class 10
MAT
Mental Ability Test

TARGET
NTSE
National Talent Search Examination

Solved Paper
2010
Stage 2

Max. Marks : 100

Instructions for Candidates

Read the following instructions carefully before you answer the questions :

1. Answers are to be given on a separate answer-sheet.

2   Write your eight-digit Roll Number very clearly on the test-booklet and answer-sheet as given in your letter / admission card.

3. Write down the Booklet Number in the appropriate box on the answer sheet.

4   There are 100 questions in this test. All are compulsory.

5. Please follow the instructions for marking the answers given on the answer sheet.

6. For questions 1 – 90, put a cross mark (X) on the number of the correct alternative on the answer-sheet against the corresponding question number. For questions 91-100, write the answers in the given space.

7. If you do not know the answer to any question, do not spend much time on it and pass on to the next one. Time permitting, you can come back to the questions, which you have left in the first instance and try them again.

8. Since the time allotted for this question paper is very limited you should make the best use of it by not spending too much time on any one question.

9. Rough work can be done anywhere in the booklet but not on the answer sheet/loose paper.

10. Every correct answer will be awarded one mark.

11. Please return the Test-booklet and answer-sheet to the invigilator the test.

Direction (Qs.1 – 9) : *In each of the following questions there is some relationship between the two terms (figures, letter clusters or numbers) on the left of the sign (: :). The same relationship exists between the two terms on the right of the sign (: :) of which one is missing. Find the missing one from the four alternatives.*

1.

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

2.

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

3.

(1)   (2)   (3)   (4)
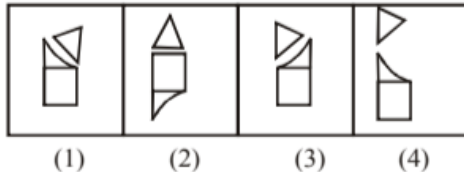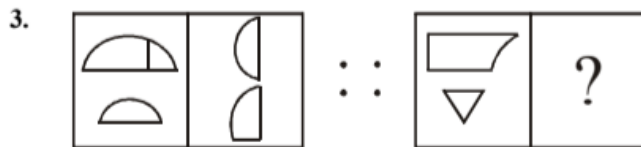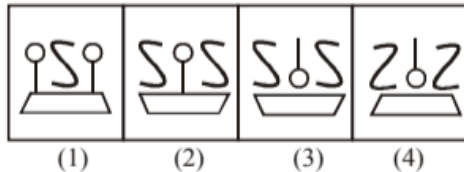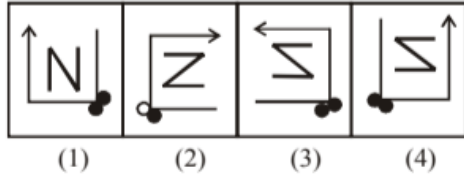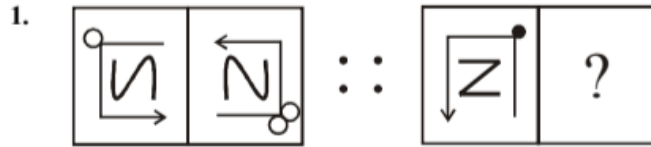
4. FEAL : LEAF : : EAKT : ?
(1) ETAK   (2) TAKE
(3) KATE   (4) KETA

5. ACEG : JLNP : : BDFH : ?
(1) KMOQ   (2) KLON
(3) NMPR   (4) LMNO

6. BJRZ : FNVD : : HPXF : ?
(1) RZFN   (2) VDFJ
(3) LTBJ   (4) NVDJ

7. 7 : 64 : : 13 : ?
(1) 169   (2) 196
(3) 216   (4) 225

8. 64 : 9 : : 81 : ?
(1) 15   (2) 12
(3) 10   (4) 7

9. 121 : 1331 : : 81 : ?
(1) 750   (2) 735
(3) 729   (4) 675

Directions (Qs. 10 & 11) : *The figures in each of the following questions follow a series. Select the figure from the given alternatives which would continue the series.*

10.

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

11.

(1)   (2)   (3)   (4)
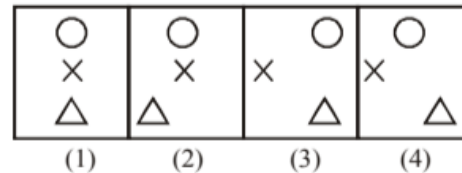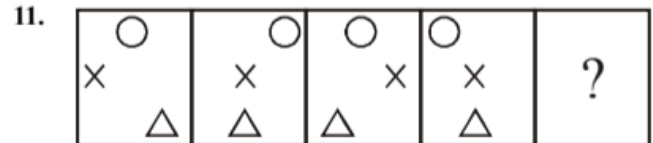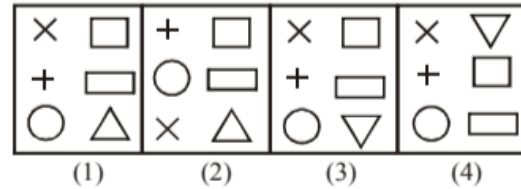
Directions (Qs. 12 & 13) : *In the following questions, find the one that does not fit in the sequence established by the six figures given.*

12.

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

13.

(1)   (2)   (3)   (4)
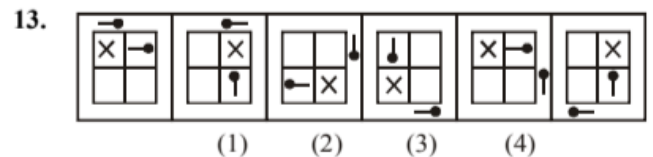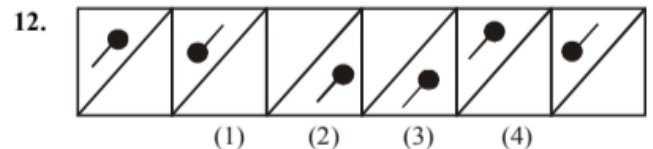
Directions (Qs. 14-16) : *The following questions are based on letter sequence. In each sequence some letters are missing. Find the correct alternative in each question to fill the blanks.*

14. – aba – a – a – ab –
(1) a a b a a   (2) b a b b a
(3) a b b a b   (4) b b a a b

15. n – mn – mm – nm – n
(1) n m m n   (2) m n n m
(3) n n m m   (4) m m n m

16. ba – bb – a – b – a –
(1) b a a b a   (2) a b a a b
(3) a a b a b   (4) b b a b a

Directions (Qs. 17- 19) : *In each of the following questions a number series is given. Find out the missing term of the series.*

17. 806, 519, 287, 232, 55, ?
(1) 47   (2) 137
(3) 177   (4) 205

18. 20, 36, 61, 97, 146, ?
(1) 179	(2) 197
(3) 207	(4) 210

19. 57, 79, 911, 1113, 1315, ?
(1) 1419	(2) 1503
(3) 1517	(4) 1719

Directions (Qs. 20 -27) : *In the following questions, four items (figures, letter clusters or numbers) are given. Three of them are alike in a certain way. Find the one which is different from others.*

20.

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

21.

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

22.

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

23.
(1) CDBE	(2) LMKN
(3) RSQT	(4) WXYV

24.
(1) KEAI	(2) NEAL
(3) REAT	(4) DEAB

25.
(1) 81 : 729	(2) 16 : 64
(3) 49 : 343	(4) 36 : 226

26.
(1) 3 : 17	(2) 5 : 26
(3) 8 : 82	(4) 9 : 101

27.
(1) 54	(2) 90
(3) 135	(4) 188

Directions (Qs. 28- 30) : *In the following questions, numbers are arranged in the form of a pyramid. From this pyramid four sets of numbers are selected based on certain logic. Two of these are given on the left and two on the right of the sign (: :). One set of the numbers on the right goes missing. Choose that set of numbers from the alternatives which carries the same logic.*

```
                    16
                15  17  26
            7   14  18  25  27
          6  8  13  19  24  28  33
        2  5  9  12  20  23  29  32  34
      1  3  4  10  11  21  22  30  31  35  36
```

28. 1, 2, 4 : 5, 10, 12 : : 31, 34, 36 : ?
(1) 11, 20, 22	(2) 24, 29, 33
(3) 23, 30, 32	(4) 20, 22, 29

29. 18, 19, 20 : 7, 8, 9 : : ? : 23, 24, 25
(1) 31, 32, 33	(2) 27, 28, 29
(3) 23, 24, 25	(4) 12, 13, 14

30. 3, 8, 17 : 4, 13, 26 : : ? : 17, 28, 35
(1) 26, 28, 35	(2) 15, 24, 31
(3) 17, 24, 31	(4) 26, 27, 33

Directions (Qs. 31 & 32) : *In the following questions a pattern is given with a part missing. Find out the part which will complete the pattern.*

31.

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

32.

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

Directions (Qs. 33 & 34) : *In each of the following questions a problem figure is given. Study the figure carefully and then answer the questions given under it.*

33.

How many angles are there ?
(1) 11	(2) 10
(3) 8	(4) 5

34.

How many triangles are there ?
(1) 20	(2) 21
(3) 26	(4) 28

35. **Statements :**
    (1) All lamps are books.
    (2) No book is coloured.
    Conclusions :
    I. Some lamps are coloured.
    II. No lamp is coloured.
    (1) Only conclusion I follows.
    (2) Only conclusion II follows.
    (3) Both I and II follow.
    (4) Neither I not II follows.

36. **Statements :**
    (1) All envelopes are umbrellas.
    (2) All umbrellas are chalks.
    Conclusions :
    I. Some chalks are envelopes.
    II. Some umbrellas are not envelopes.
    (1) Only conclusion I follows.
    (2) Only conclusion II follows.
    (3) Both I and II follow.
    (4) Neither I nor II follows.

37. **Statements :**
    (1) All dogs are reptiles.
    (2) Some cats are reptiles.
    Conclusions :
    I. Some dogs are cats.
    II. Some cats are not reptiles.
    (1) Only conclusion I follows,
    (2) Only conclusion II follows.
    (3) Both I and II follow.
    (4) Neither I nor II follows.

38. A says, "If B gives me ` 40 he will have half as much as C. But if C gives me ` 40 then three of us will have the same amount. What is the total amount of money that A, B and C have among them ?
    (1) 240
    (2) 320
    (3) 360
    (4) 420

39. At the end of a dinner party all the eight people present shake hands with each other once. How many handshakes will there be altogether ?
    (1) 8
    (2) 16
    (3) 28
    (4) 64

40. In an examination, a student attempted 15 questions correctly and secured 40 marks. If there were two types of questions i.e. of 2 marks and 4 marks, how many questions of 2 marks did he attempt correctly ?
    (1) 5
   (2) 10
    (3) 12
    (4) 15

41. The number of boys in a class is four times the number of girls. Which one of the following numbers cannot represent the total number of children in the class ?
    (1) 5
    (2) 16
    (3) 30
    (4) 40

42. Between two book ends in your study are displayed your four favourite puzzle books. If you decide to arrange the four books in every possible combination and move just one book every minute how long would it take you ?
    (1) 24 minutes
    (2) 20 minutes
    (3) 8 minutes
    (4) 4 minutes

43. In the given figure below what does the shaded portion depict ?
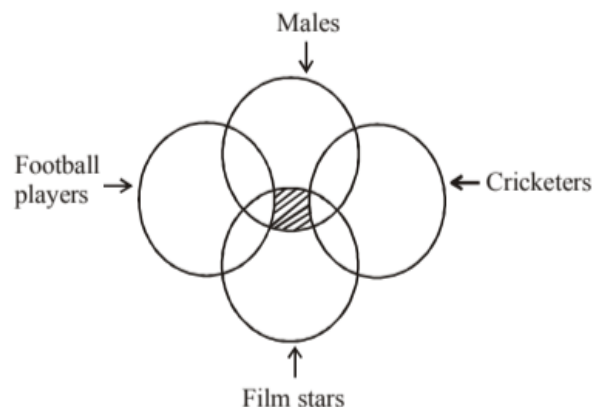
    (1) A group of male film stars who are football players.
    (2) A group of film stars who are both football players and cricketers.
    (3) A group of male film stars who neither play cricket nor football.
    (4) A group of male film stars who are cricketers but not football players.

44. Ajay wants to go to the Management Institute. He starts from home, which is in the East of a crossing. He walks towards the crossing. The road to the left ends in a school, straight ahead is a community hall. The road to the right leads to the Management Institute. In which direction is the management Institute from the crossing ?
    (1) East
    (2) West
    (3) South
    (4) North

45. Vineeta's house is to the right of Kareena's house at a distance of 30 metres in the same row facing north, Sonal's house is in the north-east direction of Kareena's house at a distance of 35 metres. Determine the direction of Vineeta's house with respect to Sonal's house.
    (1) West
    (2) East
    (3) South
    (4) North

46. From his house Mohan moves 30 km in North-West direction and then 30 km in South-West direction. Next he moves 30 km in South-East direction. Finally he turns towards his house. In which direction is he moving ?
    (1) North-East
    (2) South-East
    (3) North-West
    (4) South-West

47. If North-West becomes South, South-West becomes East and so on, what will West become ?
    (1) North
    (2) North-East
    (3) South
    (4) South-East

48. If the teachers are to the West of Principal's Office and students are to the North of Principal's Office, in what direction are teachers with respect to the students ?
   (1) South
    (2) South West
    (3) North
    (4) North East

49. A dice is thrown thrice and its three positions are given below. Find the alphabet opposite P ?

(i)　　　　(ii)　　　　(iii)
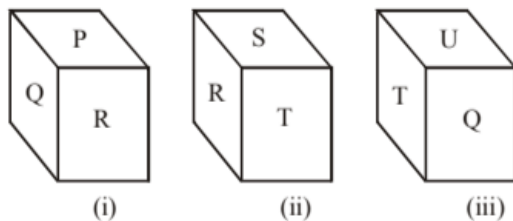
(1) R　　　　　　　(2) T
(3) Q　　　　　　　(4) S

50. The six dices are given below. The top face of each dice is erased. The sum of the dots on the front, back and top, bottom face is 7. If the odd numbered dices have even number of dots on their top faces and even numbered dices have odd number of dots on their top faces, what would be the total number of dots on the top faces ?

I　　　　II　　　　III

IV　　　　V　　　　VI
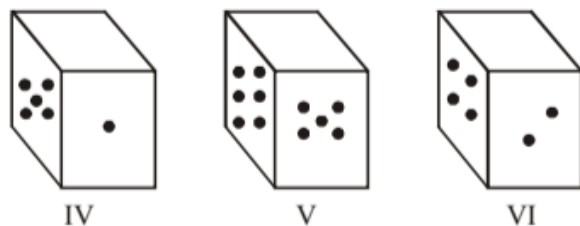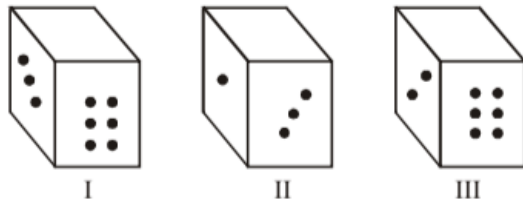
(1) 25　　　　　　　(2) 23
(3) 21　　　　　　　(4) 19

51. If + means ×, − means ÷, ÷ means − and × means +, then which one of the following equations is correct ?
(1) $7 + 8 − 2 ÷ 5 × 12 = 45$
(2) $36 − 6 + 10 × 5 = 65$
(3) $66 × 4 − 9 + 11 = 88$
(4) $162 + 10 − 2 × 12 = 218$

52. In the following equation, two signs need to be interchanged to make it correct. Choose the signs from the given alternatives.
$$3 × 5 + 3 − 18 ÷ 3 = 12$$
(1) ÷ and +　　　　(2) × and −
(3) × and +　　　　(4) + and −

53. If * = − ; # = + ; @ = = ; $ = ÷ ; & = × , then which one of the following alternatives is true ?
(1) (6 # 2) $ 2 @ (2 & 8) * 1
(2) 81 * 4 & 3 @ 4 # 16 * 3
(3) (81 * 4) & 3 @ 8 $ 15 & 7
(4) (15 * 4) & 3 @ (60 $ 2) # 3

54. If interchanges are made in signs and numbers, which one of the four equations given in the alternatives would be correct ?
Interchange : sign + and ÷ and number 3 and 6
(1) $3 + 6 ÷ 6 = 10$　　　(2) $6 + 3 ÷ 4 = 2.5$
(3) $6 ÷ 3 + 3 = 6$　　　(4) $3 + 6 ÷ 2 = 4$

55. If 0 stands for the operation "Add and double the sum", that is a 0 b = 2 (a + b); and ⊗ stands for "Multiply and halve", that is a ⊗ b = ½ ab. Find the value of (5 ⊗ 4) 0 (7 ⊗ 6)
(1) 117　　　　　　(2) 88
(3) 62　　　　　　(4) 31

56. If alternate English alphabets starting from c such as c, e, g, i and so on, are written in small letters while others in capitals, then how the 3rd day from Monday will be written ?
(1) W e D N e S d A y　(2) T h U r S D s y
(3) W E d n E s d A y　(4) T H u R s D A y

57. If the word GROUND is coded as BMJPIY, how the word MINDWELL will be coded ?
(1) R N S I B J Q Q　　(2) H D I Y R Z G G
(3) R N I Y B Z G G　　(4) H D I R Y G Z Z

Directions (Qs. 58 and 59) : *The capital letters in each following words are coded and written in small letters, but not in the same order as the letters in the word. Find the codes for letters and answer the questions.*

RATE : u l h b
DATE : a h u l
MALE : g p u l
NAME : c g u l
ROAD : b u a f
TALE : h p l u

58. What will be code in correct order for the word TOAD ?

(1) b f a l　　　　　(2) g u f b
(3) h f u a　　　　　(4) h u f l

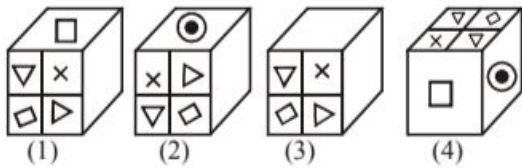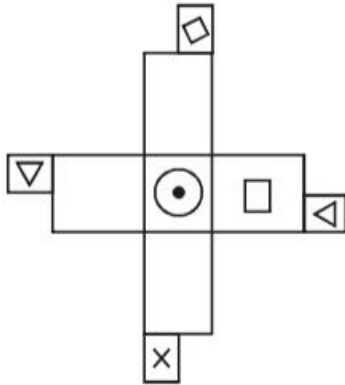**59.** How will NORMAL be coded in correct order ?
(1) c f b h u e　　　(2) c f b g u p
(3) c u b g f l　　　(4) c l u b p g

60. The six faces of a cube have been marked with numbers 1, 2, 3, 4, 5 and 6 respectively. This cube is rolled down three times. The three positions are given. Choose the figure that will be formed when the cube is unfolded.
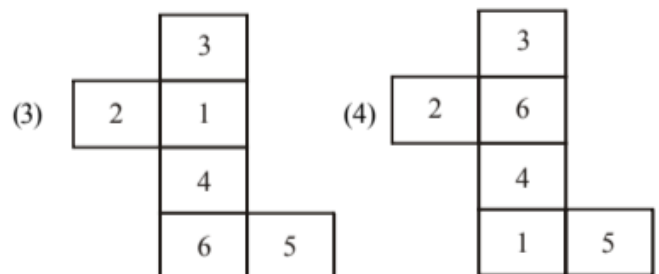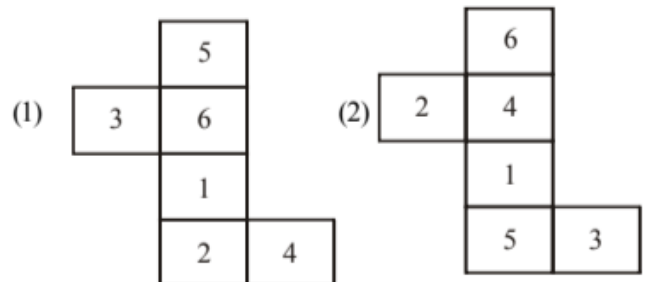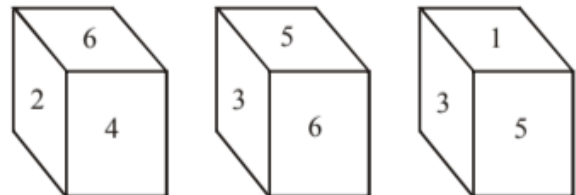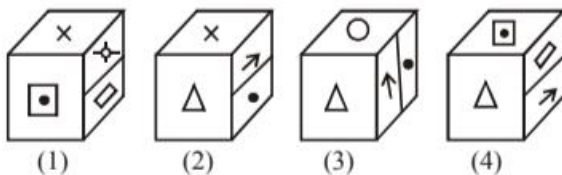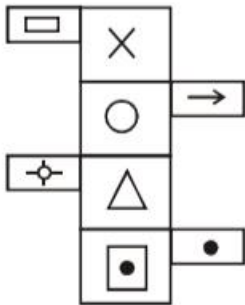
61.

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

(1) (2) (3) (4)
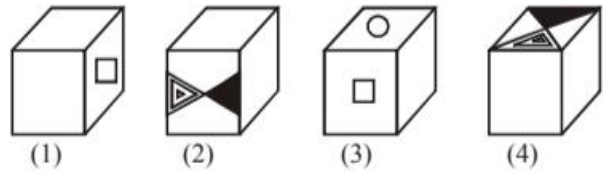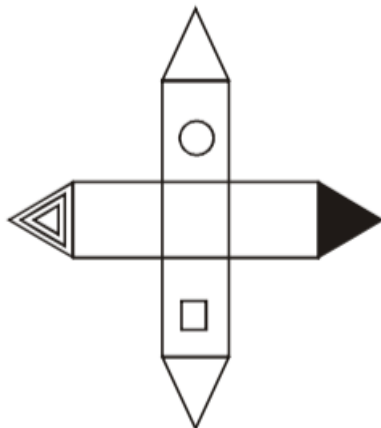
62.

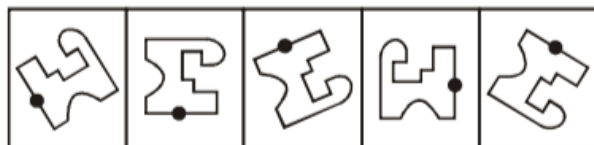(1) (2) (3) (4)

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

63.

Directions (Qs. 64 - 66) : *Next three questions are based upon the information given below. Study the information carefully and then choose the correct alternative to answer the questions.*

Five friends A, B, C, D and E are sitting on a bench.

(1) A is sitting next to B.
(2) C is sitting next to D.
(3) D is not sitting with not E.
(4) E is on the left end of the bench.
(5) C is on second position from the right.
(6) A is on the right side of B and to the right side of E.
(7) A and C are sitting together.

64. Where is A sitting ?
(1) Between B and D   (2) Between D and C
(3) Between C and E   (4) Between B and C

65. C is sitting between
(1) B and D   (2) A and E
(3) D and E   (4) A and D

66. What is the position of D ?
(1) Extreme left   (2) Extreme right
(3) Third from left   (4) Second from left

Directions (Qs. 67-70) : *Next four questions are based upon the information given below. Study the information carefully and then choose the correct alternative to answer the questions.*

In a family there are six members A, B, C, D, E and F. A and B are married couple, A being the male member. D is the only son of C who is the brother of A. E is the sister of D. B is the daughter in law of F whose husband has died.

67. How is F related to A ?
(1) Mother   (2) Sister-in-law
(3) Sister   (4) Mother-in-law

68. How is E related to C ?
(1) Sister   (2) Daughter
(3) Cousin   (4) Aunt

69. Who is C to B ?
(1) Brother   (2) Son-in-law
(3) Nephew   (4) Brother-in-law

70. How many male members are there in the family ?
(1) Two   (2) Three
(3) Four   (4) Five

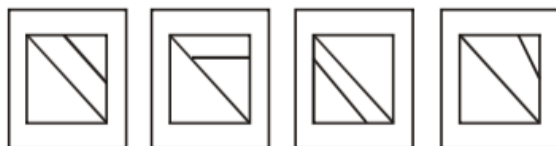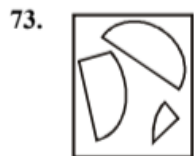**71.** Which of the options can be obtained by rotating the figure X ?

X

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

Directions (Qs. 72 and 73): *In the following questions, the top figure contains the parts of a figure which can be made by joining them together. Select the alternative which shows best how these parts can fit together.*
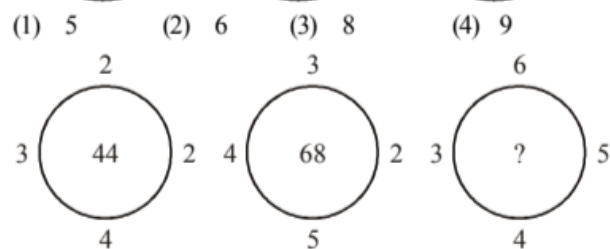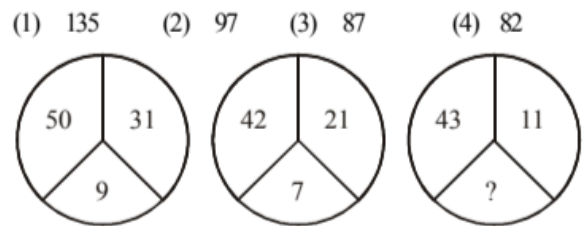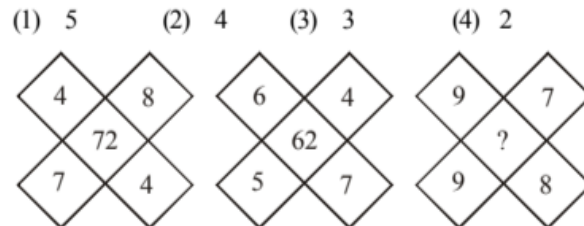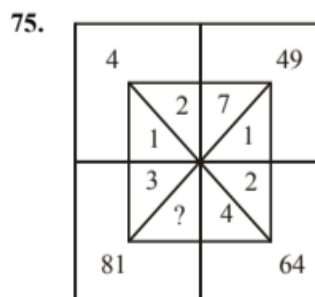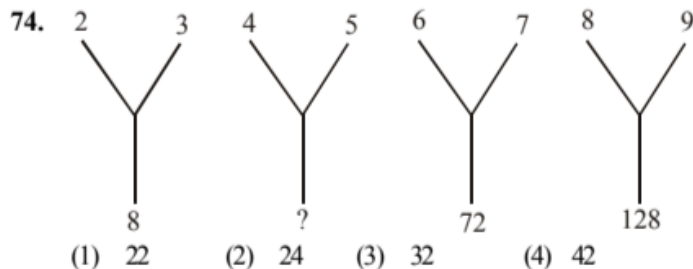
72.

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

73.

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

Directions (Qs. 74 -78): *In the following questions, a set of figures carrying some numbers is given. The numbers in each figure follow some specific principle. Study the figures to find out the principle on the basis of which the missing number can be derived. Then, choose the correct alternative which contains this missing number.*

74.

(1) 22 (2) 24 (3) 32 (4) 42

75.

(1) 5 (2) 4 (3) 3 (4) 2

76.

(1) 135 (2) 97 (3) 87 (4) 82

77.

(1) 5 (2) 6 (3) 8 (4) 9

78.

(1) 82 (2) 98 (3) 104 (4) 112

79. If the English letters A to Z are written in a reverse order then what is the fourth letter to the right of 12th letter from the left ?
(1) K (2) J (3) R (4) L

80. If the first and third letters in the letter group DISTRIBUTION are interchanged and also the second and fourth letters, the fifth and seventh and so on then which of the following would be seventh letter from the left ?
(1) U (2) R (3) B (4) T

81. If the letters of RUTHLESS are arranged alphabetically then which letter would be the last letter ?
(1) T (2) E (3) H (4) U

Directions (Qs. 82 & 83): *In the following questions, find out which of the figures 1, 2, 3 and 4 given in the alternatives is embedded in the figure given on top.*

82.
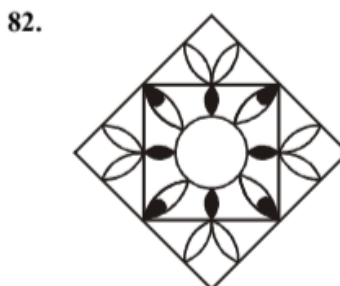
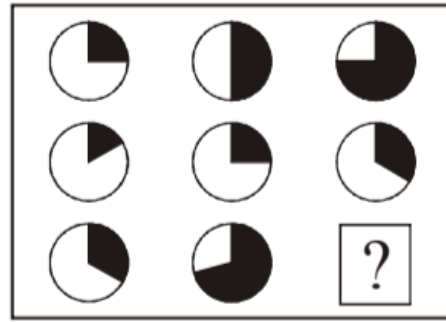(1)   (2)
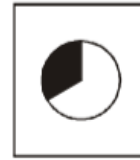
(3)   (4)

83.

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

Directions (Qs. 84 - 86) : *In the following questions a set of figures is given. Find out the figure which will complete the blank space from the given alternatives.*
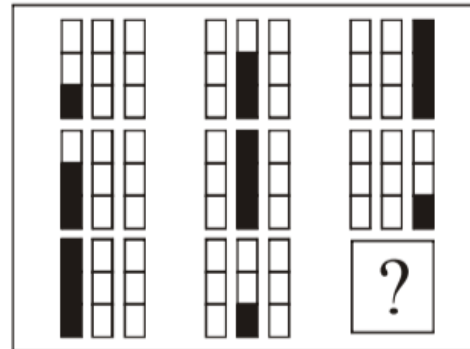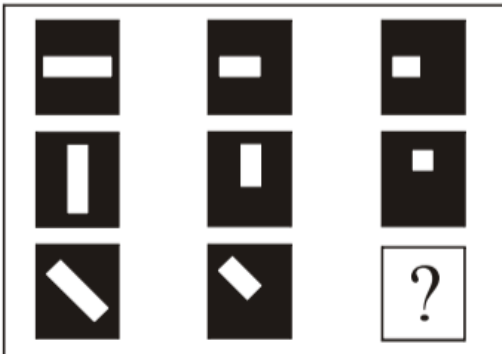
84.

?

(1)   (2)

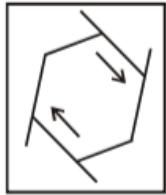(3)   (4)

85.

?

(1)   (2)

(3)   (4)

86.

?

(1)   (2)

(3)   (4)

Directions (Qs. 87 & 88) : *There is a figure to the left of the vertical parallel lines. Examine the figures given in the alternatives and find the one which is the exact mirror image of the figure given to the left of the vertical lines.*
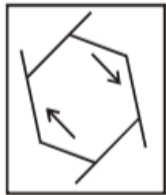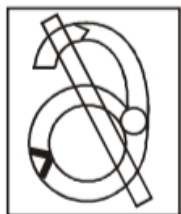
87.
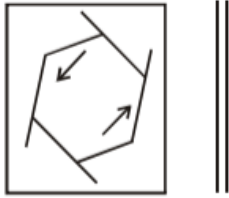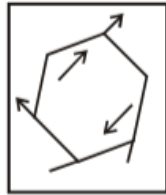
| (1) | (2) |
| (3) | (4) |

88.

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

Directions (Qs. 89 and 90) : *In each of the following, a question is followed by two statements marked I and II. Decide which of the statements are sufficient to answer the question. Choose your answer from the given alternatives.*

89. What is ZMohan's age ?
Statements :
I. In 15 years Mohan will be twice as old as Ram would be.
II. Ram was born 5 years ago.
(1) Only I is sufficient.
(2) Only II is sufficient.
(3) Both I and II are required.
(4) Both I and II are not sufficient.

90. Who is a better singer D or F ?
Statements :
I. F sings better than both G and S.
II. Neither S nor F sings so well as D.
(1) Only I is sufficient.
(2) Only II is sufficient.
(3) Both I and II are required.
(4) Both I and II are not sufficient.

Directions (Qs. 91-100) : *For questions from 91 to 100, write your answers in the given space in the answer sheet. Your answers should be written only in numbers.*

Directions (Qs. 91 and 92) : *Study the following diagram and then answer each question. Write only the number.*
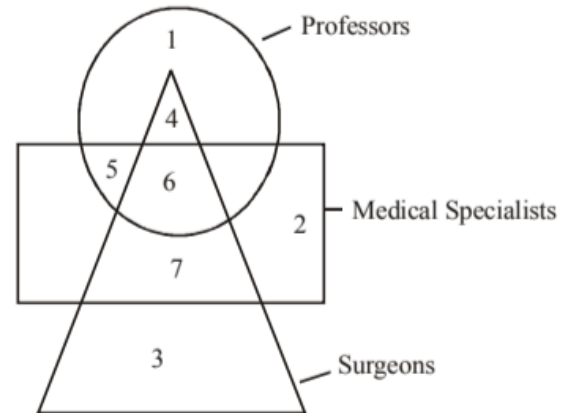
91. Which number indicates Professors who are Medical Specialists ?

92. Which number indicates Surgeons who are Medical Specialists but not Professors ?
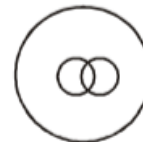
Directions (Qs. 93 - 95) : *Each one of the following questions contain three items. Using the relationship between these items match each question with the most suitable diagram given below. Your answer is the number which denotes that diagram. Write the number of the diagram in your answer sheet.*


| I | II | III | IV |

93. Your, mine, their
94. Flowers, clothes, white
95. Mountains, Forests, Earth

96. In the following series how many 8s are there which are followed by 8? Write the number in your answer sheet.

8 9 0 8 8 1 3 8 8 8 2 3 2 8 8 1 2 8 5 6 6 9 7 1 8 5 6 7 8 8 1 8 8

97. How many dots lie opposite the face having four dots, when the given figure is folded to form a cube ? Write the number of dots in your answer sheet.
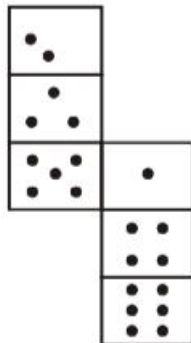
98. If the fifth day of the month is 3 days earlier than Tuesday, what day will it be on the 15ᵗʰ day of the month ? Write the number of the day counting Monday as 1, Tuesday as 2 and so on.

99. X was born on 3ʳᵈ March, 1980. Y was born 4 days before X. The Republic Day of that year fell on Saturday. Then which day was Y's birthday ? Write the number of the day counting Monday as 1, Tuesday as 2 and so on.

100. Five boxes numbered as 1, 2, 3, 4 and 5 are stacked one on top of the other starting with number 1 at the bottom as shown.
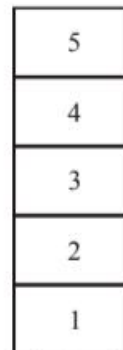
Box 1 is removed and placed on top of the stack. If the procedure is repeated two more times, which box will be in the middle of the stack ? Write only the number of the box.

Hints & Explanations

1. (4) In this, circle shifts diagonally. Three hand arrow shifts 180° anti - clockwise and inner diagram become horizontally reversed i.e. mirror image.

2. (3) '$\bigtriangledown$' like image shifts downward and became reversed. '↑' shifts upward. One circle becomes two in number and shifts downward. Same pattern will follow in next diagram.

3. (3) Lower part of semi circle shifts at upper part also moves 90° anti clock wise. Upper part semicircle turns 90° anti-clockwise and becomes small.

4. (2)

F   E   A   L   E   A   K   T
          Similarly
L   E   A   F   T   A   K   E

5. (1)

$A \xrightarrow{+9} J$ $B \xrightarrow{+9} K$

Similarly

$C \xrightarrow{+9} L$ $D \xrightarrow{+9} M$

$E \xrightarrow{+9} N$ $F \xrightarrow{+9} O$

$G \xrightarrow{+9} P$ $H \xrightarrow{+9} Q$

6. (3)

$B \xrightarrow{+4} F$ $H \xrightarrow{+4} L$

Similarly

$J \xrightarrow{+4} N$ $P \xrightarrow{+4} T$

$R \xrightarrow{+9} V$ $X \xrightarrow{+4} B$

$Z \xrightarrow{+4} D$ $F \xrightarrow{+4} J$

7. (2) $7 : (7\text{'s next number})^2 :: 13 : (13\text{'s next number})^2$

$\Rightarrow 7 : 8^2 :: 13 : (14)^2$

$\Rightarrow 7 : 64 :: 13 : \boxed{196}$

8. (3) $64 : 9 :: 81 : ?$

$\Rightarrow (\sqrt{64} = 8) : (8\text{'s next number} = 9)$

$:: (\sqrt{81} = 9) : (9\text{'s next number})$

$\Rightarrow 64 : 9 :: 81 : \boxed{10}$

9. (3) $(11)^2 : (11)^3 :: (9)^2 : \boxed{(9)^3}$

$\Rightarrow 121 : 1331 :: 81 : \boxed{729}$

10. (1) Circle moves in next figure by then become still in next figure and then again moves. '+' symbol moves anti-clockwise then become still then again moves in next figure. Same rule followed by each diagram either in clockwise or anticlockwise direction.

11. (4) Circle moves clockwise one step then anti-clockwise one-one step in next two figures then again moves one step clockwise. Same rule followed by remaining two diagram × and Δ.

12. (3) In figure (3), darken circle is not changing their place and same as in figure (2).

14. (1) Series = a̲ a b a / a̲ a b̲ a / a̲ a b a̲

15. (2) Series = n m̲ m n / n̲ m m n̲ / n m̲ m n

16. (3) Series = b a a̲ b / b a̲ a b̲ / b a̲ a b

17. (3)

806   519   287   232   55   ⟨177⟩

806 − 519 = 287
519 − 287 = 232
287 − 232 = 55
232 − 55 = 177

18. (4)

20   36   61   97   146   ⟨210⟩

$+16 = (4)^2 \quad +25 = (5)^2 \quad +36 = (6)^2 \quad +49 = (7)^2 \quad +64 = (8)^2$

19. (3)

$+2 \quad +2 \quad +2 \quad +2 \quad +2$

57   79   9 11   11 13   13 15   15 17

$+2 \quad +2 \quad +2 \quad +2 \quad +2$

20. (2)

Opposite to each other

Diagonally moves ACW Opposite to each other
Does not opposite to each other

21. (1)

1st figure → 45° → 135° → 45° anti-clockwise movement. But first figure is not correct. It should be like ⌀

22. (3) In figure, third outmost two diagrams (two small circles) must be at one place or nearby to each other like figure first, outmost two small darken circles.

23. (4)

There fore option (4) is odd one out.

24. (3)
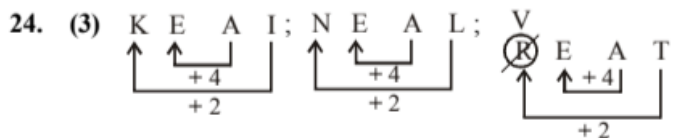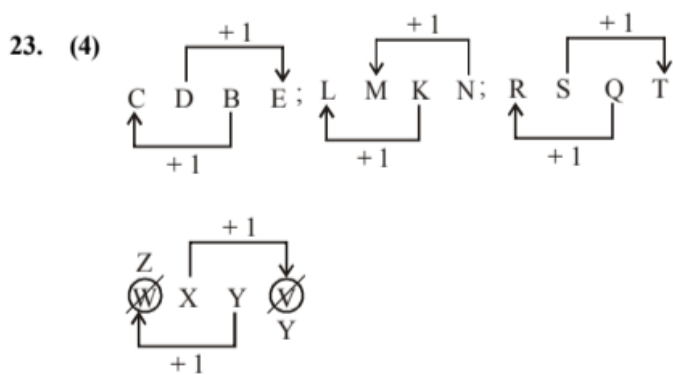
So, there should be V instead of R. So, incorrect one is REAT.

25. (4) $81:729$; $16:64$; $49:343$; $36:216$
$(9)^2:(9)^3$ $(4)^2:(4)^3$ $(7)^2:(7)^3$ $(6)^2:(6)^3$
There should be 216 instead of 226. So, incorrect one is $36:226$.
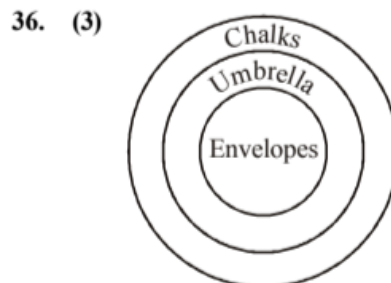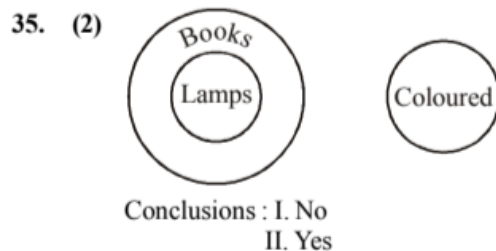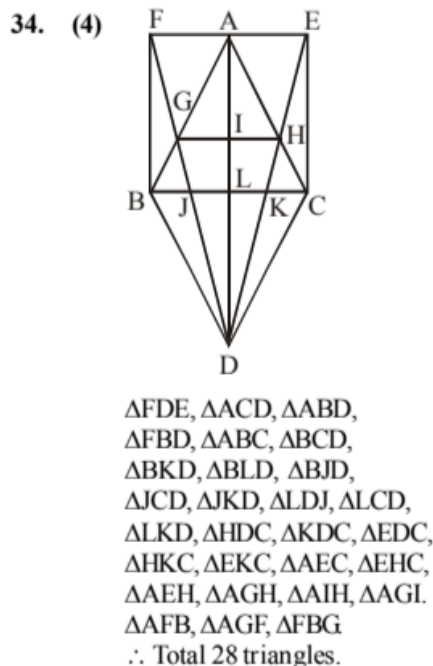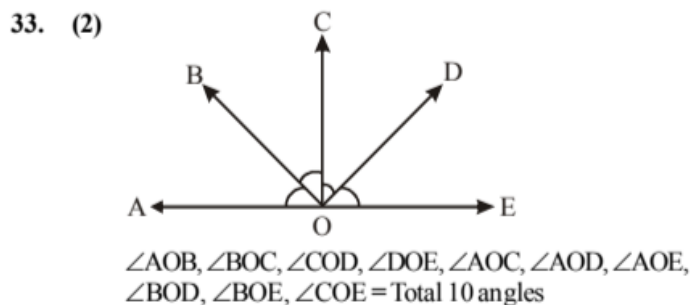
27. (4) All are divisible by 3 except 188.

28. (3)

Similarly
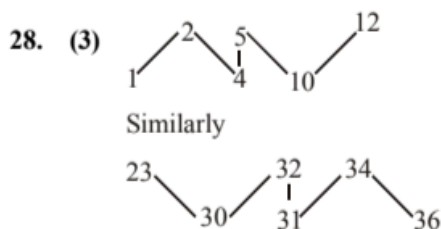
29. (4)

$\overleftarrow{7 \times 18}$	$\overleftarrow{14 \times 25}$
8×19	13×24
9×20	12×23

$18, 19, 20 : 7, 8, 9 :: 12, 13, 14 : 23, 24, 25$

30. (2)

31. (3) Will complete the pattern of

32. (4) will complete the pattern of

33. (2)

$\angle AOB, \angle BOC, \angle COD, \angle DOE, \angle AOC, \angle AOD, \angle AOE,$
$\angle BOD, \angle BOE, \angle COE =$ Total 10 angles

34. (4)

$\triangle FDE, \triangle ACD, \triangle ABD,$
$\triangle FBD, \triangle ABC, \triangle BCD,$
$\triangle BKD, \triangle BLD, \triangle BJD,$
$\triangle JCD, \triangle JKD, \triangle LDJ, \triangle LCD,$
$\triangle LKD, \triangle HDC, \triangle KDC, \triangle EDC,$
$\triangle HKC, \triangle EKC, \triangle AEC, \triangle EHC,$
$\triangle AEH, \triangle AGH, \triangle AIH, \triangle AGI.$
$\triangle AFB, \triangle AGF, \triangle FBG.$
$\therefore$ Total 28 triangles.

35. (2)

Conclusions : I. No
                    II. Yes

36. (3)

I.

Chalks

II.

Some Chalks
are envelopes

Some umbrellas are
not envelopes

37. (2)

Reptiles

Dogs | Cats

or

Reptiles

Dogs | Cats

Conclusions : I. False (from both the diagrams, this conclusion does not hold true)

38. (3) II. True

39. (3) Number of hand shakes with each other once

$= \dfrac{(n)(n-1)}{2}$ where 'n' represent no. of people present

in party. Therefore, no. of handshakes $= \dfrac{8 \times 7}{2} = 28$

40. (2) Let 'x' denotes total number of 2 marks question attempted

Let 'y' denotes total number of 4 marks question attempted

$x + y = 15$ ...(1)

$2x + 4y = 40$ ...(2)

Muttiplying by 4 in Eq. (1) and subtracted.

$4x + 4y = 60$

$2x + 4y = 40$

$\overline{ 2x = +20}$

$\therefore x = 10$

Number of 2 marks questions attempted correctly = 10

41. (2) Let 'x' be the number of girls.

Let 'x' be the number of boys.

Total number of children $= x + 4x = 5x$

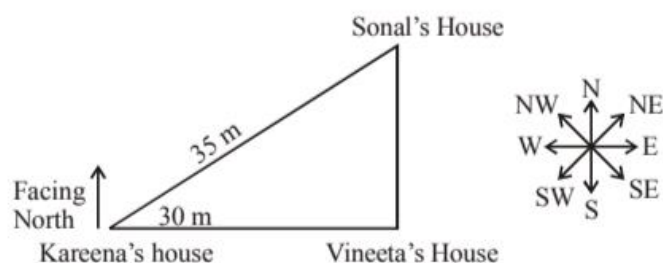Where x is that natural number which multiplied by 5. Therefore, 16 cannot represent the number of children in class.

42. (1) Clearly, the number of ways of arranging 4 books
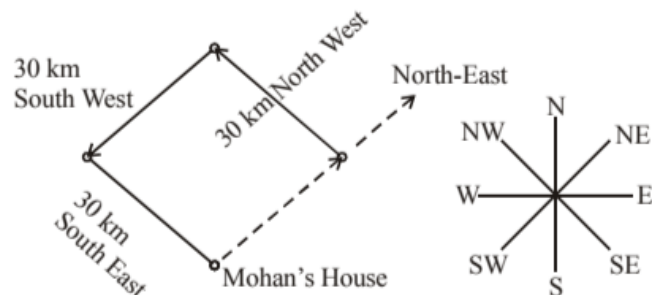
$= 4 \times 3 \times 2 \times 1 = 24$

So, total time taken = 24 minutes

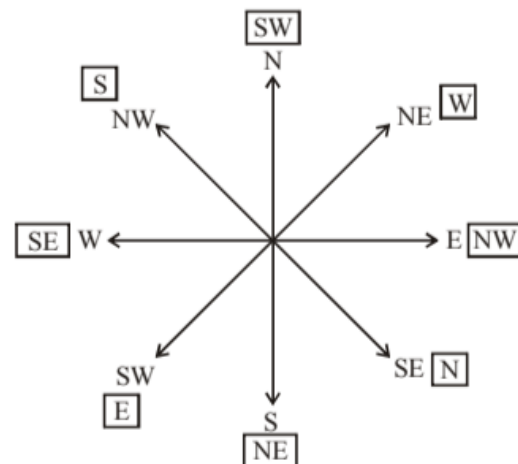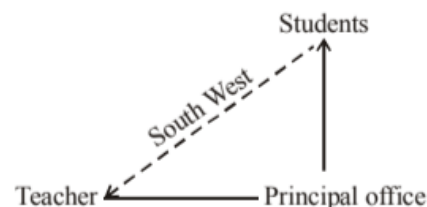**43. (3)** Shaded portion represents male filmstars only.

45. (3)

Sonal's House

35 m

Facing
North

30 m

Kareena's house | Vineeta's House

NW — N — NE
W — E
SW — S — SE

46. (1)

30 km
South West

30 km North West

North-East

30 km
South East

Mohan's House

N
NW | NE
W — E
SW | SE
S

47. (4)

SW
N

S

NW

NE | W

SE | W ← → E | NW

SW

SE | N

S
NE

E

48. (2)

Students

South West

Teacher ← — Principal office

49. (2) From Fig. (ii) & (iii), T's adjacent faces are S, R, Q and U. Therefore P is opposite to T and vice-versa.

50. (4)
I. $3 \to 4$
$1 \to 6$
$5 \to ②$

II. $1 \to 6$
$3 \to 4$
$⑤ \to 2$

III. $5 \to 2$
$1 \to 6$
$3 \to ④$

IV. $5 \to 2$
$1 \to 6$
$③ \to 4$

V. $5 \to 2$
$1 \to 6$
$3 \to ④$

VI. $3 \to 4$
$5 \to 2$
$① \to 6$

Total number of dots on top faces

$\Rightarrow 2 + 5 + 4 + 3 + 4 + 1$

$\Rightarrow 19$

51. (2) $36 - 6 + 10 \times 5 = 65$

$\Rightarrow 36 \div 6 \times 10 + 5 = 65$

$\Rightarrow 6 \times 10 + 6 = 65$

$65 = 65$

52. (3) $3 \times 5 + 3 - 18 \div 3 = 12$

$3 + 5 \times 3 - 18 \div 3 = 12$

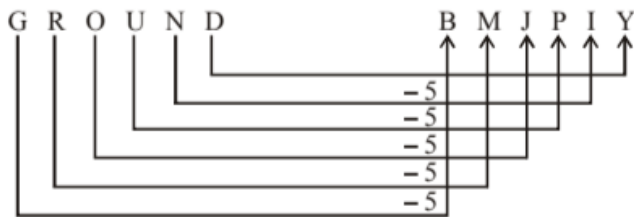$3 + 5 \times 3 - 6 = 12$

$3 + 15 - 6 = 12$

$18 - 6 = 12$

$12 = 12$

53. (4) $(15 * 4) \& 3 @ (60 \$ 2) \# 3$
$\Rightarrow (15-4) \times 3 = (60 \div 2) + 3$
$\Rightarrow 33 = 33$

54. (4) $3 + 6 \div 2 = 4$
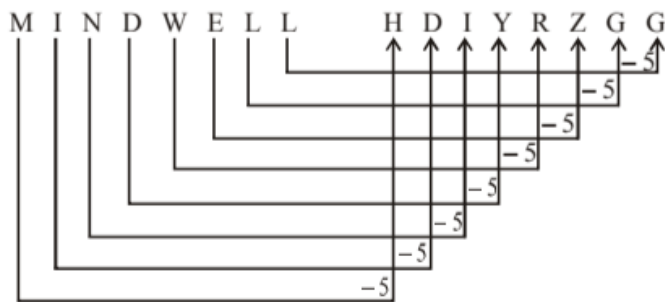$6 \div 3 + 2 = 4$
$2 + 2 = 4$
$4 = 4$

55. (3) $(5 \otimes 4) \, O \, (7 \otimes 6)$

$\Rightarrow \left(\dfrac{5 \times 4}{2}\right) O \left(\dfrac{7 \times 6}{2}\right)$

$\Rightarrow (10) \, O \, (21)$
$\Rightarrow [10 + 21] \times 2 = 62$

56. (4) c, e, g, i, k, m, o, q, s, u, w, y.
Third day from Monday is Thursday and it will be written as THuRsDAy.

57. (2) As,

G R O U N D   B M J P I Y

Similarly,

M I N D W E L L   H D I Y R Z G G

58. (3) N Ⓐ M E → c g ⓤ l
R O Ⓐ D → b ⓤ a f
∴ A → u
R O A Ⓓ → b u ⓐ f
A T Ⓔ → a h u ⓵
∴ D → a
D A T Ⓔ → a h u ⓵
M A L Ⓔ → g p u ⓵
∴ E → ℓ
& T → h
Ⓡ O A D → ⓑ u a f
Ⓡ A T E → u l h ⓑ
∴ R → b
& O → f

Since, T O A D
↓ ↓ ↓ ↓
h f u a

59. (2) N O R M A L = ?
N A Ⓜ E → c ⓖ u l
Ⓜ A L E → ⓖ p u l
∴ M = g
& N = C
L = p
N O R M A L
↓ ↓ ↓ ↓ ↓ ↓
c f b g u p

61. (3) When a cube is formed by folding the sheet in fig., then [▽ ◇ / × △] is one of the faces of the cube and this face lies opposite to (•) face. Also, a face bearing a square lies opposite to another blank face. The remaining two blank faces lie opposite to each other. Hence, the cube in fig. (c) can be formed.

62. (1) When a cube is formed by folding the sheet in fig., then [▭ / ◇] and [→ / •] are two faces and these two faces lies opposite to each other. Also, the face bearing the '×' sign lies opposite to the face bearing the △ and the face bearing ◯ the white circle lies opposite to the ▢ face bearing the square (having a dot inside it.). Hence, only the cube in figure (1) can be formed.

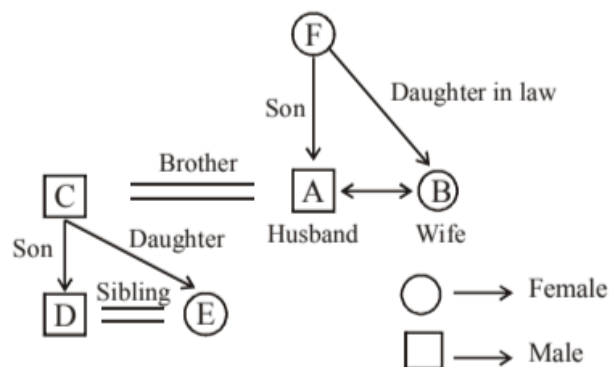**63. (4)** When a cube is formed by folding the sheet shown in fig., then ◁▷ is one of the faces of the cube and this face lies opposite to a blank space. Also, a face bearing a circle lies opposite to one bearing square. Hence, only the cube shown in figure (d) can be formed.
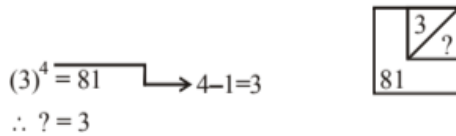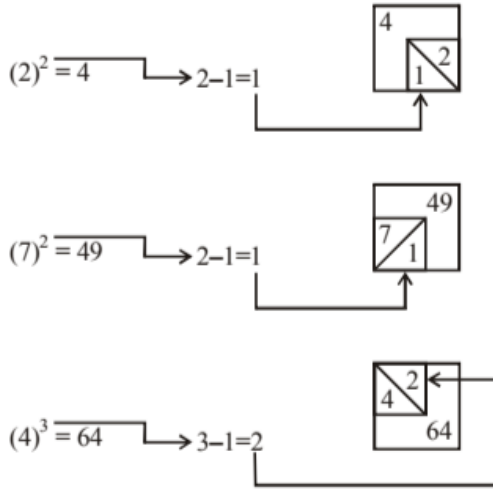
64. (4) Left | E | B | A | C | D | Right

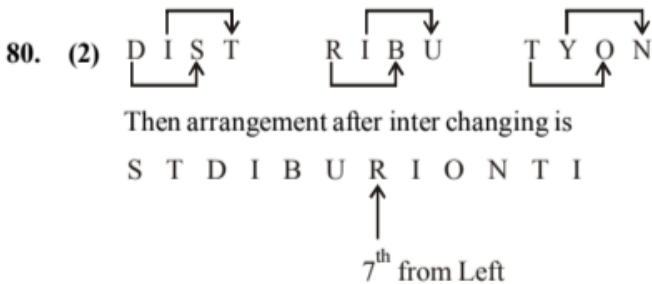**(67-70) :**

67. (1)

68. (2)

69. (4)

70. (2) A, C and D

74. (3) $(2)^2 + (3)^2 - (2+3) = 8$
$(6)^2 + (7)^2 - (6+7) = 72$
$(8)^2 + (9)^2 - (8+9) = 128$
$(4)^2 + (5)^2 - (4+5) = 32$

75. (3) Starting from left hand upper side

$(2)^2 = 4 \longrightarrow 2 - 1 = 1$

$(7)^2 = 49 \longrightarrow 2 - 1 = 1$

$(4)^3 = 64 \longrightarrow 3 - 1 = 2$

$(3)^4 = 81 \longrightarrow 4 - 1 = 3$
$\therefore\ ? = 3$

76. (1) $(4 \times 4) + (8 \times 7) = 16 + 56 = 72$
$(6 \times 7) + (4 \times 5) = 42 + 20 = 62$
$(9 \times 8) + (9 \times 7) = 72 + 63 = 135$

77. (2) $\dfrac{50+31}{9} = \dfrac{81}{9} \Rightarrow 9;\ \dfrac{42+21}{7} = \dfrac{63}{7} = 9$

$\dfrac{43+11}{?} = 9 \Rightarrow \dfrac{54}{9} = ? \Rightarrow 6 = ?$

79. (1) Required letter = $12 + 4 = 16^{th}$ from left end starting from z = k

80. (2) D I S T   R I B U   T Y O N

Then arrangement after inter changing is

S T D I B U R I O N T I
7th from Left

81. (4) R U T H L E S S
By arranging alphabetically we get,
E H L R S S T U
$\therefore$ Last Letter = U

84. (4) Non darken size part decrease and darken part increases.

85. (4) Darken part increase.

86. (1) One, two and three block is darken correspondingly.

89. (3) From statement I $\Rightarrow (5+15) \times 2 =$ Mohan's age
From statement II $\Rightarrow$ Present age of Ram = 5 years
Hence, both the statements are required.

90. (2) From I $\Rightarrow$ F > (G/S)
From II $\Rightarrow$ D > (S/F)
So, statement II is required.

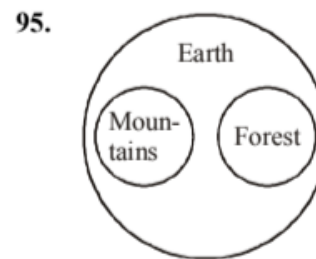**91.** Professores = 1 4 6 5
Medical Specialists = 5 6 7 2

92. 7 (who are medical specialists and surgeons but not professors)
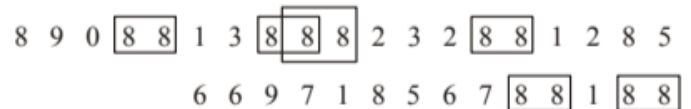
93. Your   Mine   Their
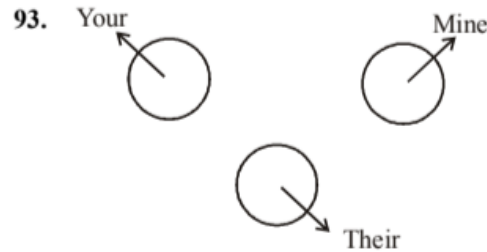
All are different from each other.

94.
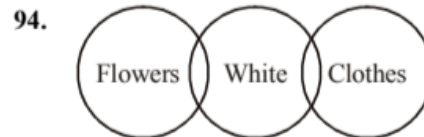
Some flowers and clothes may be white.

95.

Forest and Mountains both are on earth.

96.

8 9 0 8 8 1 3 8 8 8 2 3 2 8 8 1 2 8 5
6 6 9 7 1 8 5 6 7 8 8 1 8 8

Six 8's are followed by 8.

97. 3 dots is opposite to 4 dots.

98. Fifth day of a month is 3 days earlier than Tuesday. So, Tuesday is eight day of that month Hence, $8 + 7 = 15^{th}$ will also be Tuesday. So tuesday will be written as 2.

99. X's birthday = 3rd March, 1980

Y's birthday = 28th Feb. 1980 (Because 1980 is a leapyear)

26th, Jan 1980 = Saturday

Total no. of days till 28th Feb

    = 5 days from Jan. + 28 days of Feb.

$$= \frac{5+28}{7} = \frac{33}{7} \text{ days} \Rightarrow 5 \text{ odd days}$$

So, birthday is on Thursday.

100.

Two More times