class 10

MAT

Mental Ability Test

TARGET

NTSE

National Talent Search Examination

Solved Paper

2012

Stage 2

Time : 90 Minutes **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 – 100, put a cross mark (X) on the number of the correct alternative on the answer-sheet against the corresponding question number.
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 after the test.

Directions (Qs.1-4): ***In the following questions, there is a relationship between the letter terms on the left of the sign (: :). The some relationship exists to the right of the sign (: :), of which one is missing. Find the missing term from the alternatives.***

1. NOVA:OVON::OZON:?

(1) OZOZ (2) ZOZO

(3) NONO (4) ZNZN

2. BEJQ:ACGMU::FINU:?

(1) EHLRZ (2) EGKQY

(3) FHKRZ (4) EHLQW

3. BDGK:OKHF::KMPT:?

(1) XTOQ (2) XOTQ

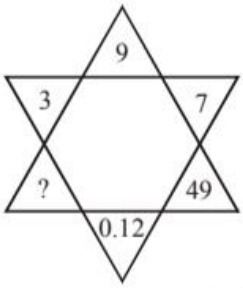
(3) XTQO (4) OXTQ

4. BEFC:EDBF::VYZW:?

(1) YXVZ (2) XYVZ

(3) YXZV (4) VYXZ

5. Look at the following figure. Find the pattern for writing a number in the small triangles and find the missing number.



(1) 0.1440 (2) 0.0144

(3) 0.0014 (4) 1.444

6. Find from the alternatives the number which will replace the question mark (?)

4	5	80
5	6	150
8	?	448

(1) 5 (2) 6

(3) 7 (4) 8

7. Select the correct alternative to replace the '?'

3 7 15 31 : 5 11 23 47 : : 7 15 31 63 : ?

(1) 9 21 41 81 (2) 13 31 63 127

(3) 13 29 61 125 (4) 9 19 39 79

8. Select the correct alternative to replace the '?'

90 : 81 : : 120 : ?

(1) 144 (2) 143

(3) 121 (4) 120

9. Select the correct alternative to replace the '?'

81 : 3 : 27 : : ? : ? : 125

(1) 225 : 25 (2) 5 : 25

(3) 150 : 15 (4) 625 : 5

10. Select the correct alternative to replace the

(1)  (2) 

(3)  (4) 

11. A pilgrim started from a shrine. After walking straight for 100 m, he again moved to his right and then after 500 m, he again moved to his right. After walking a distance of 100 m, he moved to his left and then walked 200 m. He again moved to his right and walked 700 m. In the end he turned to his left two times.

What is the distance of his location from the shrine?

(1) 1100m (2) 1300m

(3) 1400m (4) 2100m

Directions (Qs.12-14): ***Find the odd-one-out from the alternatives***

12. (1) 25, 5, 5 (2) 51, 3, 17

(3) 96, 6, 16 (4) 75, 5, 25

13. (1)  (2) 

(3)  (4) 

14. (1)  (2) 

(3)  (4) 

15. In the given series

1, 8, 3, 5, 1, 3, 7, 8, 1, 5, 7, 3, 5, 8, 3, 1, 5, 3, 7, 1, 8, 3, 5, 3, 7, 8, 3, 5, 1, 7, 3, 7, 5, 1, 8, 3, 1, 7, 1, 8, 3, 8, 5, 1

How many times the two consecutive numbers (i.e. numbers one after the other) have a difference of 4?

(1) 6 (2) 9

(3) 11 (4) 13

16. In the given series

5, 6, 8, 2, 5, 5, 2, 5, 4, 2, 8, 5, 3, 5, 2, 8, 6, 8, 2, 5, 2, 8, 6, 2, 8, 5, 7, 2, 8

how many times the number '2' has come before 8 but 5 has not come after 8?

(1) 4 (2) 3

(3) 2 (4) 1

17. In the given series

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

how many times the number '6' is followed by the number '8' but '8' should not be followed by '1'?

(1) 1 (2) 2

(3) 3 (4) 4

18. In the given series

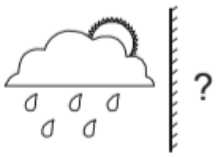
2, 5, 18, 51, 3, 9, 5, 52, 6, 36, 7, 46, 8, 64, 5, 25, 2, 4, 16, 5, 32, 4, 61, 9, 3, 4, 2

how many times the two consecutive (one after another) number in the given sequence are square of the previous number?

(1) 4 (2) 5

(3) 6 (4) 7

19. Observe the figures below :

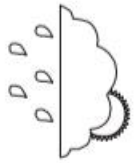


If the mirror image of the figure is rotated to 90° in clockwise direction, it will look like :

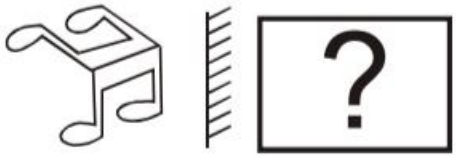
(1) 

(2) 

(3) 

(4) 

20. Observe the figure given below.



If the mirror image of the figure is rotated to 180 degree in anti-clockwise direction, it will look like:

(1) 

(2) 

(3) 

(4) 

21. Observe the figure given below.

Find out the water reflection of the figure from the given alternatives.

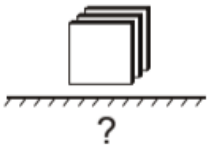
(1) 

(2) 

(c) 

(4) 

22. Observe the figures below :



First rotate the figure by 90° in clock-wise direction and find out its water reflection from the given alternatives given below.

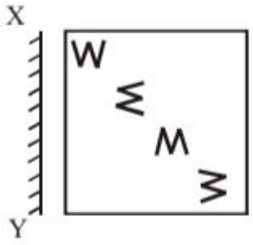
(1) 

(2) 

(3) 

(4) 

23. Observe the figure given below.



Which of the answer figure is the mirror image of the given figure when mirror is held at xy?

(1) 

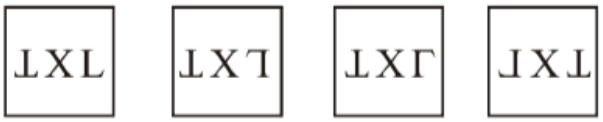
(2) 

(3) 

(4) 

24. Observe the figure given below.

Which of the answer figure is exactly the water image of the given figure when water is below the item?



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

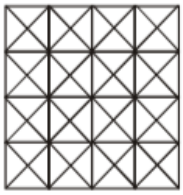
25. Gopal is elder by 4 years to Govind. After 16 years Gopal will be thrice his present age and Govind will be five times of his present age. How old is 'Gopal'?

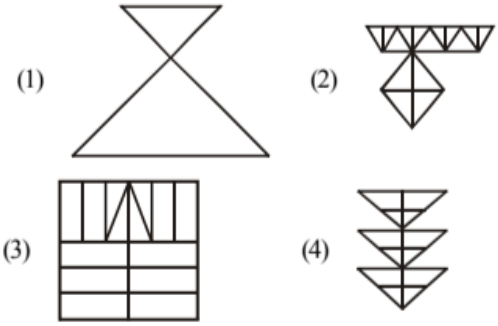
(1) 4 years (2) 8 years
(3) 12 years (4) 16 years

26. If in a particular year, 16th June was Friday, then the first Friday in July of that year will fall on which date?

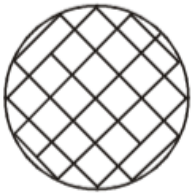
(1) 5th July (2) 6th July
(3) 7th July (4) 8th July

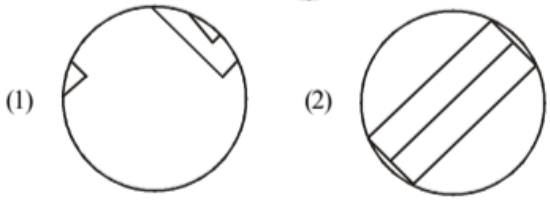
27. A problem figure is given. Find out which of the figures given as alternatives is embedded in the given problem figure.

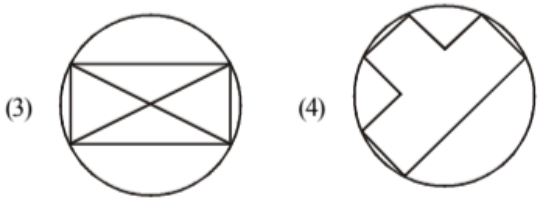




28. Among the four answer figures which one is not there in the key figure?







29. In a row of boys, Mukesh is 8th from the right and Suresh is also 8th from the left. When Mukesh and Suresh interchange their positions, Suresh becomes 16th from the left. How many boys are there in the row?

(1) 16 (2) 20
(3) 23 (4) 25

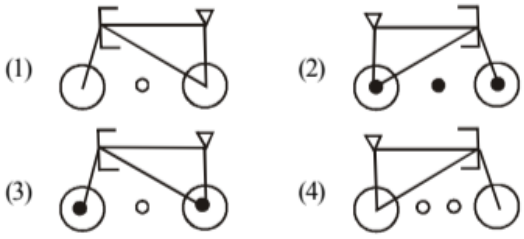
30. If C is husband of B, B is daughter of A, A is mother of D and D is a boy, then how D is related to B?

(1) Husband (2) Brother
(3) Son (4) Father

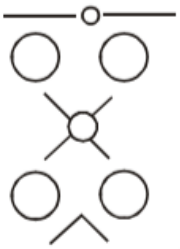
31. If C is brother of B, B is son of A, D is father of C and A is a female, then how A is related to D?

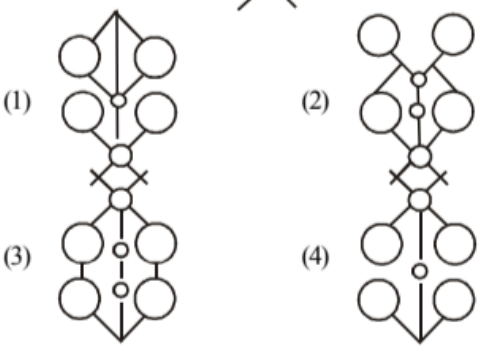
(1) Mother (2) Father
(3) Sister (4) Wife

32. In which answer figure all the specified components of the key figure are found?



33. In which answer figure all the specified components of the figure are found?





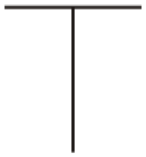
34. Identify the answer figure which can be formed by rotating the problem figure at one step anticlockwise.

(1) 

(2) 

(3) (4)

35. Prakash's house is 15 metres away in the northern direction from his office, which is 10 metres West of his factory and 10 metres East of his club. Which of the given alternatives resembles the shape of the graphical representation of the positions of office, residence, factory and club?

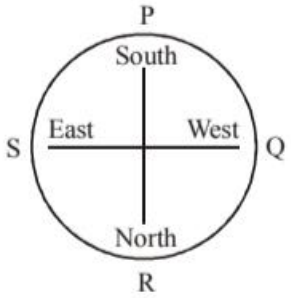
(1) 

(2) 

(3) 

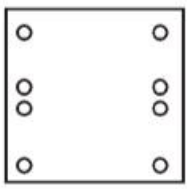
(4) 

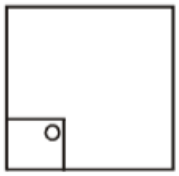
36. In a given circle directions are given and places of 'P' 'Q' 'R' 'S' have been shown. If 'P' moves one & half quarter clockwise in which direction 'P' will be?

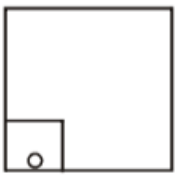


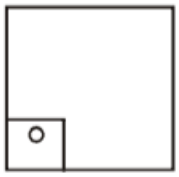
(1) North-East Region (2) North-West Region
(3) South-East Region (4) South-West Region

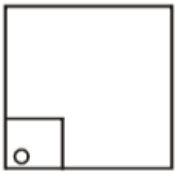
37. A square paper is folded in a particular manner and a punch is made. When unfolded the paper appears as given below:



(1) 

(2) 

(3) 

(4) 

Directions (Qs.38-40): ***In the following questions.***

If A and C are good in Science and Mathematics;
D and A are good in Science and Cricket;
C and B are good in Tennis and Mathematics;
D, B and E are good in Cricket and Tennis;
E and D are good in Cricket and Music, then

38. Who is good in Cricket, Mathematics and Science?
(1) A (2) B
(3) C (4) D

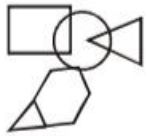
39. Who is good in Science, Tennis and Mathematics?
(1) B (2) C
(3) D (4) E

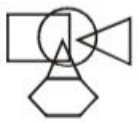
40. Who is not good in Science and Music?
(1) A (2) B
(3) C (4) E

41. In a family father is a Doctor and the Mother is an Advocate. They have a son who is an Engineer and married to a Teacher and their daughter is an Advocate. If ▭ represents Doctor, △ represents Advocate, ◯ represents Engineer and ⬡ represents Teacher, which one of the following diagram represents the family relationship and their respective positions?

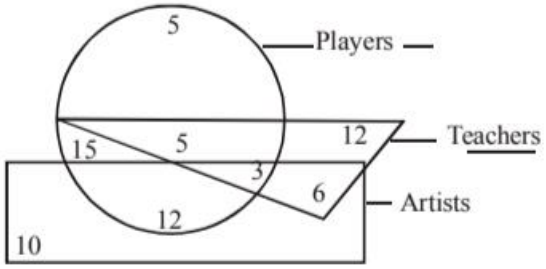
(1) 

(2) 

(3) 

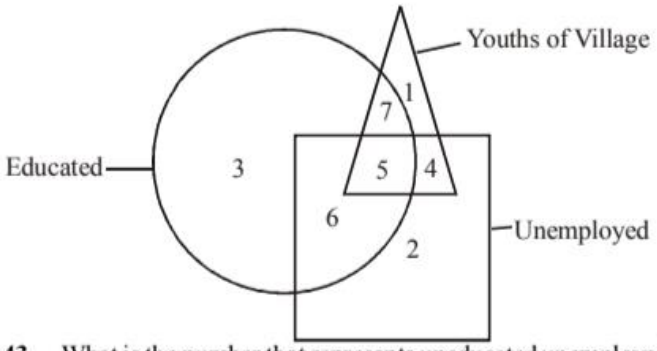
(4) 

42. In the figure given below find out how many teachers are both players and Artists?



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

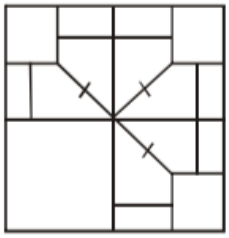
Directions (Qs. 43 & 44): ***Study the following diagram and then answer each question.***

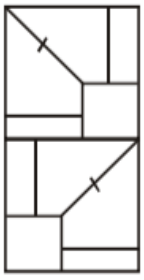
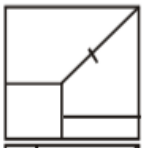
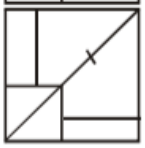


43. What is the number that represents uneducated unemployed youths in village?
(1) 4 (2) 5
(3) 6 (4) 7

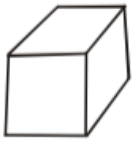
44. Which number represents employed educated youths in a village?
(1) 4 (2) 5
(3) 7 (4) 12

45. Which answer figure will complete the pattern in the question figure?



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

46. How will figure look like when folded along the lines into a cube?

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

47. In the following list alphabet-codes for each word have been written in a jumbled manner.

CRY	DEZ
RAY	XZE
TREE	KEHK
FARE	EXKM
CAT	XDH
FAT	HMX

'DARE' will be coded as-
(1) CXEK (2) DXEK
(3) XEKB (4) Cannot say

Directions (Qs.48 & 49): ***Consider the words and their codes given in the table below and answer the questions.***

JOIN	GPHN
GET	JFV
EAT	FAV
GREAT	JRFAV
FOUL	EPQL

48. How many alphabets have been retained as codes?
(1) 2 (2) 3
(3) 4 (4) 5

49. The word '**FIGURE**' will be coded as:
(1) EHJQRF (2) FDELVF
(3) FIJPRA (4) FHJQAR

50. In a certain language WHITE is written as DSRGV. How will BLACK be written in that language?
(1) YOZXP (2) YOXZP
(3) YZOXP (4) YOPXZ

Directions (Qs.51 & 52): ***A table of words and their codes is given below. Analyze the pattern of transformation of code into words and answer questions based on them.***

ETG	PIG
TTE	TIP
KSY	CAN
ESKP	PACE
TBE	TOP
DPY	HEN
CPY	KEY
HBG	DOG
DBT	HOT
SOAPYT	ABSENT

51. How many alphabets have not been used as codes for each other?
(1) 2 (2) 3
(3) 4 (4) 5

52. Which of the following words can be successfully coded using the pattern based on the table?
(1) EXPLODE (2) DISASTER
(3) HINTED (4) SOLITARY

53. If in a code L = 20, RED = 51, then how BLUE will be written?

(1) 68 (2) 72

(3) 81 (4) 94

54. If in a code GO = 105, SO = 285, then how RAT will be written?

(1) 280 (2) 295

(3) 345 (4) 360

Directions (Qs.55-57): ***Letters from A to Z are coded using the following cells in diagram I and sectors in diagram II. The first letter in each cell is coded by its shape while the second letter includes a dot in it, for example :***

A is coded as ⌋; M is coded as ⌋•

K is coded as ⟩; P is coded as ⟩•

Diagram I

AM	NF	CO
BU	TV	DG
EW	IZ	XY

Diagram II

JC / KP HS / RQ

55. How SUGAR will be coded?

(1) □ ⌋ V• ⌋ Λ (2) ⟩• [• L Λ•

(3) ⟨• •] [• ⌋ Λ (4) ⟨ [• •] •Λ

56. How SPICE will be coded?

(1) ⟨• •⟩ ⊓ L ⌉ (2) □ ⌋ V ⌋ Λ

(3) ⟨ ⟩ •] [• •] (4) ⟨ [• ⌋ •Λ

57. How PATCH will be coded?

(1) ⟩•] [•] [•⟨ (2) ⟩• ⌋ □ L ⟨

(3) ⟨ [• ⌋ •Λ (4) ⟨ ⟩ •] [• •]

58. Given

	T	A	R
+ R	A	T	E
4	4	4	4

Find out which number from the following stands for TEA.

(1) 103 (2) 130

(3) 310 (4) 413

Directions (Qs.59 & 60): ***In the following questions the words are coded but are not in their respective position. Study them carefully and answer the questions that follow:***

'Mohan Wants Car' is 1, 2, 3
'Car Is Good' is 1, 4, 5
'Mohan Has Good Scooters' is 2, 4, 6, 7
'Amit Has Car' is 7, 1, 8 and
'Car Is Precious' is 1, 5, 9

59. Which digit stands for 'Good'?

(1) 1 (2) 4

(3) 6 (4) 7

60. What will be the code for 'Amit Wants Precious Scooter'?

(1) 2, 3, 6, 9 (2) 8, 3, 9, 6

(3) 8, 6, 5, 9 (4) 8, 7, 9, 1

61. In the following multiplication, each of the different letter denotes a different integer. Each letter stands for the same integer through out. If '*B*' stands for 6 and '*E*' stands for 8, then what is the difference between '*F*' and '*D*' ?

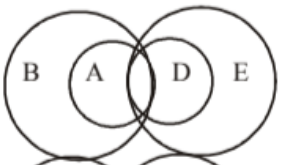
	A	B	C
×		D	E
A	C	F	B
E	A	G	0
F	H	F	B

(1) 2 (2) 4

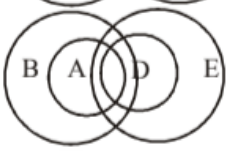
(3) 6 (4) 8

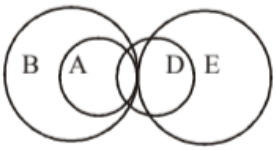
Directions (Qs.62 & 63): ***Read the statement given below. Find out the diagram (s) from the given alternatives representing the statement correctly.***

62. If all A are B but some A are D, and all D are E.

(I) 

(II) 

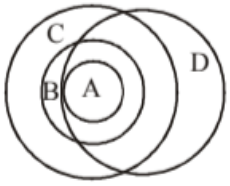
(III) 

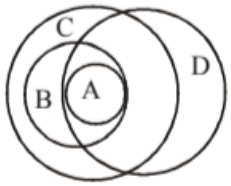
(IV) 

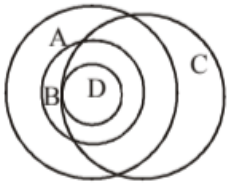
(1) I and II (2) I and III

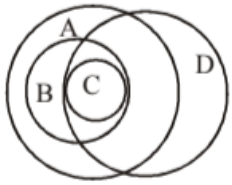
(3) I and IV (4) Only II

63. If all A are B and all B are C but some C are not D but all are D.

(I) 

(II) 

(III) 

(IV) 

(1) I and II (2) I and III

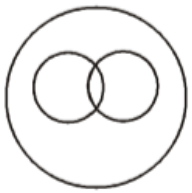
(3) I and IV (4) Only II

64. Consider the following:

- Some teachers only teach
- Some incharges only look after work
- Some incharges are teachers
- Teachers and incharges work in colleges

Which one of the four diagrams given below represents the above data?

(1) 

(2) 

(3) 

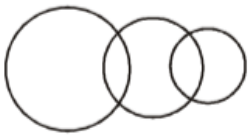
(4) 

65. Consider these informations:

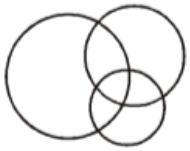
- 40 students studied English
- Out of them 20 students studied philosophy
- Ten students studied philosophy as well as Urdu.

Which of these figures represents the above data?

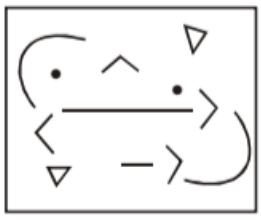
(1) 

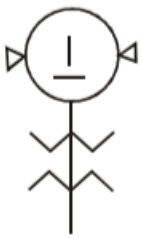
(2) 

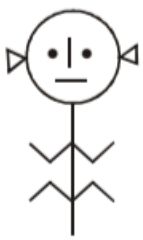
(3) 

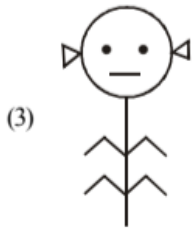
(4) 

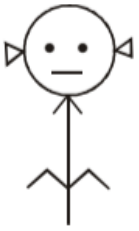
66. In which figure all the specified components of the problem figure are found?



(1) 

(2) 

(3) 

(4) 

67. Two women and two men are playing cards and are seated North, East, South and West of a table. No woman is facing East. Persons sitting opposite to each other are not of the same sex. One man is facing south. Which direction are ladies facing?

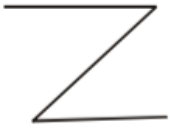
(1) East and West (2) South and East
(3) North and East (4) North and West

68. Ashok's residence is 25 metres away from that of Bhagwat towards South-West direction. Champak's house is 25 metres away from that of Ashok towards East. Deepak's house in 25 metres away from Bhagwat towards west. Which of the given alternatives resembles the shape of the above description?

(1) 

(2) 

(3) 

(4) 

69. A group of friends are sitting in an arrangement each one at a corner of a hexagon. Rakesh is sitting opposite Rajesh, Jaya is sitting next to Suman, Neelam is sitting opposite Suman but not next to Rakesh. Amit has a person between Rajesh and himself. Then who is sitting opposite to Jaya?

(1) Rajesh (2) Neelam
(3) Amit (4) Suman

70. Manju is younger than Priyanka. Mukesh and Jagdish are older than Priyanka but younger than Sudha who is of the same age as Srikant. Hence, Srikant is

(1) younger than Manju
(2) older than Manju
(3) younger than Mukesh
(4) younger than Priyanka

71. Harsh is the father of Santosh, Preeti is the daughter of Beena and Beena is the wife of Harsh. Santosh is not the daughter of Beena. Find out the relationship of Santosh and Preeti.

(1) Father – daughter (2) Brother – sister
(3) Husband – wife (4) Mother – daughter

72. In a row of boys, Mukesh is 8th from the right and Suresh is also 8th from the left. When Mukesh and Suresh interchange their positions, Suresh becomes 16th from the left.
What will be Mukesh's new position from the right?

(1) 15 (2) 16
(3) 17 (4) 18

Directions (Qs.73-77): ***Take the given statement(s) as true and decide which of the conclusions logically follows from the statement.***

73. **Statement:**
Demonstrators protested against the New Education Policy.
Conclusion
I. Demonstrators are anti-social beings
II. All education policies are bad.
III. Demonstrators often protest.
(1) I and II follow
(2) I and III follow
(3) Conclusions I, II and III follow
(4) Data is insufficient to draw conclusion.

74. **Statements** 1. All pens are pencils.
2. No pencil is a monkey.
Conclusions:
I. No pen is a monkey
II. Some pens are monkeys.
III. All monkeys are pens.
(1) Only I follow (2) Only I & II follows
(3) Only II & III follows (4) I, II & III all follows

75. **Statement:** (1) All buses are trees.
(2) All trees are windows.
Conclusions: I. All buses are windows.
II. All windows are buses.
III. All trees are buses.
(1) Only I & II follow
(2) Only I follow.
(3) Only II & III follow
(4) Conclusion I, II & III all follows

76. Consider these 2 statements to be true:
- All ministers are low graduates.
- Some ministers are ladies.

Which of the inferences is correct?
(1) All lady ministers are law graduate.
(2) All lady minister is a law graduate.
(3) No male ministers is a law graduate.
(4) All law graduate ministers will be ladies.

77. Consider these three **statements** to be true:
- All birds fly
- Hyla is a reptile.
- Some reptile fly.

Which of these inferences is correct?
(1) Hyla flies. (2) Hyla may fly.
(3) Hyla is a bird. (4) Reptiles and birds fly.

78. Which number is wrong is the series?
3, 8, 15, 24, 34, 48, 63
(1) 15 (2) 24
(3) 34 (4) 48

79. Find out the missing term in the series.
4, 10, 28, ?, 244
(1) 64 (2) 81
(3) 82 (4) 96

80. I have few pens to be distributed. If I keep 4, 5 or 6 in a pack, I am left with three pens. If I keep 7 in a pack, I am left with none. What is the minimum number of pens, I have to pack and distribute?
(1) 56 (2) 61
(3) 62 (4) 63

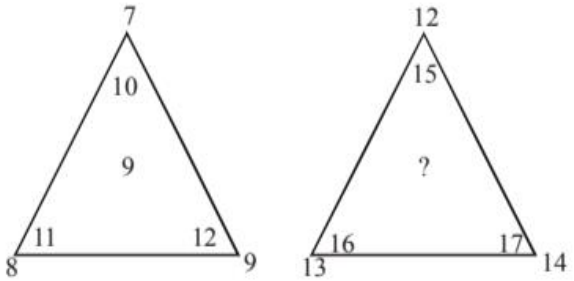
Directions (Qs.81-83): ***In each of the following questions, one term in the number series is wrong. Find out the wrong term.***

81. 89, 78, 86, 80, 85, 82, 83
(1) 83 (2) 82
(3) 86 (4) 78

82. 4, 6, 15, 56, 280, 1644
(1) 280 (2) 1644
(3) 56 (4) 15

83. 143, 156, 169, 182, 221, 232, 274
(1) 182 (2) 274
(3) 232 (4) 221

84. Find out the correct value in place of ? mark in the problem figures:



(1) 5 (2) 9
(3) 15 (4) 25

85. How many such pairs of digits are there in the number 98314625, each of which has as many digits between them in the number, as when they are arranged in ascending order?
(1) 4 (2) 5
(3) 6 (4) 7

Directions (Qs.86-90): ***A wooden cube of side 4 cm has been painted with different colours. The opposite two surfaces are painted with different colours. The opposite two surfaces are painted maroon, the other to with silver colour. Out of the remaining two surfaces one is painted orange and the other is painted green. The cube is cut into 64 equal cubes. Answer the following questions.***

86. How many cubes have three colours maroon, silver and orange?
(1) 4 (2) 8
(3) 12 (4) 16

87. How many cubes have only two colours i.e. maroon and green?
(1) 2 (2) 4
(3) 6 (4) 12

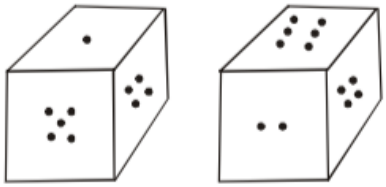
88. How many cubes have only silver colour?
(1) 4 (2) 8
(3) 12 (4) 16

89. How many cubes have only orange colour?
(1) 4 (2) 8
(3) 12 (4) 16

90. How many cubes do not have only coloured face?
(1) 4 (2) 8
(3) 12 (4) 16

91. A solid cube is made using 64 small cubes. For how many small cubes only one side is seen?
(1) 16 (2) 24
(3) 28 (4) 32

92. Two positions of a dice are shown below. When four is at the top what number will be at the bottom?

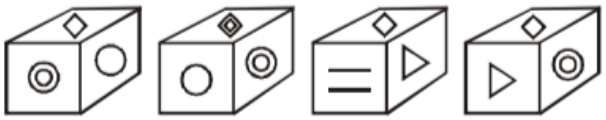


(1) 2 (2) 3
(3) 5 (4) 6

93. A 5 metre long piece of cloth is cut into three smaller pieces. How long is the longest of the three pieces? Given that:
I. One piece is 2.90 metre long.
II. One piece is 90 cm longer than another piece and the remaining piece is 20 cm long.
(1) Statement I alone but not statement II alone is sufficient to answer the problem.
(2) Statement II alone but not statement I alone is sufficient to answer the problem.
(3) Statement I and II both are needed to answer the problem.
(4) Statement I alone suffices and also statement II alone suffices to answer the problem.

94. The equal number of houses in both sides of the street are numbered 1, 2, 3, 4.... up one side, then back down the other side. If opposite House. No. 10 is House No. 23, then how many houses are there in the street?
(1) 30 (2) 32
(3) 34 (4) 36

95. Four positions of a single wooden cube, having various marking on its all the six faces are shown below. Study the positions carefully.



Which symbol is opposite to the symbol '=' ?
(1)  (2) 
(3)  (4) 

96. In a dice 'a', 'b', 'c' and 'd' are written on the adjacent faces, in a clockwise order and 'e' and 'f' at the top and bottom. When 'c' is at the top what will be at the bottom?
(1) a (2) b
(3) c (4) e

Directions (Qs. 97-100) : ***Given below are two matrices containing two classes of letters. The rows and columns of Matrix I are numbered from 0 to 4 and that of Matrix II from 5 to 9. A letter from these matrices can be represented first by its row number and next by its column number. eg: 'S' can be represented by 24, 31, etc.***

Matrix-I

	0	1	2	3	4
O	S	P	K	R	O
1	R	O	S	P	K
2	P	K	R	O	S
3	O	S	P	K	R
4	K	R	O	S	P

Matrix-II

	5	6	7	8	9
5	H	W	D	G	I
6	G	I	H	W	D
7	W	D	G	I	H
8	I	H	W	D	G
9	D	G	I	H	W

97. Which sets of numbers will represent the word "SHOW" ?
(1) 12, 67, 42, 56 (2) 24, 55, 30, 55
(3) 31, 79, 22, 75 (4) 43, 56, 11, 99

98. Which set of numbers will represent the word "SHIP" ?
(1) 00, 56, 66, 04 (2) 24, 86, 59, 43
(3) 31, 86, 66, 44 (4) 12, 98, 59, 67

99. Which set of numbers will represent the word "GROW" ?
(1) 65, 22, 04, 57 (2) 77, 22, 42, 97
(3) 58, 10, 11, 88 (4) 96, 34, 23, 68

100. Which set of numbers will represent the word "GRID" ?
(1) 65, 41, 85, 96 (2) 58, 41, 97, 88
(3) 65, 41, 95, 85 (4) 77, 22, 23, 85

ANSWER KEY

1.	(2)	**11.**	(3)	**21.**	(1)	**31.**	(4)	**41.**	(2)	**51.**	(1)	**61.**	(2)	**71.**	(2)	**81.**	(3)	**91.**	(2)
2.	(2)	**12.**	(4)	**22.**	(2)	**32.**	(3)	**42.**	(1)	**52.**	(3)	**62.**	(2)	**72.**	(2)	**82.**	(1)	**92.**	(2)
3.	(3)	**13.**	(2)	**23.**	(4)	**33.**	(4)	**43.**	(1)	**53.**	(2)	**63.**	(1)	**73.**	(4)	**83.**	(3)	**93.**	(2)
4.	(1)	**14.**	(3)	**24.**	(3)	**34.**	(1)	**44.**	(3)	**54.**	(4)	**64.**	(2)	**74.**	(1)	**84.**	(2)	**94.**	(2)
5.	(2)	**15.**	(1)	**25.**	(2)	**35.**	(2)	**45.**	(3)	**55.**	(3)	**65.**	(2)	**75.**	(2)	**85.**	(1)	**95.**	(3)
6.	(3)	**16.**	(2)	**26.**	(3)	**36.**	(2)	**46.**	(2)	**56.**	(1)	**66.**	(3)	**76.**	(1)	**86.**	(2)	**96.**	(1)
7.	(4)	**17.**	(4)	**27.**	(1)	**37.**	(4)	**47.**	(4)	**57.**	(2)	**67.**	(4)	**77.**	(2)	**87.**	(2)	**97.**	(1)
8.	(1)	**18.**	(3)	**28.**	(3)	**38.**	(1)	**48.**	(3)	**58.**	(1)	**68.**	(4)	**78.**	(3)	**88.**	(2)	**98.**	(3)
9.	(4)	**19.**	(2)	**29.**	(3)	**39.**	(3)	**49.**	(1)	**59.**	(2)	**69.**	(3)	**79.**	(3)	**89.**	(1)	**99.**	(4)
10.	(4)	**20.**	(1)	**30.**	(2)	**40.**	(2)	**50.**	(1)	**60.**	(2)	**70.**	(2)	**80.**	(4)	**90.**	(2)	**100**	(2)

Hints & Explanations

1. (2)

N O V A : O V O N

Similarly, O Z O N : Z O Z O

2. (2)

B E J Q : A C G M U

−1, −2, −3, −4

Similarly,

F I N U : E G K Q Y

+4; −1, −2, −3, −4

3. (3)

B D G K : O K H F

+2 +3 +4 : −4 −3 −2

Similarly, K M P T : X T Q O

+2 +3 +4 : −4 −3 −2

4. (1)

B E K C Similarly, V Y Z W

+3 −1 −4 +3 +3 −1 −4 +3

E D B F Y X V Z

5. (2)

$3^2 = 9$

$7^2 = 49$

$(0.12)^2 = .0144$

6. (3)

$4 \times 5 \times \boxed{4} = 80$

$5 \times 6 \times \boxed{5} = 150$

$8 \times ? \times \boxed{8} = 448$

$? = \frac{448}{64} = 7$

7. (4)

3 7 15 31 : 5 11 23 47

×2+1 ×2+1 ×2+1 : ×2+1 ×2+1 ×2+1

Similarly,

7 15 31 63 : 9 19 39 79

×2+1 ×2+1 ×2+1 : ×2+1 ×2+1 ×2+1

8. (1)

90 : 81

$10 \times \boxed{9}$ $\boxed{9} \times \boxed{9} = 9^2$

Similarly, 120 : $\boxed{12 \times 12}$

10×12 144

9. (4)

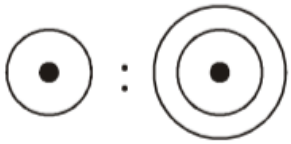
81 : 3 : 27

3^4 3^1 3^3

Similarly, $\boxed{625}$: 5 : 125

5^4 5^1 5^3

10. (4)



In this, 1 circle is increases

Similarly,

12. (4)

$25 = 5 \times 5$; $51 = 3 \times 17$; $96 = 6 \times 16$

$\boxed{75} \neq 5 \times 25$

125

15. (1)

1 8 3 (5 1) 3 7 8 1 5 (7 3) 5

8 3 1 5 3 7 1 8 3 5 3 7 8

3 (5 1) (7 3) 7 (5 1) 8 3 1 7 1

8 3 8 (5 1)

There are 6 pairs in which difference of 4 is formed

16. (2)

5 6 8 2 5 5 2 5 4 2 8 5 3 5

$\boxed{2\ 8}$ 6 8 2 5 $\boxed{2\ 8}$ 6 2 8 5 7 $\boxed{2\ 8}$

17. (4)

2 5 3 $\boxed{6\ 8}$ 4 9 6 8 1 5 1 $\boxed{6\ 8}$ 7 5

6 2 7 5 3 $\boxed{6\ 8}$ 3 7 6 8 1 5 $\boxed{6\ 8}$

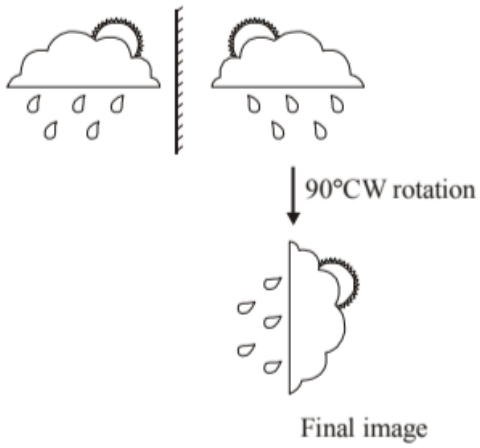
18. (3)

2 5 18 51 $\boxed{3\ 9}$ 5 52 $\boxed{6\ 36}$ 7 46

$\boxed{8\ 64}$ $\boxed{5\ 25}$ $\boxed{2\ \boxed{4}\ 16}$ 5 32 4 61 9

3 4 2

19. (2)

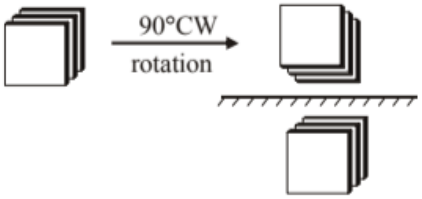


Hence option (2) is the answer.

20. **(1)** Mirror Image (B → Ɓ)

21. **(1)** Water image $\left[\begin{array}{c}\text{F}\\ \hline \text{E}\end{array}\right]$

22. **(2)**



This is the final image

Thus option (2) is the correct answer.

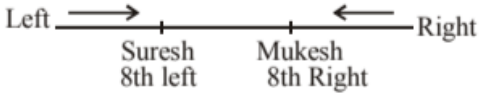
23. **(4)** is correct mirror image of

24. **(3)** Water image ‘ ⊥ × ⌐ ’.

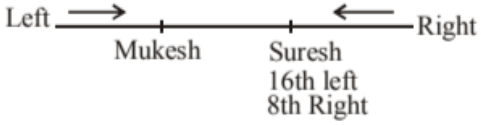
25. **(2)** Let Govind age be ‘x’ yrs.
Let Gopal age be ‘$x+4$’ years
According to question
$x+4+16=3(x+4)$
$x+20=3x+12$
$-2x=-8$
$x=4$ yr.
Gopal age $=x+4 \Rightarrow 4+4=8$ yr.

26. **(3)** 16th June → Friday
23rd June → Friday
30th June → Friday
7th July → Friday

29. **(3)**

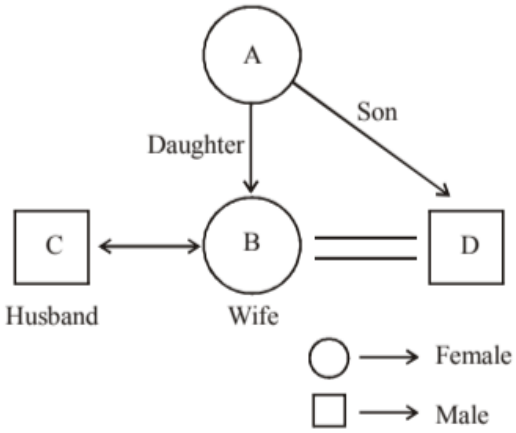


After interchange,



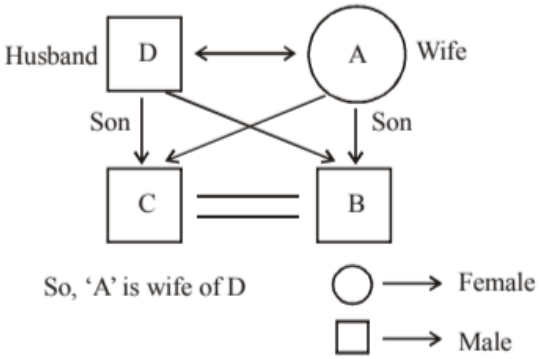
Total boys = Suresh left position
+ Suresh right position − 1
$= 16 + 8 - 1 = 23$

30. **(2)**



‘D’ is brother of B

31. **(4)**

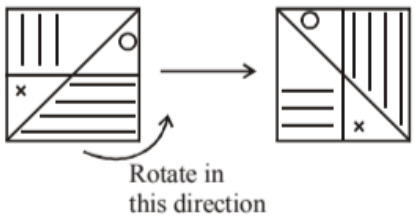


So, ‘A’ is wife of D

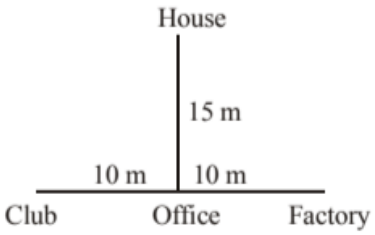
32. **(3)** By going options, check in which option two dark circles are present. It’s found in option ‘c’ only.

33. **(4)** By going options.

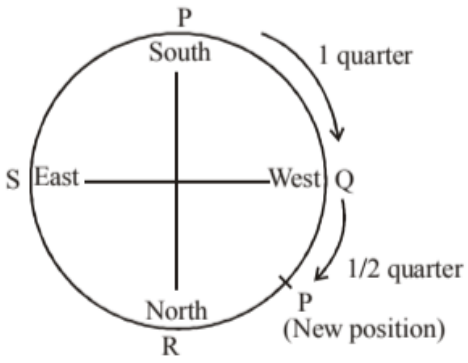
34. **(1)**



35. **(2)**



36. **(2)**

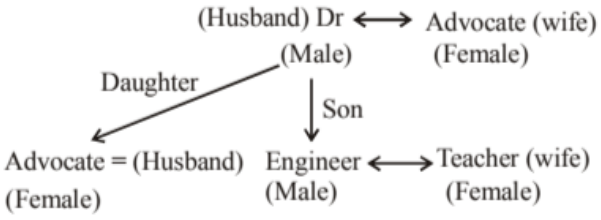


(38 - 40) :

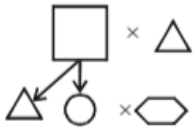
	Science	Maths	Cricket	Tennis	Music
A	√	√	√	×	×
B	×	√	√	√	×
C	√	√	×	√	×
D	√	×	√	√	√
E	×	×	√	√	√

38. **(1)** **39.** **(3)** **40.** **(2)**

41. **(2)**



Diagrammatical representation



42. **(1)** 3 teachers are both players and Artists.

47. **(4)** There is no code defined for letter 'D'

48. **(3)**

Letter	J	O	I	N	G	E	T	A	R	F	V	L
Code	G	P	H	N	J	F	V	A	R	E	Q	L

'4' letter have remained as codes

49. **(1)** F I G U R E → E H J Q R F

50. **(1)**

4	19	18	7	22	← (Represents position of alphabets when 'Z' is coded as 1, 'y' is coded as 2 ... and so on)
W	H	I	T	E	
↓	↓	↓	↓	↓	
D	S	R	G	V	
4	19	18	7	22	← (Represents position of alphabets when 'A' is coded as 1, 'B' is coded as '2' and so on)

Similarly,

25	15	26	24	16
B	L	A	C	K
↓	↓	↓	↓	↓
Y	O	Z	X	P
25	15	26	24	16

(51 & 52) :

Letter	B	P	G	I	T	N	A	C	E	O	H	Y	K	D	S
Code	O	E	G	T	T	Y	S	K	P	B	D	Y	C	H	A

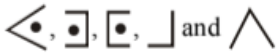
51. **(1)** I → T ; N → Y i.e., 2

52. **(3)** option (1), (2) and (4) are not possible as they contains X, R and R respectively.

53. **(2)** L = 20 i.e., 12 + 8 (As 12 is position of 'L' when they represent A as code 1 and so on)
RED i.e, (18 + 8) + (5 + 8) + (4 + 8) = 51
BLUE = (2 + 8) + (12 + 8) + (21 + 8) + (5 + 8) = 72

54. **(4)** GO = 7 × 15 = 105
SO = 19 × 15 = 285
RAT = 18 × 1 × 20 = 360

55. **(3)** Following the examples given, the code for SUGAR should be a combination of the following symbols


and either in the same order or jumbled up.

As S =  , U =  , G =  , A =  and R =  .

56. **(1)** Similarly, S P I C E is coded as 

57. **(2)** Similarly PATCH is coded as 

58. **(1)**

	T	A	R	
+	R	A	T	E
	4	4	4	4

As we see, at the Thousand's place $R = 4$. Therefore, at the unit's place $R + E = 4 \Rightarrow E = 0$.
Now, at Ten's and Hundred's place $A + T = 4$, so if $A = 1$ then $T = 3$ and if $A = 3$ then $T = 1$.
Thus the word $T\ E\ A$ has to be either 301 or 103. Thus option (1) 103 since that is one of the options.

59. **(2)** Car is Good → 1 4 5
Car is Previous → 1 5 9
From these statements, Good is coded as '4'.

60. **(2)** Amit's code = 8 Precious's Code = 9
Wants's code = 3 Scooter's code = 6
Amit Wants Precious Scooter = 8 3 9 6

61. **(2)** Given that $B = 6$ and $E = 8$

	A	6	C
×		D	8
A	C	F	6
8	A	G	0
F	H	F	6

As at the Thousand's place $A + 8 = F$, there is no carry over, thus the value of A can either be 0 or 1, but 0 will make it a 3-digit number. Hence, the value of $A = 1$ and thus that of $F = 9$. Also, in the first multiplication, $E \times C = B$, *i.e.*, $8 \times C = 6$, So 'C' can either be 2 or 7. By hit and trial, we find that $C = 2$. Therefore,

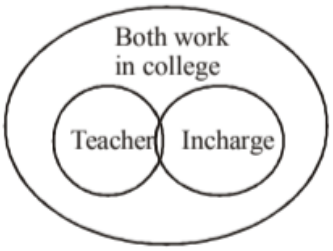
		1	6	2
×			D	8
1	2	9	6	
+	8	1	G	0
9	H	9	6	

As $9 + G = 9$, therefore, G should be '0' which can be obtained when $D = 5$, thus the difference between D & F is $F - D = 9 - 5 = 4$.

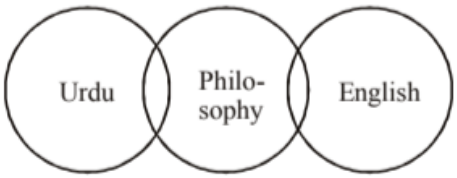
62. **(2)** Figure I and III follows the statement correctly.

63. **(1)** Figure I and II follows the given statement correctly.

64. **(2)**

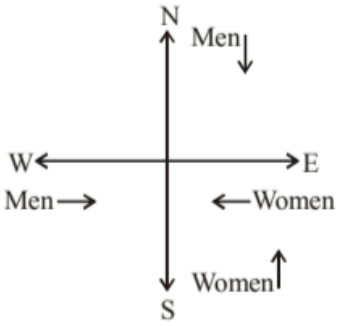


65. **(2)**

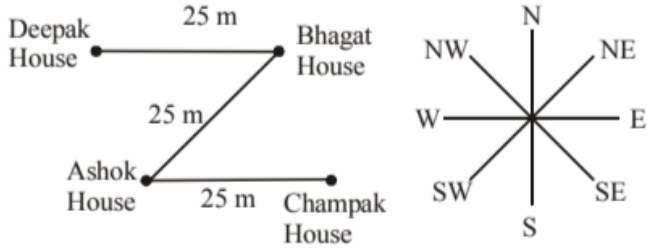


66. **(3)** Figure 'C' has all the components specified.

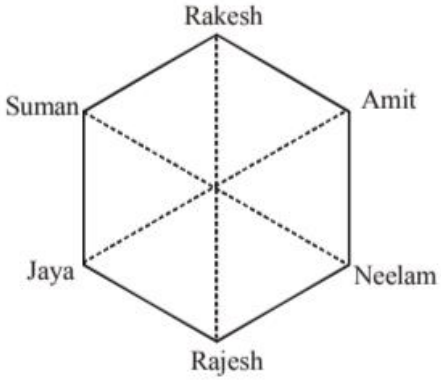
67. **(4)**



68. **(4)**

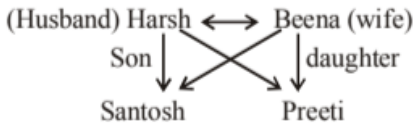


69. **(3)**



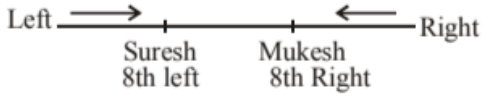
70. **(2)** Sudha = Srikant > Mukesh and Jagdish > Priyanka > Manju. So Srikant > Manju

71. **(2)**

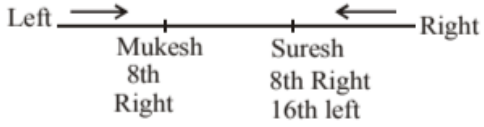


Santosh is brother of Preeti.

72. **(2)**



After interchange,



To calculate Mukesh's position, first he need to calculate total no. of boys in a row.

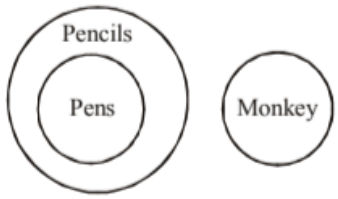
$\therefore$ Total Boys = Suresh Right + Suresh left – 1

= 8 + 16 – 1 = 23

So, Mukesh's Right position = Total Boy's – Mukesh left + 1 = 23 – 8 + 1 = 16

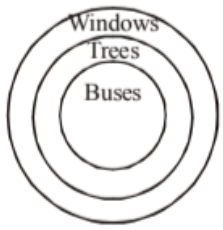
73. **(4)** Given data is insufficient to draw conclusion

74. **(1)**



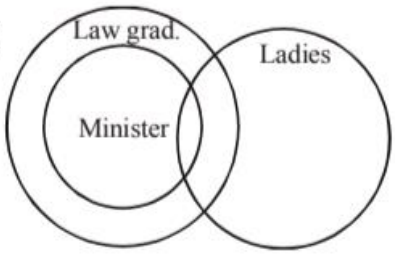
No pen is a monkey.

75. **(2)**



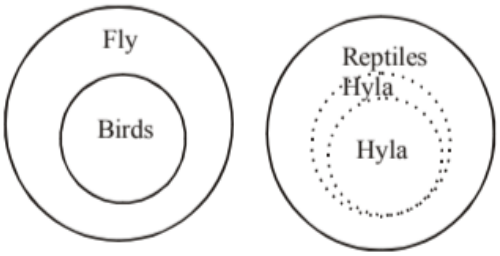
All buses are windows.

76. **(1)**



$\Rightarrow$ All lady ministers are law graduates.

77. (2)



78. (3) 3, 8, 15, 24, [34], 48, 63

+5, +7, +9, +11, +13, +15

79. (3) 4, 10, 28, [82], 244

+6, +(6 ×3=18), +(18 ×3=54), +(54 ×3 =162)

80. (4) (LCM of 4, 5, 6) + 3 = 60 + 3 = 63

When 63 ÷ 7, No remainder is left

82. (1)

4, 6, 15, 56, [280], 1644

×2 –2, ×3 – 3, ×4 – 4, ×5 – 5, ×6 – 6

83. (3) 143, 156, 169, 182, 221, [232], 247

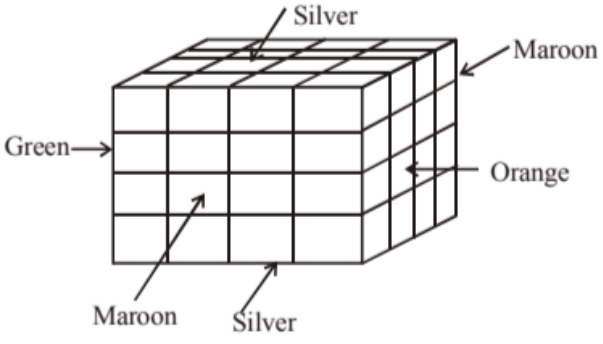
+26, +52, +26, +52, +26, 234

84. (2) (10 – 7) + (11 – 8) + (12 – 9) = 9

Similarly, (15 – 12) + (16 – 3) + (17 – 14) = 9

85. (1) 9, 8, 3, 1, 4, 6, 2, 5

(86 – 90) :



86. (2) All such cubes are at 8 corners, so 8 cubes of three coloures formed.

87. (2) All such cubes will be only at two edges and each edge contains 2 such cubes. Total = 4

88. (2) All such cubes will be at only two surfaces. One surface has 4 cubes, so total = 8.

89. (1) All such cubes will beat only 1 surface which has 4 cubes orange only.

90. (2) Total uncoloured cubes = Total cubes – total coloured

= 64 – 56 = 8

91. (2) No. of cubes only one side seen = $6(n-2)^2$

$= 6(4-2)^2 = 24$

(Where n = no. of layer

no. of Layer = $\sqrt[3]{\text{Total small cubes}}$

$\Rightarrow \sqrt[3]{64} = 4$

92. (2) From these two figures, it has been seen that dots 1, 2, 5 and 6 are adjacent to 4. So, 3 is opposite to 4.

93. (2) Statement I is irrelevant as we can't get the answer.

from statement II, we get

Let 'x' cm be the one piece.

Then (x + 90) cm be the second piece

third piece can be 20 cm

$\therefore (x) + (x + 90) + 20 = 500$

From there we can easily calculate how long will be the longest piece.

94. (2)

1	2	3	4	5	6	7	8	9	[10]	.....
32	31	30	29	28	27	26	25	24	[23]	

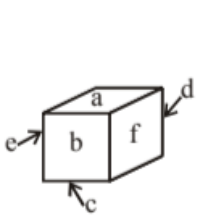
32 houses are there in the street.

95. (3) From figure I, II and IV,  and

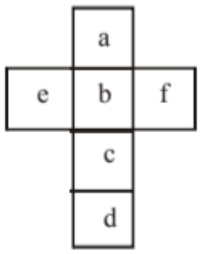
are adjacent to  . So, '=' is opposite to 

and vice versa.

96. (1)



or



If 'C' is at the top, then 'a' will be at the bottom.

Solutions from Q. 97 to Q. 100

As Matrix I has letters S, P, K, R & O and Matrix II has letters H, W, D, G & I, and as given in the example representation (coding) of each letter can be done in 5 ways, *i.e.,*

Matrix I

S	⟶	00, 12, 24, 31, 43,
P	⟶	01, 13, 20, 32, 44,
K	⟶	02, 14, 21, 33, 44,
R	⟶	03, 10, 22, 34, 41
O	⟶	04, 1, 2, 30, 42

Matrix II

H	⟶	55, 67, 79, 86, 98,
W	⟶	56, 68, 75, 87, 99,
D	⟶	57, 69, 76, 88, 95,
G	⟶	58, 65, 77, 89, 96
I	⟶	59, 66, 78, 85, 97

97. (1) 12, 67, 42, 56 **98. (3)** 31, 86, 66, 44
99. (4) 96, 34, 23, 68 **100. (2)** 58, 41, 97, 88