 balls can be drawn is $^{12}C_4$ and the number of ways of drawing 4 black balls (out of seven) is $^{7}C_4$.
Hence, P (4 black balls)

$$\frac{^{7}C_4}{^{12}C_4}\quad\frac{7.6.5.4}{1.2.3.4}\times\frac{1.2.3.4}{12.11.10.9}\quad\frac{7}{99}$$

Thus the odds against the event 'all black balls' are

$$(1-\frac{7}{99}):\frac{7}{99}\ i.e.,\ \frac{92}{99}:\frac{7}{99}\text{ or }92:7$$

5. (c) Let the cost price of the watch = ₹x
After 40% marked price and 10% discount

$$=x\times\frac{90}{100}\times\frac{140}{100}=\frac{126x}{100}$$

$$\text{Profit}=\frac{126x}{100}-x=\frac{26x}{100}$$

According to question,
Pay 10% tax on profit

$$=\frac{26x}{100}\times\frac{90}{100}=468$$

$$x=\frac{468\times100\times100}{26\times90}=₹2000$$

6. (b) Let the number of men be n

Men	Days
$^{42}_{n}\downarrow$	$^{25}_{14}\uparrow$

$$\therefore\quad\frac{n}{42}=\frac{25}{14}\Rightarrow n=75$$

7. (d) Volume of wire = πr^2h

$$\text{New radius of the wire}=\frac{r\times90}{100}=\frac{9r}{10}$$

Let new length of the wire be L.
∴ Volume of new wire

$$=\pi\left(\frac{9r}{10}\right)^2\times L=\frac{81}{100}\pi r^2L$$

According to question,

$$\pi r^2h=\frac{81}{100}\pi r^2L\Rightarrow L=\frac{100}{81}h$$

$$\text{Increase in length}=\frac{100}{81}h-h=\frac{19}{81}h$$

$$\text{Percent increase}=\frac{19/81h}{h}\times100\%=23.46\%$$

$$=23\%\text{ (approx)}$$

8. (c) Let the observation mean = x
∴ Sum of 50 observations = 50x
According to question,

$$\therefore\quad\frac{50x-45}{49}=x$$

$$\Rightarrow\ 50x-45=49x$$

$$\therefore\ x=45$$

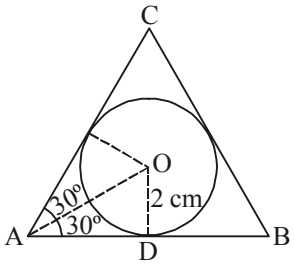
9. (b) Interest earned in 1st half of a year

$$=20,000\times\frac{1}{2}\times\frac{20}{100}=2000$$

Similarly, During second half, interest earned = 2200
During second year, interest earned = 4840 (Note : Interest is calculated as compound)
Total interest earned at the end of two years = 2000 + 220 + 4840 = ₹9040.

10. (a) Since, area of circle = 4π cm^2 (given)

$$\Rightarrow\ \pi r^2=4\pi\Rightarrow r=2\text{ cm}$$



In ΔOAD, $\tan 30^\circ = \frac{OD}{AD} \Rightarrow AD$

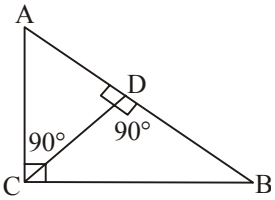
$= 2\sqrt{3}$ cm

Now, $AB = 2AD = 4\sqrt{3}$ cm

$\therefore$ Area of equilateral ΔABC

$= \frac{\sqrt{3}}{4}(AB)^2 = \frac{\sqrt{3}}{4}(4\sqrt{3})^2 = 12\sqrt{3}$ cm^2

11. (c)



In ΔABC

$CD \perp AB$

and $AB \times CD = CA \times CB$ ... (i)

In ΔCDB

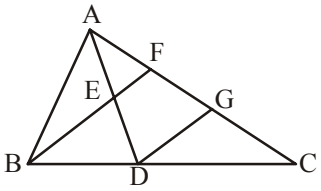
$BC^2 = BD^2 + CD^2$ ... (ii)

$CD^2 = BC^2 - BD^2$

From eq. (i) and (ii)

$$\frac{1}{CD^2} = \frac{1}{BC^2} - \frac{1}{CA^2}$$

12. (b) We draw a line segment parallel to BF.



In ΔADG,

BF or $EF \parallel DG$ and $AE = ED$ (since, E is mid-point of AD)

$\therefore$ $AF = GC$ ... (i)

Similarly, in ΔBCF,

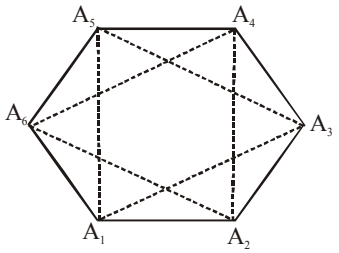
$DG \parallel BF$ and $BD = DC$

$FG = GC$ ... (ii)

From Eqs. (i) and (ii),

$$CF = \frac{2}{3}AC$$

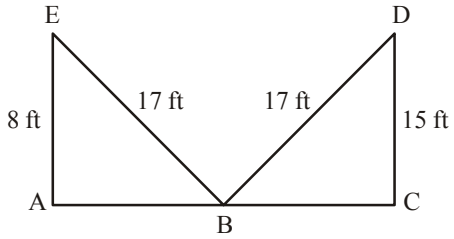
13. (c) Three vertices can be selected in ${}^6C_3$ ways.



The only equilateral triangles possible are $A_1A_3A_5$ and $A_2A_4A_6$

$$P = \frac{2}{{}^6C_3} = \frac{2}{20} = \frac{1}{10}$$

14. (a)



In ΔABE,

$BE^2 = AE^2 + AB^2 \Rightarrow AB^2 = 17^2 - 8^2$

or $AB^2 = 289 - 64 = 225 \Rightarrow AB$

$AB = 15$ ft

In ΔBCD,

$BD^2 = BC^2 + CD^2 \Rightarrow BC^2 = 17^2 - 15^2$

$= 289 - 225 = 64$

$\Rightarrow BC = 8$ ft

$\therefore$ Width of the street $= AB + BC = 15 + 8 = 23$ ft

15. (d) $$\frac{1}{1+\sqrt{2}} + \frac{1}{\sqrt{2}+\sqrt{3}} + \ldots + \frac{1}{\sqrt{15}+\sqrt{16}}$$

(on rationalisation)

$$= \frac{1-\sqrt{2}}{1-2} + \frac{\sqrt{2}-\sqrt{3}}{2-3} + \ldots + \frac{\sqrt{15}-\sqrt{16}}{15-16}$$

$$= -1\left(1 - \sqrt{2} + \sqrt{2} - \sqrt{3} + \ldots + \sqrt{15} - \sqrt{16}\right)$$

$$= -1(1-4) = 3$$

16. (d) Given, $x+\frac{1}{x}=p$

$\Rightarrow \left(x+\frac{1}{x}\right)^2=p^2$

$\Rightarrow x^2+\frac{1}{x^2}+2=p^2$

$\Rightarrow x^2+\frac{1}{x^2}=p^2-2$ ... (i)

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

$\Rightarrow x^6+\frac{1}{x^6}+3\left(x^2+\frac{1}{x^2}\right)=p^6-8-6p^2(p^2-2)$

$\Rightarrow x^6+\frac{1}{x^6}+3(p^2-2)=p^6-8-6p^4+12p^2$

[from equation (i)]

$\Rightarrow x^6+\frac{1}{x^6}=p^6-6p^4+9p^2-2$

17. (a) Given, $x+y+z=0$

$\therefore$ $(x+y)(y+z)(z+x)=(-z)(-x)(-y)=-xyz$

18. (d) Given, $2x^2\cos 60^\circ-4\cot^2 45^\circ-2\tan 60^\circ=\theta$

$\Rightarrow 2x^2\times\frac{1}{2}-4(1)^2-2\times\sqrt{3}=0$

$\Rightarrow x^2-4-2\sqrt{3}=0$

$\Rightarrow x^2=4+2\sqrt{3}$

$\Rightarrow x^2=3+1+2\sqrt{3}$

$\Rightarrow x^2=\left(\sqrt{3}\right)^2+(1)^2+2\sqrt{3}\cdot 1$

$\Rightarrow x^2=\left(\sqrt{3}+1\right)^2$

$\Rightarrow x=\sqrt{3}+1$

19. (d) $\sin\theta+\operatorname{cosec}\theta=2$

$\Rightarrow \sin\theta+\frac{1}{\sin\theta}=2$

$\Rightarrow \sin^2\theta-2\sin\theta+1=0$

$\Rightarrow (\sin\theta-1)^2=0$

$\Rightarrow \sin\theta=1$

$\Rightarrow \sin\theta=\sin 90^\circ$

$\Rightarrow \theta=90^\circ$

$\therefore$ $\sin^4\theta+\cos^4\theta=\sin^4 90^\circ+\cos^4 90^\circ$

$=1+0=1$

Alternate Method

Given that

$\sin\theta+\operatorname{cosec}\theta=2$

Now, put $-\theta=90^\circ$

$1+1=2$

Similary put $\theta=-90^\circ$

$\sin^4\theta+\cos^4\theta$

$=\sin^4 90+\cos^4 90^\circ$

$=1+0=1$

20. (b) $(\sin^4 x-\cos^4 x+1)\operatorname{cosec}^2 x$

$=\{(\sin^2 x-\cos^2 x)(\sin^2 x+\cos^2 x)+1\}\operatorname{cosec}^2 x$

$[(\because a^2-b^2=(a+b)(a-b)]$

$=(\sin^2 x-\cos^2 x+1)\operatorname{cosec}^2 x$

$=(\sin^2 x+\sin^2 x)\operatorname{cosec}^2 x$

$(\because 1-\cos^2 x=\sin^2 x)$

$=2\sin^2 x\cdot\frac{1}{\sin^2 x}=2$

21. (d) % of female professionals =

$=[20\%\text{ of }21\%+60\%\text{ of }18\%+40\%\text{ of }11\%+80\%\text{ of }15\%+40\%\text{ of }19\%+35\%\text{ of }16\%]$

$\frac{1}{100}[420+1080+440+1200+760+560]\%$

$=\frac{4460}{100}\%=44.6\%$

$\therefore$ % of male professionals

$=100\%-44.6\%=55.4\%$

$\therefore$ Required difference

$=(55.4-44.6)\%\text{ of }10500$

$=10.8\%\text{ of }10500=10.8\times 105=1134$

22. (d) Required %

$=\frac{20\%\text{ of }21}{89\%\text{ of }15}\times 100\%\approx\frac{20\times 21}{80\times 15}\times 100\%$

$\frac{420}{12}\approx 35\%$

23. (a) Required ratio $=\frac{60\times 11}{20\times 15}$ 11 : 5

24. (d) $(4x)(3x)=1728$

$\Rightarrow x^2=144$ $\therefore x=12$

$\Rightarrow$ length = 48; breadth = 36

$\therefore$ Required ratio $=\frac{36}{36\times 48}$ 1 : 48

25. (b) $24 = 12 \times 2$,
$36 = 12 \times 3$,
$48 = 12 \times 4$,
and $72 = 12 \times 6$
$\therefore$ HCF $(24, 36, 48, 72) = 12$
Total pieces $= 2 + 3 + 4 + 6 = 15$

26. (c) Series of first 20 odd natural numbers is an arithmetic progression with 1 as the first term and the common difference 2. Sum of n terms in arithmetic progression is given by.

$S_n = \frac{1}{2} n[2a \quad (n-1)d]$

Where a : First term
d : common difference

$\therefore \quad S_{20} = \frac{1}{2} \times 20\,[(2 \times 1) + (20 - 1) \times 2]$
$= 10\,[2 + 38] = 10 \times 40 = 400$

27. (c) $\sqrt{24^4} + 224 = ? \times 20^2$

$\Rightarrow \quad \frac{(24)^2 + 224}{20^2} ? \Rightarrow ? = \frac{800}{400} = 2$

28. (d) The first number $= 2 \times 44 = 88$

$\therefore$ The second number $= \frac{\text{HCF} \times \text{LCM}}{88}$

$= \frac{44 \times 264}{88} = 132$

29. (b) Average age of the whole class

$= \frac{32 \times 14 + 28 \times 13}{32 + 28} = \frac{448 \quad 364}{60}$

$= \frac{812}{60} = 13.53\text{yr}$

30. (b) When $S_1 = S_2$, then
overall % gain or % loss

$= \left[100 - \frac{2(100 + x_1)(100 - x_2)}{(100 + x_1) + (100 - x_2)}\right]\%$

$= \left(100 - \frac{2(125)(80)}{(125) + (80)}\right)\%$

$= \left(100 - \frac{2 \times 125 \times 80}{205}\right)\%$

$= \frac{100}{41}\%$ gain ($\because$ it is +ve)

31. (d) Ratio of capital $= 50000 \times 12 : 80000 \times 6 = 5 : 4$

$\therefore$ Sarita's share $= \frac{18000 \times 5}{(5 + 4)} = ₹\,10000$

32. (d) (Man + Son)'s one day's work $= \frac{1}{8}$

Man's one day's work $= \frac{1}{10}$

$\Rightarrow$ Son's one day's work $= \frac{1}{8} - \frac{1}{10} = \frac{1}{40}$

$\therefore$ Son can do it in 40 days.

33. (b) Rest time = Number of rest × Time for each rest
$= 4 \times 5 = 20$ minutes
Total time to cover 5 km

$= \left(\frac{5}{10} \times 60\right)$ minutes + 20 minutes = 50 minutes.

34. (a) Volume of the bucket = volume of the sand emptied
Volume of sand $= \pi (21)^2 \times 36$
Let r be the radius of the conical heap.

Then, $\frac{1}{3}\pi r^2 \times 12 = \pi (21)^2 \times 36$

or $r^2 = (21)^2 \times 9$ or $r = 21 \times 3$
$= 63$ cm

35. (b) Loss = C.P. of 66 metres – S.P. of 66 metres
= S.P. of 22 metres
$\Rightarrow$ C.P. of 66 metres = S.P. of 88 metres

$\%\text{ loss} = \frac{\text{loss}}{\text{C.P. of 66 metres}} \times 100$

$= \frac{\text{S.P of 22 metres}}{\text{C.P of 66 metres}} \times 100$

$= \frac{\text{S.P. of 22 metres}}{\text{S.P.of 88 metres}} \times 100$

$= \frac{22}{88} \times 100 = 25\%$

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

Then, $2x + 3y = \frac{1}{10}$ and $3x + 2y = \frac{1}{8}$

Solving, we get : x $\frac{7}{200}$ and y $\frac{1}{100}$

$\therefore$ (2 men + 1 boy)'s 1 day's work

$= \left(2 \times \frac{7}{200} + 1 \times \frac{1}{100}\right) \quad \frac{16}{200} \quad \frac{2}{25}$

So, 2 men and 1 boy together can finish the work in $12\frac{1}{2}$ days.

37. (a) Let the speed of car = S km /h.
Also, let previous time = t hr. Then,
$420 = St$ ...(i)
Also, $420 = (S + 10)(t - 1)$

$$\Rightarrow 420 = (S+10)\left(\frac{420}{S} - 1\right) \text{ [By (i)]}$$

$\Rightarrow S^2 + 10S - 4200 = 0$
$\Rightarrow (S + 70)(S - 60) = 0$
$\Rightarrow S = 60$ km/h

38. (c) $\frac{x}{2y} = \frac{6}{7} \Rightarrow \frac{x}{y} = \left(2 \times \frac{6}{7}\right)$ $\frac{12}{7}$

$$\therefore \frac{x-y}{x+y} + \frac{14}{19} = \frac{\frac{12}{7} - 1}{\frac{12}{7} + 1} + \frac{14}{19} = \frac{\frac{5}{7}}{\frac{19}{7}} + \frac{14}{19}$$

$$= \left(\frac{5}{7} \times \frac{7}{19}\right) \quad \frac{14}{19} \quad \frac{5}{19} \quad \frac{14}{19} \quad \frac{19}{19} \quad 1$$

39. (c) $P(x) = ax^3 + 3x^2 - 8x + b$
$\therefore$ $P(-2) = -8a + 12 + 16 + b = 0$
$\Rightarrow$ $-8a + b + 28 = 0$ ...(i)
$\Rightarrow$ $P(2) = 8a + 12 - 16 + b = 2$
$\Rightarrow$ $8a + b - 4 = 0$ ...(ii)
By equation (i) + (ii)

$$2b + 24 = 0 \Rightarrow b = -\frac{24}{2} = -12$$

From equation (i),
$-8a - 12 + 28 = 0$
$\Rightarrow$ $-8a = -16 \Rightarrow a = 2$

40. (b) $(1 + \sec 20° + \cot 70°)(1 - \text{cosec } 20° + \tan 70°)$
$= [1 + \text{cosec}(90° - 20°) + \cot 70°]$
$[1 - \sec(90° - 70°) + \tan 70°]$
$= [1 + \text{cosec } 70° + \cot 70°][1 - \sec 70° + \tan 70°]$

$$= \left[1 + \frac{1}{\sin 70°} + \frac{\cos 70°}{\sin 70°}\right]$$

$$\left[1 - \frac{1}{\cos 70°} + \frac{\sin 70°}{\cos 70°}\right]$$

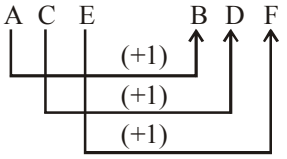
$$= \frac{(\sin^2 70° + \cos 70° + 1)(\sin 70° + \cos 70° - 1)}{\sin 70° \cos 70°}$$

$$= \frac{\sin^2 70° + \cos^2 70° + 2\sin 70° \cos 70° - 1}{\sin 70° \cos 70°}$$

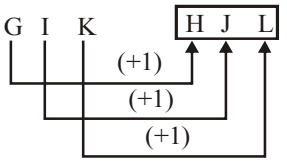
$$= \frac{2\sin 70° \cos 70°}{\sin 70° \cos 70°}$$

$[\because \sin^2 70° + \cos^2 70° = 1]$
$= 2$

41. (a) As,



Similarly



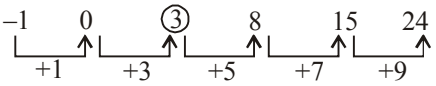
42. (d) A hive is a shelter for bees. Whereas, A eyrie is a large nest of an eagle.

43. (a) $v \xrightarrow{(+1)} w$ $p \xrightarrow{(+1)} q$
$y \xrightarrow{(-1)} x$ $m \xrightarrow{(+1)} n$
$g \xrightarrow{(-1)} f$ $k \xrightarrow{(+1)} \ell$
$c \xrightarrow{(-1)} b$ $r \xrightarrow{(+1)} s$

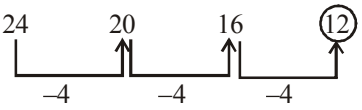
44. (a) Except (a), all others are not divisible by 2nd term.

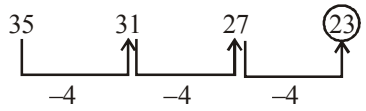
45. (b) Meaning full words

1 2 3 4
Tilling → Sowing → Weeding → Reaping.

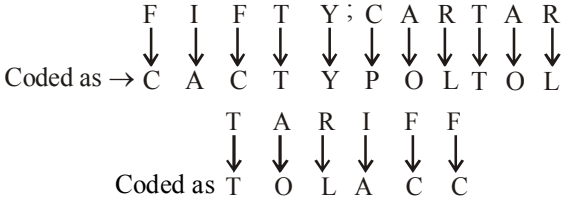
46. (b) 

47. (d) There are two numbers series:

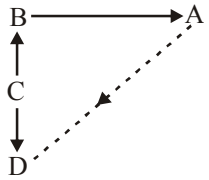
I. 

II. 

48. (d)



49. (c) rtxy/ sxyz/ rtxy/ sxyz.

50. (b) 

It is clearly shown that, D is in south west of A.

51. (a) 6 → 1 2 3 4 5
1 → 2 3 4 5 6
4 → 1 2 3 5 6
From above, it is clear that 3 is opposite to 4.
Therefore, 1 is opposite 6.

52. (a) The father of the boy's uncle → the grandfather of the boy and daughter of the grandfather → sister of father.

53. (d)

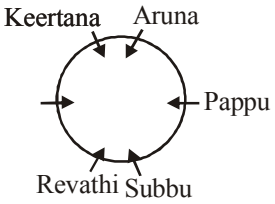
Regions / Persons ↓	1	2	4	6	7	8	9	10
Boys □	✓	✓	×	×	×	×	✓	×
Girls △	×	×	✓	×	×	✓	×	×
Sober ○	×	✓	✓	✓	✓	×	×	×
Cricketer ▭	✓	✓	×	✓	×	×	×	✓

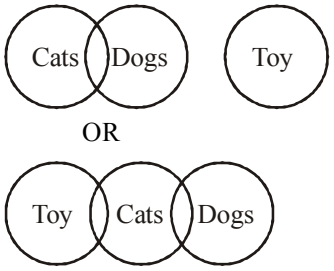
Region 2 presents the boys who are cricketer and sober.

54. (a) 5 * 6/2 3 5
8 * 4/2 2 8
6 * 8/2 4 6

55. (b) $1 \times 2 \times 3 = 6$
$2 \times 3 \times 4 = 24$
$3 \times 4 \times 5 = 60$
$4 \times 5 \times 6 = 120$
$5 \times 6 \times 7 = 210$
$6 \times 7 \times 8 = 336$

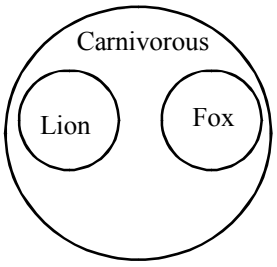
56. (d) First Column
$12 \times 3 + 4 = 40$
Second Column
$15 \times 4 + 6 = 66$
Third Column
$16 \times 5 + 4 = \boxed{84}$

57. (d) 

58. (a) 

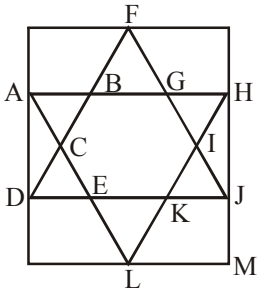
Conclusion I : True
II : Complementary Pair
III : Complementary Pair
IV : False
So, only conclusion I and either II or III.

59. (a) Suppose the present age of Arun is $4x$ years and that of Deepak is $3x$ years.
6 years hence,
Arun's age = $4x + 6 = 26$
$\Rightarrow 4x = 26 - 6 \; x = \frac{20}{4} = 5$
$\therefore$ Present age of Deepak = $3x = 15$ years

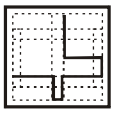
60. (c) 

61. (b) ANSWER

62. (b)

63. (b) There are 12 triangles in the given square.


Δ ABC, Δ ACD, Δ ABD, Δ AFD
Δ FGB, Δ HIG, Δ HJI, Δ IJK
Δ HJK, Δ HML, Δ EKL, Δ CED

64. (d) 

65. (b)

L	A	N	E
↓	↓	↓	↓
31	87	32	97

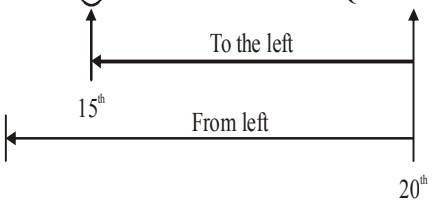
66. (c) As, talk is related to speak and honest to truthful. Similarly, listen is to hear.

67. (b) All except the insect fly in the sky.

68. (b) I is the letter

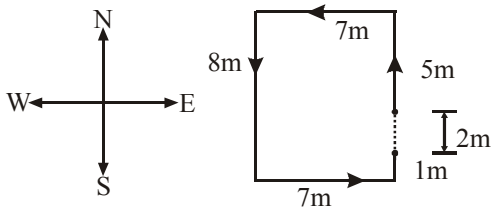
13 12 11 10 9 8 7 6 5 4 3 2 1 14 15 16 17 18 19 20 21 22 23 24 25 26

M L K J (I) H G F E D C B A N O P Q R S T U V W X Y Z



69. (d) Clearly, the given letters, when arranged in the order 5, 1, 2, 3, 4 from the word 'TRACE' will form.

70. (d) The direction movement is as shown below:



So, the required distance = 8 – (5 + 1) = 8 – 6
⇒ 2m

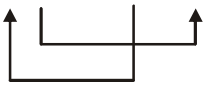
71. (a) According to the question,
B > D
A/C > E
∴ B > D > A/C > (E)
Clearly, shortest = E

72. (a) Going through information provided, we get codes for G → 3, R → 8, E → 1, C → 9.
Therefore, Greece will be coded as 381191.

73. (d) Letter D represents those people who are doctors and singers but not players as it is common to triangle and rectangle but not circle.

74. (a) One's brother's son's wife's daughter implies paternal grand-daughter of one's brother. Now, the mother of paternal grand-daughter of one's brother implies wife of one's nephew.
Thus, we can conclude that Arun is the paternal uncle of the female's husband.

75. (c) 11 9 14 4 14 5 19 19
K I N D N E S S



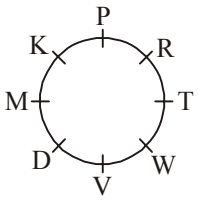
∴ Letter pairs = EI, NS ⇒ Two

For (76-77): Simply follow the rules of the codes and do these sums.

76. (c) X$DTFX (Because 1st and last digits are odd.)

77. (a) $%HFD# (No any condition.)

(78-80) :



78. (b) Clearly, R is second to the left of K.

79. (a) Clearly, D is to the immediate left of V.

80. (d) Clearly, R is third to the right of V. So, none of the given options is correct.

81. (d) A compiler is a special programme that processes statements written in a particular programming language and turns them into machine language or "code" that a computer's processor uses.

82. (b) A company organized for commercial purposes is called an enterprise. Classification of an enterprise into public or private sector is based on ownership of assets of the enterprise.

83. (c) Somatotrophin is produced by the anterior pituitary. It is a peptide hormone that induces growth, cell reproduction and regeneration.

84. (b) Gandhiji was elected President of the All-India Khilafat Conference which met at Delhi on November 23, 1919. They decided to withdraw all cooperation from the government if their demands were not met.

85. (a) Manipur does not have boundary with Bangladesh.

86. (c) The Namesake (2004) is the first novel by Jhumpa Lahiri.

87. (c) The Constitution of India was drafted by the constituent assembly and it was set up under the cabinet Mission plan on 16 May 1946. The members of the constituent

assembly were elected by the Provincial assemblies by method of single transferable vote system of proportional representations.Members of the committee: Sardar Vallabhbhai Patel, K. M. Munshi,Acharya J.B kriplani . Lok Nayak Jai Prakash was not the member of the constituent assembly.

88. (c) Greenhouse gases catch the sun's radiation on its way back into space and reflect some of that warmth back to Earth, increasing temperatures. Carbon dioxide is known as greenhouse gas because of their ability to trap and reflect the sun's radiation back to Earth.

89. (b) A laser is a device that emits coherent light through a process called stimulated emission.

90. (c) Cowper's gland is related to reproductive system. Cowper's gland is the ulbourethal gland found in human males. They are found in pair and secrete viscous secretion called pre ejaculate that helps in coitus.

91. (a) Mist is a thin fog resulting from condensation in the air near to the earth's surface.

92. (a) Dyarchy was a system of double government introduced by British India.

93. (b) Mohammed Ali Jinnah was Indian Muslim politician, founder and first governor-general (1947-48) of Pakistan. As the first Governor-General of Pakistan, Jinnah worked to establish the new nation's government and policies, and to help settle the millions of Muslim migrants who had emigrated from the new nation of India to Pakistan after the partition. He is revered in Pakistan as Quaid-i-Azam.

94. (c) The Department of Economic Affairs (DEA) under Ministry of Finance is the nodal agency of the Union Government to formulate and monitor country's economic policies and programmes having a bearing on domestic and international aspects of economic management.

95. (c) Centrifugal force separates fat from milk.

96. (a) Total fixed costs are constant, so the average fixed cost curve diminishes with the output. Thus, the average fixed cost curve is a rectangular hyperbola.

97. (d) Malaria is a mosquito borne disease of humans and other animals caused by Plasmodium protozoan. Severe disease is largely caused by Plasmodium falciparum whereas mild forms are due to *P vivax*, *P oval* and *P malariae*.

98. (b) The focal length of a convex lens is shorter for blue light than for red.

99. (c) Ram Prasad Bismil was the famous freedom fighter who was involved in the historic Kakori train robbery. He was born in 1897 at Shahjahanpur,Uttar Pradesh. On 9th August, 1925, Ram Prasad Bismil along with his fellow followers looted the money of the British government from the train while it was passing through Kakori, Lucknow. Except Chandrashekhar Azad, all other members of the group were arrested. Ram Prasad Bismil along with others was given capital punishment. This great freedom fighter of India was executed on 19th December, 1927.

100. (c) Himadri Station is India's first Arctic research station located at Spitsbergen, Svalbard, Norway. It was inaugurated on the 1st of July, 2008 by the Minister of Earth Sciences.

101. (b) 102. (a) 103. (a) 104. (c) 105. (a)
106. (a) 107. (d) 108. (d) 109. (c) 110. (d)
111. (b) 112. (a) 113. (c) 114. (b) 115. (c)
116. (d) 117. (c) 118. (c) 119. (b)

120. (b) Indian Railways is set to launch "Tri-Netra (Terrain Imaging for diesel drivers infrared, enhanced optical and radar assisted system)" to check collisions between tracks.