PAPER : MAT

Date: 17.11.2019

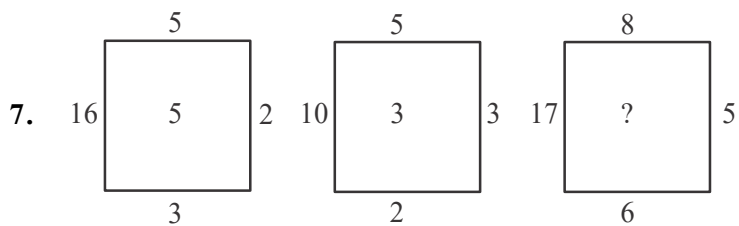Max. Marks: 100   Time allowed: 120 mins

1. If the word FRUIT is coded as 58281, then the word GRAPES is coded as :
    (1) 608604   (2) 680460
    (3) 680640   (4) 686040

2. If the word GARDEN is coded as 49, then the word FLOWER can be coded as :
    (1) 40   (2) 59
    (3) 79   (4) 99

3. If the word HOCKEY is coded as NGJBXD, then the word TENNIS is coded as :
    (1) DSMMRH   (2) DSMRHM
    (3) DSRMHM   (4) DRSMMH

4. In some code language if the word FRAGRANCE can be coded as SBHSBODFG, then the word IMPOSING can be coded as :
    (1) NQPTJHOJ   (2) NQPTJOHI
    (3) NQPTJOHJ   (4) NQTPJOHJ

Directions : (Questions : 5 TO 7)

In the questions given below the numbers in the figures are related. Identify their relationships and find the missing numbers in the given figures :

5.

	15			18			27	
18	17	3	30	15	6	36	?	9
	4			8			12	

   (1) 21   (2) 19
   (3) 18   (4) 16

6.

	48			50			72	
72	13	23	40	15	35	89	?	63
	26			100			65	

   (1) 17   (2) 20
   (3) 23   (4) 27

7.

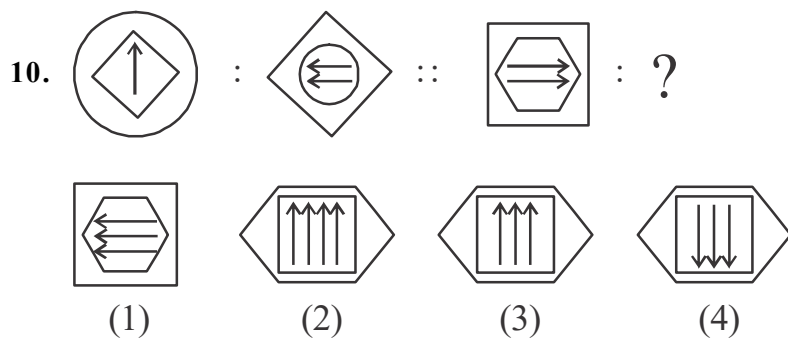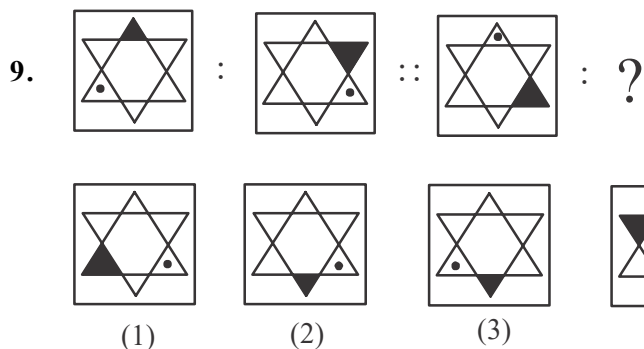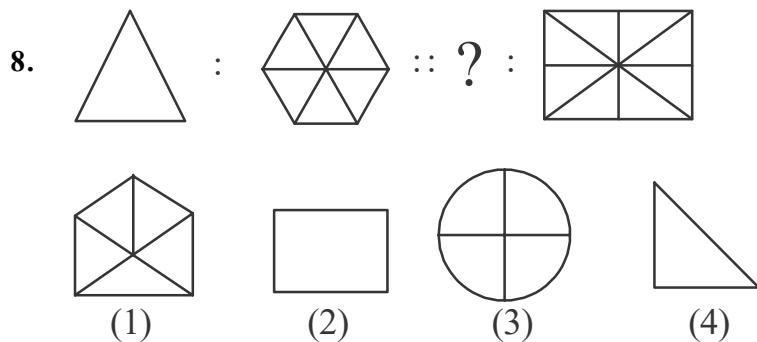| 5		5		8	
16	5	2 10	3	3 17	?	5
	3		2		6

(1) 6   (2) 5

(3) 4   (4) 3

Directions : (Questions : 8 - 10)

Complete the given figure analogy by choosing the correct answer from the given alternative :

8. △ : ⬡ :: ? : ▦

(1)   (2)   (3)   (4)

9. : :: : ?

(1)   (2)   (3)   (4)

10. : :: : ?

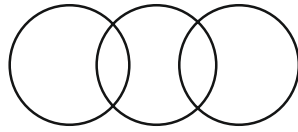(1)   (2)   (3)   (4)
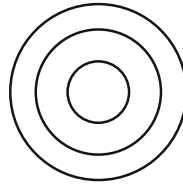
Directions: (Questions: 11 TO 15)

The following questions are based in figures given below. Each circle represents one item. Match the figure with items in the question on the basis of their relationship:
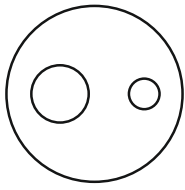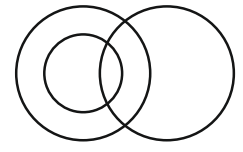
(A)	(B)	(C)	(D)	(E)

11. Females, Mothers, Teachers.

   (1) A   (2) C

   (3) D   (4) E

12. Table, Chair, Furnitures.

   (1) A   (2) B

   (3) C   (4) D

13. Men, Women, Players.

   (1) C   (2) B

   (3) A   (4) E

14. Days, Months, Years.

   (1) A   (2) D

   (3) C   (4) E

15. Piano, Potato, Axe.

   (1) B   (2) A
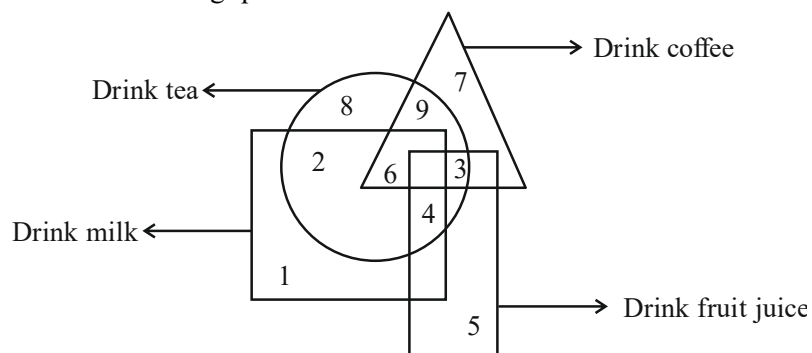
   (3) C   (4) D

Directions: (Questions: 16 & 17)

In the following figure triangle represents those who drink coffee, circle represents those who drink tea, square represents those who drink milk and rectangle represents those who drink fruit juice. Based on the figure answer the following questions:

16. Which number represents those who drink coffee, tea and milk?

   (1) 3   (2) 9

   (3) 4   (4) 6

17. Which number represents those who drink only tea and not coffee ?
    (1) 9   (2) 8
    (3) 5   (4) 7

18. If the product of 1K and K1 is K2K then the letter K stands for the digit:
    (1) 9   (2) 4
    (3) 3   (4) 1

19. The digit represented by L, E and T in the following addition is :

```
      L E M
    + M E L T
    ─────────
      9 9 9 9
```

    (1) 4, 5, 0   (2) 9, 4, 0
    (3) 4, 0, 5   (4) 5, 0, 4

20. The product of A8 and 3B is 2730 then the letters A and B stands for the digits :
    (1) 8, 3   (2) 7, 5
    (3) 5, 7   (4) 6, 5

Directions: (Questions: 21 TO 23)

Following 3 questions have a certain pattern. Each box has a single letter / digit. The letter / digit that comes in each box is in the order of :

21. m n l ☐ m ☐ l l m n ☐ l ☐ n l l
    (1) l, n, l, m   (2) m, n, m, m
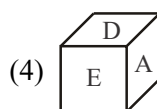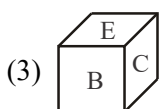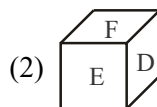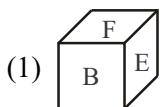   (3) n, m, l, m   (4) n, n, l, m

22. a ☐ b b c ☐ a a b ☐ c c a ☐ b b ☐ c
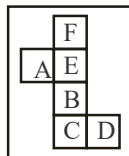   (1) b, a, c, b, c   (2) a, c, b, a, c
    (3) a, c, b, b, c   (4) a, b, c, a, b
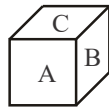
23. 13 ☐ 2 ☐ 5 ☐ 637 ☐ 2
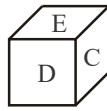   (1) 4,3,3,9   (2) 9,2,7,3
    (3) 2,7,3,9   (4) 3,9,7,2

24. When the given figure is folded as a cube, which one of the formation is possible ?
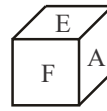

(1)   (2)

(3)   (4)

25. The different faces of a cube are shown through three folded cubes. Among the alternatives, identify the unfolded cube which represents these faces :
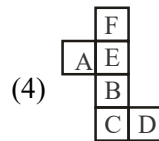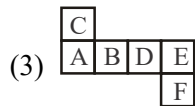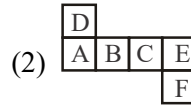

(1)

(2)

(3)

(4)
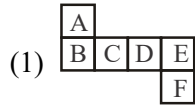
26. Name the letter on the face which is opposite to the face that has letter 'F' on it :
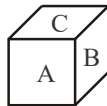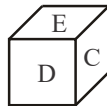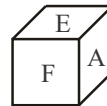
(1) B (2) A
(3) E (4) C

Directions : (Questions 27 TO 29)

Identify the number of specified Geometric shapes in the given diagrams and mark the correct answer.

27. How many number of triangles and parallelograms are there in the given figure respectively ?

(1) 22, 17 (2) 19, 13
(3) 22, 15 (4) 19, 17

28. How many semicircles are there in the given figure ?

(1) 8 (2) 10
(3) 12 (4) 14

29. How many trapeziums are there in the given figure ?

(1) 20   (2) 22

(3) 24   (4) 26

Directions : (Questions 30 TO 33)

Read the instructions and answer the following questions.

* There are five people P, Q, R, S and T.
* Among them one plays football, one plays chess and one plays hockey.
* P and S are spinsters and not participating in any games.
* No women play chess or football
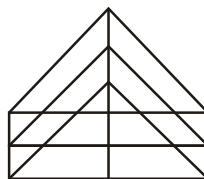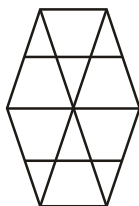* In the group there is one pair of married couple and T is the husband.
* Q is the brother of R and does not play chess and hockey

30. Who is the football player ?

(1) P   (2) Q

(3) R   (4) S

31. Who is the hockey player ?

(1) P   (2) Q

(3) S   (4) R

32. Who is the chess player ?

(1) P   (2) R

(3) T   (4) S

33. In the group who are the women ?

(1) P, Q, R   (2) Q, R, S

(3) P, Q, S   (4) P, R, S

Directions : (Questions: 34 & 35) : Given below are 2 matrices containing letters. The rows and columns are numbered 0 to 4 in Matrix I and 5 to 9 in Matrix II. Each letter from these matrices are represented first by its row number and the next by its column number.

Example: Letter "S" is represented as any of the following : 55, 67, 79, 86, 98.

Matrix I

	0	1	2	3	4
0	D	V	C	P	M
1	P	M	D	V	C
2	V	C	P	M	D
3	M	D	V	C	P
4	C	P	M	D	V

Matrix II

	5	6	7	8	9
5	S	A	U	T	J
6	T	J	S	A	U
7	A	U	T	J	S
8	J	S	A	U	T
9	U	T	J	S	A

34. Which set of numbers will represent the word DUST? **6**

    (1) 00, 76, 86, 59   (2) 31, 76, 98, 78

    (3) 24, 69, 55, 66   (4) 12, 57, 67, 58

35. Which set of number will represent the work PUMP?

    (1) 03, 69, 03, 34   (2) 41, 88, 23, 43

    (3) 10, 57, 23, 34   (4) 22, 95, 43, 41

Directions : (Questions: 36 - 37) : Given below arc 2 matrices containing letters. The rows and columns are numbered 0 to 4 in Matrix I and 5 to 9 in Matrix II. Each letter from these matrices arc represented first by its row number and the next by its column number.

Example: Letter "T" is represented as any of the following : 59, 65, 76, 87, 98.

Matrix I

	0	1	2	3	4
0	A	R	S	N	C
1	N	C	A	R	S
2	S	N	C	A	R
3	R	S	N	C	A
4	C	A	R	S	N

Matrix II

	5	6	7	8	9
5	O	E	L	P	T
6	T	O	E	L	P
7	P	T	O	E	L
8	L	P	T	O	E
9	E	L	P	T	O

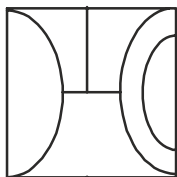**36.** Which word will represent the set of numbers. 86, 12, 31, 76:

    (1) PAST   (2) PATE

    (3) POTE   (4) PSAT

37. Which word will represent the following set of numbers : 21, 67, 14, 59 ?

    (1) PAST   (2) RATE

    (3) POET   (4) NEST

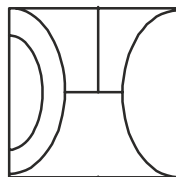**Directions : (Questions: 38 - 40) :** Find the missing part of the given figure from the alternatives.
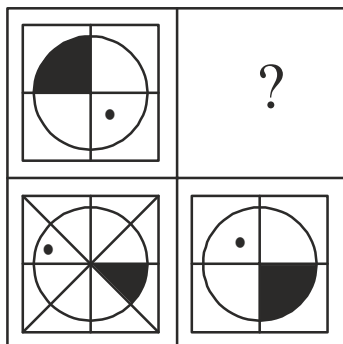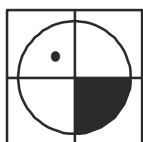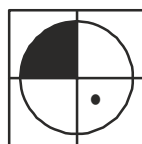
38.

(1)

(2)

(3)

(4)

39.

(1)

(2)

(3)

(4)

40.

(1)

(2)

(3)

(4)
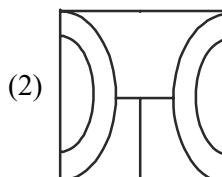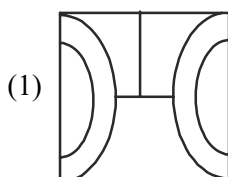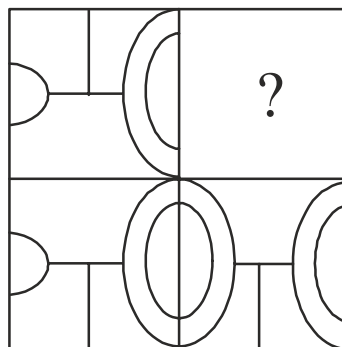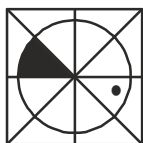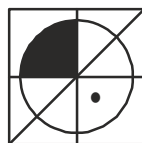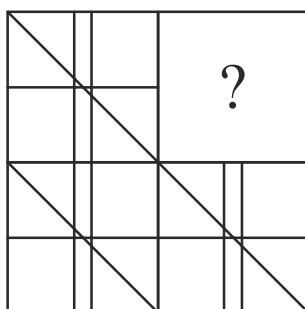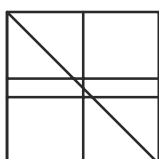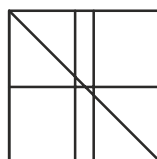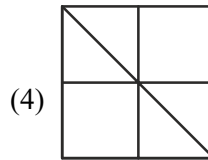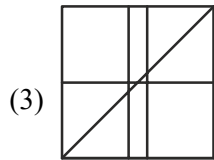
Directions : (Questions : 41 - 43) : Identify the wrong number/ group of letters in the series:

41. | 28, 77, 14, 24, 6, 7, 3 |

(1) 6

(2) 7

(3) 14

(4) 24

42. | 2, 34, 84, 68, 26, 12 |

(1) 26

(2) 34

(3) 68

(4) 84

43. URCNS, VPFJX, TSBOR, WOGIY, STAQP:

(1) WOGIY

(2) TSBOR

(3) VPFJX

(4) STAQP

Directions : (Questions : 44 & 46) : The following questions are based on the numbers and letters arranged in the pyramid pattern. Study the pattern and complete the given analogy:

|					a					
				1	2	3				
			b	c	d	e	f			
		4	5	6	7	8	9	10		
	I	H	G	E	F	D	C	B	A	
11	12	13	14	15	16	17	18	19	20	21
J	K	L	M	N	O	P	Q	R	S	T	U	V
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36

44. Mb1 : Nc2 :: Sf3 : | ? |

(1) Qdl

(2) Od3

(3) Re2

(4) Qe2

45. 26 P 19 : 32 P 13 :: 24 N 17 : | ? |

(1) 34 R 15

(2) 30 N 17

(3) 29 S 16

(4) 28 L 15

46. GN 17 : CR 15 :: ? : e D 5

    (1) f C 6   (2) c F 9

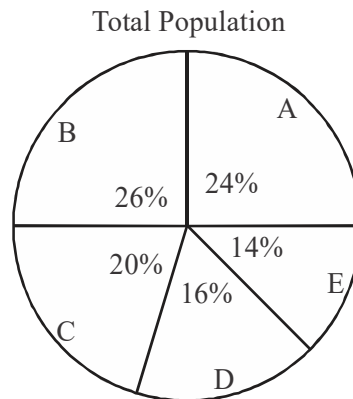   (3) c F 4   (4) b G 8

Directions : (Questions : 47 TO 49)

Study the following pie-chart and the table and answer the questions based on them :

Total Population

City	% of Illiterates
A	1
B	5
C	4
D	10
E	8

47. Find the population of the city 'D' if the population of illiterates in city 'E' is 3360 :

    (1) 42,000   (2) 48,000

    (3) 60,000   (4) 78,000

48. If city 'B' has 540 more illiterates than that of city 'E', What is the ratio of literates to illiterates of city B ?

    (1) 26 : 5   (2) 56 : 9

    (3) 19 : 1   (4) 13 : 7

49. What is the total percentage of illiterate of the cities A, B, C, D, E ?

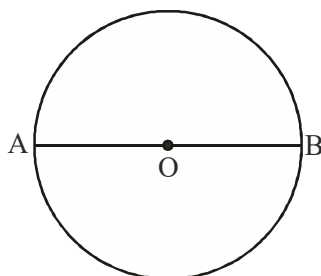   (1) 2.8%   (2) 5.06%

    (3) 28%   (4) 72%

50. Two persons 'A' and 'B' are standing on the circumference of a circular park with centre 'O' and radius 14m, facing each other, as shown in the figure. 'B' walks 22m in anti-clockwise direction and 'A' walks 11m in the clockwise direction along the circumference. 'B' turns 90° to his left and walks 14m. What is the direction of 'A' with respect to 'B' ?

    (1) North West   (2) North East

    (3) South West   (4) South East

51. A person travels 10m towards east from 'P', then turns right to travel 6m. again turns right to travel 18m to reach 'Q'. What is the distance between 'P' and 'Q' ?

    (1) 10m   (2) 12m

    (3) 17m   (4) 34m

52. What was the day of the week on 16th july 1776 ?

    (1) Monday   (2) Tuesday

    (3) Wednesday   (4) Thursday

53. On what date of March 2005 did second Saturday appear ?

    (1) 8   (2) 10

    (3) 11   (4) 12

54. First day of the year 2019 is Tuesday. Which day would the last date of the year 2020 be ?

    (1) Tuesday   (2) Wednesday

    (3) Thursday   (4) Friday

55. In how many of the three digit numerals 8 appears only once ?

    (1) 920   (2) 702

    (3) 353   (4) 225

56. In a class there are 40% girls and 75% of them passed in the exams. If the class result is 80%, find the fraction of the boys who passed the exam:

    (1) 2/3   (2) 3/4

    (3) 4/5   (4) 5/6

57. A merchant bought 5 pens each at Rs 8 and some more pens at Rs 6 each. He sold all pens at Rs 7 each and earns a total profit of Rs 10. How many pens were bought by the merchant at Rs 6?

    (1) 10   (2) 15

    (3) 20   (4) 25

58. The ratio of the ages of father and daughter is 4 : 1. Ten years ago the sum of their ages was 40. What is the present age of the daughter?

    (1) 20 years   (2) 15 years

    (3) 18 years   (4) 12 years

59. Answer the following question based on the sequence of numbers/letters given below.

| 5 3 8 1 9 7 4 2 6 8 4 2 7 9 1 2 3 4 7 2 1 3 6 5 1 6 3 9 2 1 3 4 7 |

If the sum of any two consecutive numbers is the very next number, how many times such numbers occur in given sequence?

(1) 8   (2) 11

(3) 13   (4) 15

60. If the first ten letters and last ten letters of the English alphabet are written in the reverse order in the series from A to Z, then how many consonant will be there between the letters D and T?

(1) 11   (2) 12

(3) 13   (4) 14

61. The missing number in the given sequence is:

9, 12, 11, 14, 13, ..., 15

(1) 12   (2) 16

(3) 10   (4) 17

62. The next number in the sequence

$\dfrac{2}{\sqrt{3}}, 1, \dfrac{4}{3\sqrt{3}}, \dfrac{5}{9}$ is :

(1) $\dfrac{2}{\sqrt{3}}$ (2) $\dfrac{3}{3\sqrt{3}}$

(3) $\dfrac{2}{3\sqrt{3}}$ (4) $\dfrac{4}{\sqrt{3}}$

63. The next number in the sequence

2, 6, 12, 20, 30, 42 is:

(1) 86   (2) 42

(3) 56   (4) 66

64. The next number in the sequence

$\dfrac{1}{81}, \dfrac{1}{54}, \dfrac{1}{36}, \dfrac{1}{24}$ is :

(1) $\dfrac{1}{32}$ (2) $\dfrac{1}{9}$

(3) $\dfrac{1}{18}$ (4) $\dfrac{1}{16}$

Directions : (Questions : 65 TO 68)

Complete the given letter/word analogy by choosing the correct answer from the four alternates given below:

65. ACEG : DFHJ :: QSUW : ?

(1) KMNP　　　　　　　　　(2) MNPR

(3) TQST　　　　　　　　　(4) TVXZ

66. FLO : MOC : : RDP : ?

(1) MGP　　　　　　　　　(2) NGO

(3) GMP　　　　　　　　　(4) MPG

67. $\dfrac{2}{3} : \dfrac{30}{6} :: ? : \dfrac{222}{30}$

(1) $\dfrac{5}{4}$　　　　　　　　　(2) $\dfrac{4}{5}$

(3) $\dfrac{5}{6}$　　　　　　　　　(4) $\dfrac{6}{5}$

68. 337, 221, 121, ?, 25, 7

(1) 41　　　　　　　　　(2) 61

(3) 75　　　　　　　　　(4) 81

Directions: (Questions: 69 TO 72)

In the given questions there are four groups of numbers/ pair of numbers/group of letters of which three are alike and one is different. Identify the one which is different:

69. (1) 216　　　　　　　　　(2) 841

(3) 676　　　　　　　　　(4) 784

70. (1) 616　　　　　　　　　(2) 323

(3) 244　　　　　　　　　(4) 482

71. (1) FNTNR　　　　　　　　　(2) MPTMV

(3) UWYUZ　　　　　　　　　(4) FILFP

72. (1) 1278　　　　　　　　　(2) 3197

(3) 2389　　　　　　　　　(4) 5298

73. At what time between 3 O'clock and 4'O clock are the hands of a clock are together?

(1) $16\dfrac{4}{11}$ minutes past 3　　　　　　(2) $16\dfrac{5}{11}$ minutes past 3

(3) $16\dfrac{6}{11}$ minutes past 3　　　　　　(4) $16\dfrac{3}{11}$ minutes past 3

74. What is the angle between the hands of a clock at 15 minutes past 5?

(1) $72\frac{1}{2}°$

(2) $67\frac{1}{2}°$

(3) $58\frac{1}{2}°$

(4) $64\frac{1}{2}°$

75. At what time between 4 and 5 will the hands of a clock are mutually in opposite directions?

(1) $54\frac{8}{9}$ minutes past 4

(2) $54\frac{6}{11}$ minutes past 4

(3) $54\frac{5}{11}$ minutes past 4

(4) $54\frac{6}{14}$ minutes past 4

Directions: (Questions: 76 & 77)

In the given equations find which of the following interchange of signs/numbers would make the equations correct:

76. $10 + 10 \div 10 - 10 \times 10 = 10$

(1) $+$ and $-$

(2) $+$ and $\div$

(3) $+$ and $\times$

(4) $\div$ and $\times$

77. $5 + 6 \times 3 \div 2 - 4 = 6 \times 4 \div 2 + 3 - 2$

(1) 5 and 6

(2) 6 and 3

(3) 4 and 2

(4) 2 and 3

78. When $-$ and $\times$, 3 and 6 are interchanged find which of the following equations would be correct :

(1) $6 - 3 \times 2 = 9$

(2) $3 \times 6 - 4 = 14$

(3) $3 \times 6 - 4 = 33$

(4) $3 - 6 \times 8 = 10$

79. Seven persons Anil, Bharat, Chand, Dinesh , Eshwar, Ravi, Ganesh, who have gathered at a picnic spot are sitting in a row facing a photographer :

(a) Chand and Dinesh are sitting next to each other

(b) There are exactly four persons between Bharat and Ganesh

(c) Dinesh is sitting to the immediate right of Bharat

If Anil and Eshwar are separated exactly by two persons then who is sitting to the left of Ganesh ?

(1) Anil

(2) Eshwar

(3) Ravi

(4) Chand

80. Four women A, B, C and D and four men E, F, G and H are sitting around circular table facing the center :

(a) No two women or two men are sitting side by side

(b) C, who is sitting between G and E, is facing D

(c) F is sitting between D and A and is facing G

(d) H is sitting to the right of B.

Then who is facing E ?

(1) F

(2) B

(3) G

(4) H

Directions : (Question : 81 TO 84)

Complete the given number analogy by choosing the correct answer from the four options given below

81. $12:864::18:\boxed{}$

(1) 1624

(2) 1824

(3) 1260

(4) 2916

82. $143:120::221:\boxed{}$

(1) 168

(2) 189

(3) 196

(4) 220

83. $3541:6874::2613:\boxed{}$

(1) 2136

(2) 5946

(3) 5225

(4) 6135

84. $6:149:142::7:\boxed{}:\boxed{}$

(1) 165, 158

(2) 198, 205

(3) 201, 194

(4) 389, 374

Directions : (Questions : 85-87)

The words are given under Column - I. Their codes are given under Column - II. The order of coding for the letters of the word in the Column - I do not follow the same order in the Column - II. Find the codes for the letters of words in Column - I and find the codes for the given words in questions :

Column - I	Column - II
KIN	qpf
SON	nql
AVE	ecx
DUST	dknb
LOAN	xlmq
TAKE	bcpx

85. ANKLE

(1) p q x m c

(2) x q p m c

(3) x p q m c

(4) x q p c m

86. STUDENT

(1) n b k d q c b

(2) p b d k q c b

(3) n x k d c b q

(4) n b d k c q b

87. SOLUTION

(1) n l m d b f l q

(2) n l m b d f q l

(3) n l m k b f l q

(4) l m n b d q l f

There are five floors in a school building, with one balcony in each floor. They are indicated as 1ˢᵗ, 2ⁿᵈ, 3ʳᵈ, 4ᵗʰ and 5th floor from the ground. Four students A, B, C and D decide to keep potted plants in the balcony. Only one student is allowed to keep a pot in one balcony. 'A' keeps a pot two floors below where 'C' keeps and 'D' keeps a pot one floor above where 'B' keeps. One balcony is left vacant:

88. If 'A' places the pot in 3rd floor balcony then, which of the following is true?

(1) 'B' places pot in the first floor balcony.
(2) 'C places pot in the first floor balcony
(3) Second floor balcony is empty
(4) 'D' places pot in the fifth floor balcony

89. If second floor balcony is vacant, then where 'C' can place the pot?

(1) In the first floor balcony
(2) In the third floor balcony.
(3) In the fourth floor balcony
(4) In the fifth floor balcony

90. Take the given statements as true and decide which of the following conclusions follow logically from these statements:

Statements:
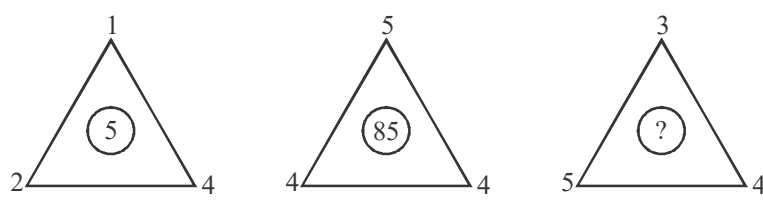
a. All mobiles are laptops.
b. No laptop is a tablet.
c. All laptops are supercomputers.

Conclusions:

I. No mobile is a tablet.
II. No supercomputer is a tablet
III. Some supercomputers are tablets
IV. All laptops are mobiles

(1) Only conclusion II follows along with
(2) Only conclusion IV follows along with
(3) Only conclusions II or III follows along with I
(4) Only conclusion IV follows along with II.

In the questions given below the numbers in the figures arc related. Identify their relationship and find the missing number in the given figure:
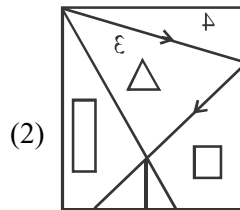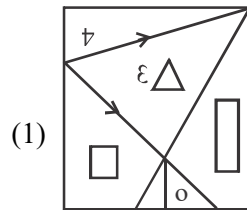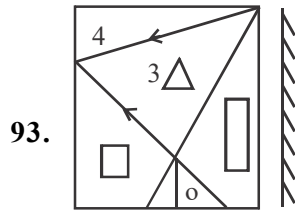
91.

(1) 60
(2) 63
(3) 130
(4) 144

92.

(1) 82
(2) 82
(3) 76
(4) 80

16
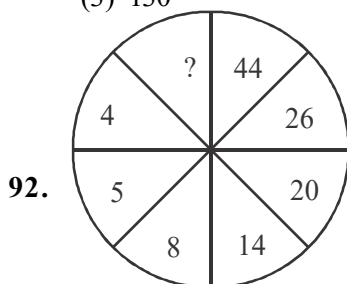
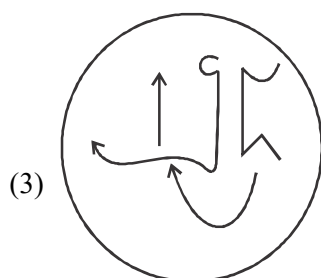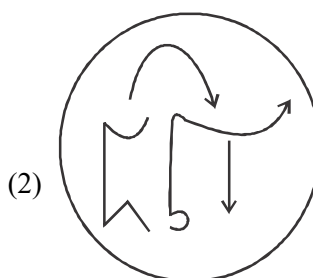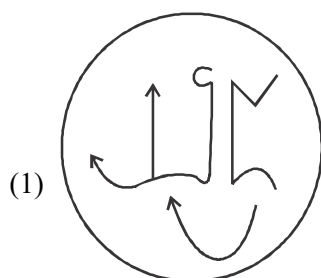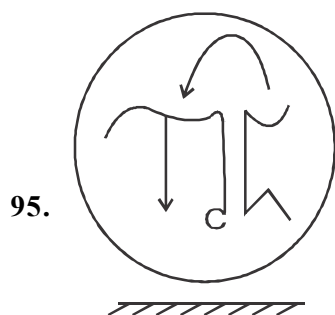**Directions : (Questions: 93 & 94)**

Find the correct mirror image for the following problem figure choosing from the given options:

93.

(1)

(2)

(3)

(4)

94.

(1)

(2)

(3)

(4)
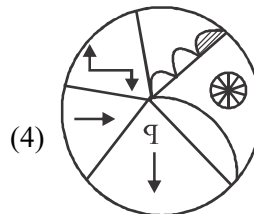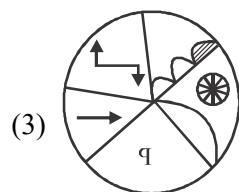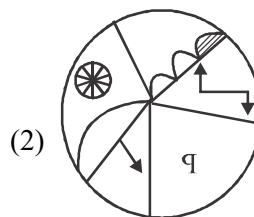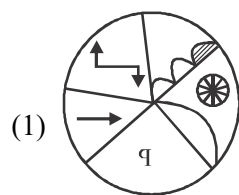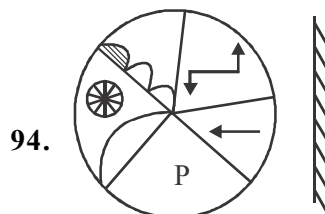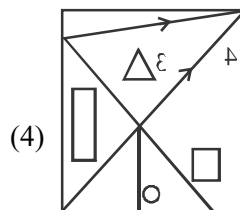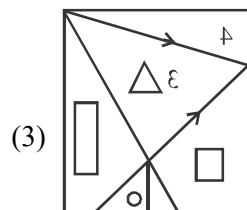
Directions : (Questions : 95 & 96)

Find the correct water image for the following problem figure choosing from the four options:

95.

(1)

(2)

(3)

(4)
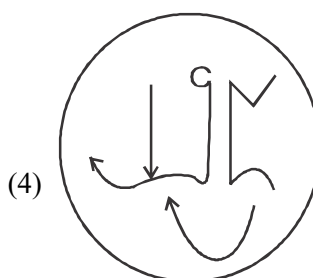
96. R j S k 5 L i m Q t

(1) ʁ j S ʞ ƨ Γ ! ɯ Ó t
(2) ʁ ! ƨ ʞ ƨ Γ ! ɯ Ó t
(3) ʁ ! ƨ k ƨ Γ ! ɯ Ó t
(4) ʁ ! ƨ k ƨ Γ ! ɯ Q t

Directions : (Questions : 97 & 98)

In each questions given below a statement is given, followed by two conclusions. Assume the given statement to be true and decide which of the given conclusions logically follow from the statement:

97. **Statement :** If you are focussed and disciplined, then only you will become successful.

Conclusions : (I) One who is focussed and has a disciplined mind can achieve success.

(II) Without discipline there is a possibility of achieving success.

(1) Both conclusions I and II follow
(2) Only conclusion I follows
(3) Only conclusion II follows
(4) Neither conclusion I nor II follows

98. Statement : " High IQ (Intelligence Quotient) is mandatory to become a scientist ".

Conclusions: (I) All students with high IQ become scientists.

(II) A student   with an average I.Q. may also become a scientist.

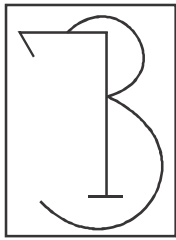(1) Only conclusion I follows

(2) Only conclusion II follows

(3) Both conclusions I and II follow
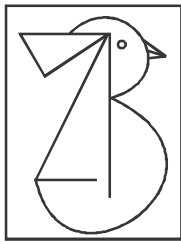
(4) Neither conclusion I nor II follows

Directions : (Questions : 99 & 100)

In the questions below, a problem figure is given. The problem figure is hidden in one of the figures given below. Pick the correct option:
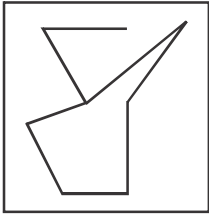
99.

(1)

(2)

(3)

(4)

100.

(1)

(2)

(3)

(4)