



# NTSE (STAGE-II) TEST SERIES

## MENTAL ABILITY TEST (MAT)

TEST #1

### PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. Duration of Test is **120 Minutes** and Questions Paper Contains **100 Questions**. Total Marks are **100**.
2. Answers are to be given on a separate OMR sheet.
3. There are 100 questions in this test. All are compulsory.
4. Please follow the instructions given on the OMR sheet for marking the answers.
5. Mark your answers for questions 1–100 on the OMR sheet by darkening the circles.
6. Every correct answer will be awarded one mark. **THERE IS NO NEGATIVE MARKING.**
7. If you do not know the answer to any question, do not waste 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 attempt them.
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 OMR sheet/loose paper.
10. Please return the OMR sheet to the invigilator after the test.

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1. Three messages were received from Mars.
1. "Avion Balcon Sondor," which was translated to "Serious Spaceship Fumes."
  2. "Mayar Pulgar Avion," which was translated to "Serious Atmosphere Particles."
  3. "Balcon Roctos Vivand," which was translated to "Dangerous Liquid Fumes."

What would the word SONDOR mean ?

- (1) Liquid                      (2) Fumes  
(3) Atmosphere              (4) Spaceship
2. The following characteristics apply to a group of people in a room: Fourteen are blonds, eight are blue-eyed, and two are neither blond nor blue-eyed. If five of the people are blue-eyed blonds, how many people are in the room ?
- (1) 3              (2) 17              (3) 19              (4) 24
3. An electrical circuit for a set of 4 lights depends on a system of switches A, B, C and D. When these switches work they have the following effect on the lights: They each change the state of two lights (i.e. on becomes off and off becomes on). The lights that each switch controls are as follows.

A	B	C	D
1 and 2	2 and 4	1 and 3	3 and 4

= ON

= OFF

In figure 1 shown below, switches ACDB are activated in turn, resulting in figure 2. One switch did not work and had no effect at all. Which was that switch?

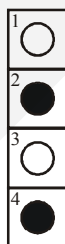


Figure 1

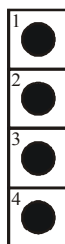


Figure 2

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

4. Lokesh's school bus is facing North when it reaches his school. After starting from Lokesh's house, it turns twice right and then left before reaching the school. What direction was the bus facing when it left the bus stop in front of Lokesh's house ?

- (1) North                      (2) South  
(3) East                      (4) West

5. A watch reads 4 : 30. If the minute hand points East, in what direction will the hour hand point ?

- (1) North                      (2) North-West  
(3) South-East              (4) North-East

6. One evening before Sunset two friends Sumit and Mohit were talking to each other face to face. If Mohit's shadow was exactly to his right side, which direction was Sumit facing ?

- (1) North    (2) South    (3) West    (4) East

7. This morning, while Katrina was waiting near her college bus stop, she saw her sister Anushaka going on a bike with Salman on the other side of the road. She was shading off the Sun's rays with her left hand and her right hand was pointing towards Katrina. In which direction of Anushaka was Katrina standing ?

- (1) West                      (2) South  
(3) North                      (4) East

8. Two ladies and two men are playing a bridge game (cards) and are seated around a square table. No lady is facing towards East. Persons sitting opposite to each other are not of the same sex. One man is facing towards South. Which directions are the ladies facing ?

- (1) East and West              (2) South and East  
(3) North and East              (4) North and West

**Directions (Q.9 to Q.13) :** Write which number in sequence replaces the question mark (?).

9. 200, 200, 205, 195, 215, 185, 235, 165, ?, ?

- (1) 125, 275                      (2) 275, 125  
(3) 265, 145                      (4) 295, 145

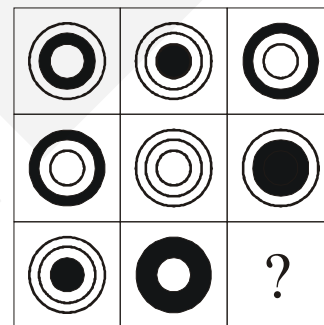
10. 840, 168, 42, 14, 7, ?  
 (1) 7 (2) 9 (3) 5 (4) 2
11. 111, 129, 183, 345, 831, ?  
 (1) 2389 (2) 2379  
 (3) 2229 (4) 2289
12. 163, 167, 142, 147, 111, 117, ?, 75  
 (1) 96 (2) 68 (3) 78 (4) 92
13. 0, 14, 78, 252, ?  
 (1) 448 (2) 620 (3) 636 (4) 576
14. Suppose you have a 12-hour digital clock where the number representing the hour is always the same as the number representing the minute. That is, the clock can only show times like 8:08, 9:09, 10:10, etc. What is the smallest time difference between two such times ?  
 (1) 101 minutes (2) 61 minutes  
 (3) 60 minutes (4) 49 minutes
15. A watch showed 5 past 5 o'clock on Wednesday evening when the correct time was 5:00 PM. It loses uniformly, and was 5 min slow after two days at 7:00 PM. When did the watch show the correct time ?  
 (1) Thursday 6:00 AM  
 (2) Thursday 6:00 PM  
 (3) Thursday 6:30 PM  
 (4) Thursday 5:00 AM
16. What is the angle between the two hands of a clock at 8 hr 20 min ?  
 (1) 110° (2) 120° (3) 130° (4) 140°
17. A clock is set to show the correct time at 12:00 noon. Immediately, due to some mechanical defect, both the minute hand and the hour hand started moving in the reverse direction (anticlockwise direction). What is the correct time when this clock shows 8:25 ?  
 (1) 4:25 (2) 3:25 (3) 3:35 (4) 4:35
18. How many times do the hands of a clock make an angle of 90° in 36 hr ?  
 (1) 22 (2) 44 (3) 66 (4) 72

19. What can we infer from the following statement ?  
 "Since every child I know likes ice cream, Mike must also like ice cream."  
 (1) The speaker doesn't know many children.  
 (2) Mike is a child.  
 (3) Mike likes anything sweet.  
 (4) The speaker is a good friend of Mike's.
20. What letter is two letters to the right of the letter two letters above the letter four letters to the left of the letter Z ?

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

- (1) P (2) S (3) N (4) R

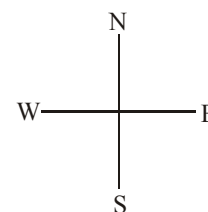
21. Which is the missing tile from alternative ?



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

22. Find the starting point and visit every square once each to finish at the treasure marked T ?  
 (Note – 1N 2W means 1 North, 2 West.)

1S 1E	2S 1E	2W 1S
1S 1E	1E 1N	1W 1N
1N 2E	<b>T</b>	2N 2W



- (1) 1S 1E (2) 1E 1N (3) 1N 2E (4) 2N 2W

23. Pointing to a man Asha said, "His brother's father is the only son of my grand father". How Asha is related to the man ?  
 (1) Mother (2) Aunt  
 (3) Sister (4) Daughter
24. If  $A + B$  means A is the brother of B,  $A - B$  means A is the father of B,  $A \times B$  means A is the wife of B, then  $P \times R - S + T$  means  
 (1) P is the mother of T  
 (2) T is the sister of P  
 (3) R is the grand father of T  
 (4) T and R are sisters
25. If  $P + Q$  means, P is Husband of Q,  $P \div Q$  means, P is sister of Q and  $P \times Q$  means, P is son of Q then which means A is daughter of B  
 (1)  $A + D \times B$  (2)  $D \times B \div A$   
 (3)  $B + C \times A$  (4)  $A \div D \times B$

**Directions (Q.26 to Q.30) :** Read the following information given below to answer the questions that follow :

Sumeet, Philips, Wasim, Bishan and Chetan are five players of the College Cricket Team and their home towns are Surat, Pune, Warangal, Bangalore and Chandigarh but not in that order. The five specialists slots of Spinner, Pace Bowler, Wicket Keeper, Batsman and Captain are held by them, again not in the order of their names stated above.

- I. Their names, home towns and specialities do not start with the same letter.
  - II. Neither Philips nor Wasim is the captain and they do not belong to either Surat or Bangalore.
  - III. Sumeet is neither a wicket keeper nor a batsman.
  - IV. Pune is not Bishan's home town.
  - V. The players who hails from Bangalore is a wicket keeper.
  - VI. The captain's home town is Pune while the batsman does not hail from Warangal.
26. The spinner's home town is  
 (1) Chandigarh (2) Bangalore  
 (3) Warangal (4) Pune

27. Chandigarh is the home town of  
 (1) Sumeet (2) Bishan  
 (3) Wasim (4) Philips
28. Who is the pace bowler ?  
 (1) Chetan (2) Wasim  
 (3) Sumeet (4) Bishan
29. Who is the spinner ?  
 (1) Philips (2) Chetan  
 (3) Bishan (4) Wasim
30. Chetan's home town is  
 (1) Pune (2) Surat  
 (3) Warangal (4) Bangalore

**Directions : (Q.31 to Q.33)** Read the following information carefully to answer the given questions :

A word and number arrangement machine when given an input line in words and numbers, rearranges them following a particular rule in each step. The following is an illustration of input and rearrangement.

**Input** : goal 63 57 home five task 82 17

**Step I** : 82 goal 63 57 home five task 17

**Step II** : 82 five goal 63 57 home task 17

**Step III** : 82 five 63 goal 57 home task 17

**Step IV** : 82 five 63 goal 57 home 17 task

And Step IV is the last output.

As per the rules followed in the above steps, find out in each of the following questions the appropriate step for the given input.

31. Step III of an input is : 81 boat 73 wheel spike dancer 32 59  
 How many more steps are required to complete the rearrangement ?  
 (1) Two (2) Three (3) Four (4) Five
32. Step II of an input is : 67 cat 12 25 dog fight man 42.  
 Which of the following will be Step V ?  
 (1) 67 cat 42 dog 25 fight 12 man  
 (2) 67 cat 42 dog 25 12 fight man  
 (3) 67 cat 42 dog 12 25 fight man  
 (4) 67 cat 42 12 25 dog fight man

33. **Input :** world 23 new 47 major 13 62 desk  
Which of the following will be Step V for the above input ?  
(1) 62 desk 47 major world 23 new 13  
(2) 62 desk 47 world 23 new major 13  
(3) 62 desk 47 major 23 world new 13  
(4) 62 desk 47 major 23 new world 13
34. In a certain code language, if the word LOYALTY is coded as B6 M2 E5 A0 D3 C6 J2 S6, then how will you code the word BOKARO ?  
(1) A2 G8 K1 A0 I2 K5  
(2) A2 F9 K1 A0 B9 K4  
(3) A2 L3 K1 A0 I9 K4  
(4) A2 H7 K1 A0 D4 K4
35. If BEATEN is coded as DHEYKU, how can be CORNER be coded  
(1) ERVSKZ (2) ERVSKX  
(3) ERUSKY (4) ERVSKY
36. In a certain code, **A** is written as **1**, **B** is **10**, **C** is **11**, **D** is **100**, **E** is **101** and so on. Than how is **TRY** code in that language ?  
(1) 10100 10010 11110  
(2) 10100 10010 10110  
(3) 10100 10010 11001  
(4) 10100 10010 10000

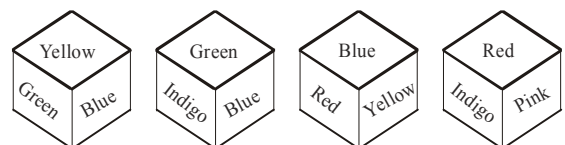
**Directions (Q.37 & Q.38) :** In a certain code language, PAM BAM RAM means ROSE IS RED, RAM TAM SAM means GRASS IS GREEN, BAM YAM GAM means RED THICK BLOOD and GAM RAM YAM means BLOOD IS THICK.

37. What is the code for GREEN BLOOD ?  
(1) TAM GAM (2) SAM GAM  
(3) SAM YAM (4) None
38. What is the code of RED ?  
(1) PAM (2) RAM  
(3) BAM (4) YAM
39. If rains is called pink, pink is called cloud, cloud is called water, water is called breeze and breeze is called moon, what do you wash your hands with ?  
(1) Water (2) Rain  
(3) Breeze (4) Moon

**Directions (Q.40 to Q.42) :** In each of the following questions, 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 the two given matrices. The columns and rows of Matrix I are numbered from 0 to 4 and those of Matrix II from 5 to 9. A letter from these matrices can be represented first by its row and then the column number e.g., in the matrices for questions, S can be represented by 21, 14, etc; O can be represented by 75, 68, etc. Similarly you have to identify the correct set for the word given in each question.

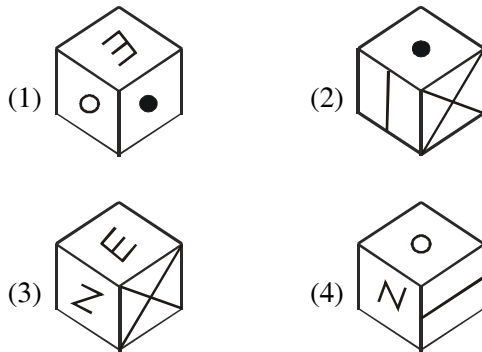
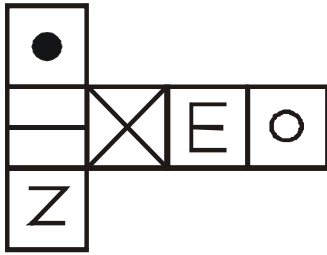
Matrix I					Matrix II						
	0	1	2	3	4		5	6	7	8	9
0	A	E	S	T	H	5	P	O	R	K	L
1	T	H	A	E	S	6	K	L	P	O	R
2	E	S	T	H	A	7	O	R	K	L	P
3	H	A	E	S	T	8	L	P	O	R	K
4	S	T	H	A	E	9	R	K	L	P	O

40. EAST  
(1) 44, 32, 21, 03 (2) 32, 31, 02, 04  
(3) 20, 43, 33, 11 (4) 13, 12, 14, 10
41. LEST  
(1) 97, 32, 21, 34 (2) 87, 32, 21, 31  
(3) 85, 02, 04, 22 (4) 66, 00, 20, 34
42. SOLE  
(1) 41, 57, 87, 31 (2) 33, 99, 66, 44  
(3) 21, 75, 44, 02 (4) 02, 78, 87, 13
43. If nobody loves nobody, which of the following must be true ?  
I. Everybody loves somebody.  
II. Somebody loves somebody.  
III. Nobody loves anybody.  
(1) I only (2) II only  
(3) III only (4) I and II only
44. On the basis of the four positions of a dice given below find the colour of the face opposite 'Yellow'?

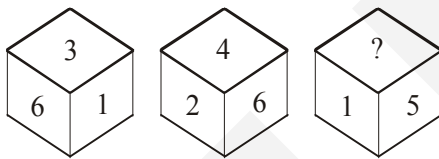


- (1) Indigo (2) Red (3) Pink (4) Blue

45. When the above is folded to form a cube, which is the only one of the following that can be produced ?



46. On the basis of the following figures you have to tell which number will come in place of '?'.



- (1) 2      (2) 3      (3) 6      (4) 4

**Direction (Q.47 to Q.50) :** A cube is painted red on two adjacent surfaces and black on the surfaces opposite to red surfaces and green on the remaining faces. Now the cube is cut into sixty four smaller cubes of equal size.

47. How many smaller cubes have only one surface painted ?  
 (1) 8      (2) 16      (3) 24      (4) 32
48. How many smaller cubes will have no surface painted ?  
 (1) 0      (2) 4      (3) 8      (4) 16
49. How many smaller cubes have less than three surfaces painted ?  
 (1) 8      (2) 24      (3) 28      (4) 48
50. How many smaller cubes have three surfaces painted ?  
 (1) 4      (2) 8      (3) 16      (4) 24

**Directions (Q.51 to Q.55) :** In each of the following questions contains a pair of terms on the left side of (: :), which exhibit a certain relation between them. Find the term which exhibits similar relations with the term in the right side of (: :).

51. 3 : 24 :: 5 : ?  
 (1) 120      (2) 45      (3) 124      (4) 27
52. 3 : 24 :: 5 : ?  
 (1) 115      (2) 122      (3) 127      (4) 130
53. ACF : EDG :: IEH : ?  
 (1) NFI      (2) MDG      (3) OFI      (4) LMN
54. GERM : MERG :: STAR : ?  
 (1) TSRA      (2) RTSA  
 (3) RTAS      (4) TARS
55. Fruit : Banana :: Mammal : ?  
 (1) Snake      (2) Whale  
 (3) Sparrow      (4) Shark
56. I run along the sides of a square field ABCD where C is to the North-East of A and D is to the South-East of B. Starting from A in anti-clockwise direction, in which direction shall I be running after crossing C ?  
 (1) East      (2) West      (3) North      (4) South
57. If the letters of the word ARTICULATES can be used as many times as one wants to use, then which one of the following four words cannot be formed ?  
 (1) ARTICLE      (2) ELECTRIC  
 (3) LATER      (4) COURTS
58. Number of letters skipped in between the adjacent letters are increased by one. Which of the following alternative observe this rule ?  
 (1) ACFJQ      (2) KMPTY  
 (3) HQXCF      (4) AELPZ
59. Which of the following will be the value of the expression :  $\frac{(6+6+6+6) \div 6}{4+4+4+4 \div 4}$   
 (1) 1      (2)  $\frac{3}{2}$       (3)  $\frac{4}{13}$       (4)  $3\frac{6}{13}$

60. Which of the following will be the value of the expression –  $1001 \div 11$  of  $13 \times 3$
- (1) 7 (2) 21  
 (3) 143 (4) None of these
61. If ‘when’ means ‘ $\times$ ’, ‘you’ means ‘ $\div$ ’, ‘come’ means ‘ $-$ ’ and ‘will’ means ‘ $+$ ’, then what will be the value of “8 when 12 will 16 you 2 come 10” ?
- (1) 45 (2) 76 (3) 94 (4) 96

**Directions (Q.62 to Q.64) :** In the following questions some relations are written by particular indicators as shown below –

$\times$  = Greater than;

$\square$  = Not less than;

$\div$  = Not equal to;

$\phi$  = Equal to;

$+$  = Not greater than;

$\Delta$  = Less than.

Find out the correct answer for each question.

62. If  $x \Delta y \div z$ , it is not possible –
- (1)  $x \div y \phi z$  (2)  $x + y \times z$   
 (3)  $x \div y \times z$  (4)  $x \Delta y \square z$
63. If  $x \square y \square z$ , it is not possible –
- (1)  $x \phi y \div z$  (2)  $x \div y + z$   
 (3)  $x + y \square z$  (4)  $x + y \Delta z$
64. If  $x \phi y \times z$ , it is possible –
- (1)  $x \times y \Delta z$  (2)  $x \phi y + z$   
 (3)  $x \phi y \square z$  (4)  $x \Delta y \div z$
65. If the following four statements are presented, which one of them is true ?
- (1) The number of false statements here is one.  
 (2) The number of false statements here is two.  
 (3) The number of false statements here is three.  
 (4) The number of false statements here is four.

66. Your friends like smoking and influence you to do the same. You will
- (1) smoke only because your friends are smoking  
 (2) refuse to smoke  
 (3) smoke but only in their presence  
 (4) refuse and lie to them that you have asthma
67. You are alone in the house and your sister-in-law is suddenly experiencing labour pains. You
- (1) would definitely get upset and do not know what is the right step  
 (2) go out of the house to call your family doctor  
 (3) walk her to the nearest hospital  
 (4) call an ambulance for emergency
68. You have made some silly mistakes which have been pointed out to you. You will
- (1) laugh it away (2) get angry  
 (3) feel miserable (4) feel thankful
69. If someone approaches you with an offer of giving out the secrets of the organisation you work in, in exchange for a higher position in another organisation, you would
- (1) be in a state of dilemma  
 (2) ask for time to think  
 (3) immediately say yes  
 (4) immediately say no
70. Your friend has not invited you to his marriage party. You will
- (1) hold it against him  
 (2) attend the ceremony  
 (3) send him your best wishes  
 (4) ignore the whole affair
71. In a queue of boys Sohan is 9th from the back. Ramesh’s place is 8th from the front. Radhey is standing in the middle of the two. What could be the minimum number of boys standing in the queue ?
- (1) 8 (2) 10 (3) 12 (4) 14
72. In a queue, Ramesh is the 7th from the back, Suresh is standing 6th from the front and only Shyam is standing in between the two. Find the minimum number of boys standing in the queue ?
- (1) 8 (2) 10 (3) 12 (4) 14



**Direction (Q.73 to Q.75) :** In each of the following questions, three statements are given followed by three conclusions numbered I, II and III. You have to take the given statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

**73. Statements :**

All tigers are jungles.

No jungles are birds.

Some birds are rains.

Conclusions :

I. No rain is jungle.

II. Some rains are jungles.

III. No birds is tiger.

(1) Only I and II follow

(2) Only III follows

(3) Only either I or II, and III follow

(4) Only II follows

**74. Statements :**

All flowers are toys.

Some toys are trees.

Some angles are trees.

Conclusions :

I. Some angles are toys.

II. Some trees are flowers.

III. Some flowers are angles.

(1) None follows

(2) Only III follows

(3) Only I follow

(4) Only II follows

**75. Statements :**

All trains are buses.

No room is bus.

All boats are rooms.

Conclusions :

I. No boat is train.

II. No bus is boat.

III. No train is room.

(1) None follows

(2) Only II and III follows

(3) Only I and II follow

(4) All follows

**Directions (Q.76 to Q.80) :** In each of the following figures, numbers/letters are written according to some patterns and one number/letter is missing, shown by question mark. Find the missing number/letter that replaces the question mark.

**76.**

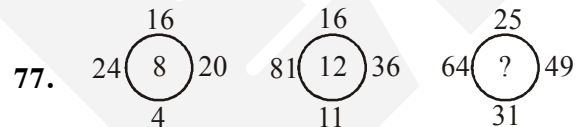
6	21	36
9	45	81
7	?	49

(1) 32

(2) 28

(3) 35

(4) 56

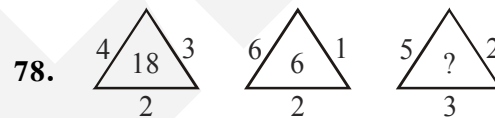


(1) 11

(2) 13

(3) 15

(4) 17

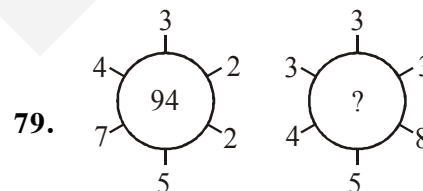


(1) 13

(2) 17

(3) 24

(4) 30

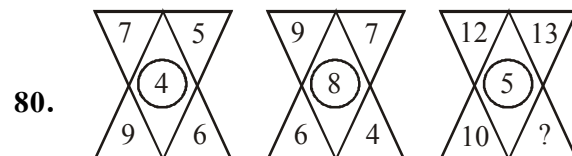


(1) 178

(2) 871

(3) 187

(4) 781



(1) 3

(2) 8

(3) 7

(4) 5

**81.** Mohini went to the movies nine days ago. She goes to the movies only on Thursday. What day of the week is today ?

(1) Thursday

(2) Saturday

(3) Sunday

(4) Tuesday



82. A tailor had a number of shirt pieces to cut from a roll of fabric. He cut each roll of equal length into 10 pieces. He cut at the rate of 45 cuts a minute. How many rolls would be cut in 24 minutes?

- (1) 32 rolls                      (2) 54 rolls  
(3) 108 rolls                      (4) 120 rolls

83. In a group of persons travelling in a bus, 6 persons can speak French, 15 can speak Spanish and 6 can speak English. In that group, none can speak any other language. If 2 persons in the group can speak two languages and one person can speak all the three languages, then how many persons are there in the group?

- (1) 21      (2) 22      (3) 23      (4) 24

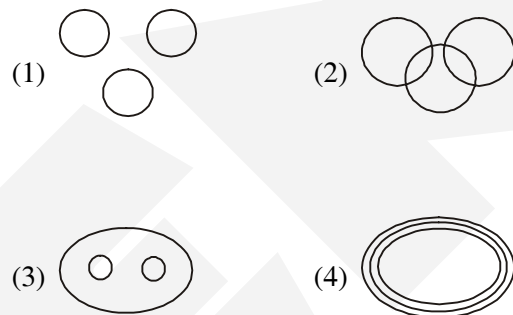
84. A soldier has been captured by the enemy. He is so brave that they offer to let him choose how he wants to be killed. They tell him, "If you tell a lie you will be shot, and if you tell the truth you will be hanged." He can only make one statement. He makes a statement and goes free. What could he have said ?

- (1) "I will be hanged."  
(2) "I will be shot."  
(3) "I will not be shot or be hanged."  
(4) "I will be shot or be hanged."

85. At the end of a business conference the ten people present all shake hands with each other once. How many handshakes will there be altogether ?

- (1) 20      (2) 45      (3) 55      (4) 90

**Directions (Q.86 to Q.90) :** Given below are five diagrams, one of which describes the relationship among the three classes given in each of the five questions that follow .You have to decide, which of the diagrams is the most suitable for a particular set of classes. The number of that diagram is your answer.



86. Doctor, Engineer, Lawyer

87. Family, Son, Daughter

88. Mother, Nurse, Teacher

89. CD, CPU, Keyboard

90. Satna, Madya Pradesh, India

**Direction (Q.91 to Q.95) :** Find the odd term in the given questions :

91. (1) Yen                                      (2) Lira  
(3) Ounce                                      (4) Pound

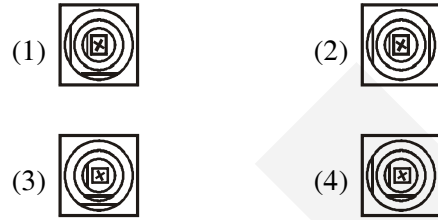
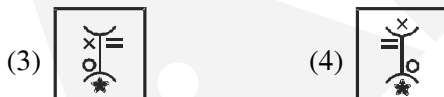
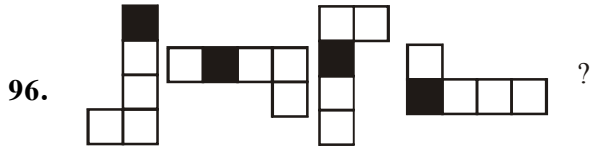
92. (1) DW                                      (2) GT  
(3) KP                                      (4) FR

93. (1) Y X V T                                      (2) G E C A  
(3) V T R P                                      (4) H F D B

94. (1) 232                                      (2) 362  
(3) 661                                      (4) 284

95. (1) 37 : 7                                      (2) 82 : 10  
(3) 168 : 13                                      (4) 197 : 15

**Directions (Q.96 to Q.98) :** In each of the following, there are some figure which have some particular series. Find out the next figure ?



**Directions (Q.99 & Q.100) :** In the following questions, four figures are given. Three of them are alike in a certain way and one is different. Find the odd one from the alternatives.

