NTSE STAGE II
CODE: 13 –15
MAT
HINTS & SOLUTIONS

1. 1

Sol. As per observation

2. 3

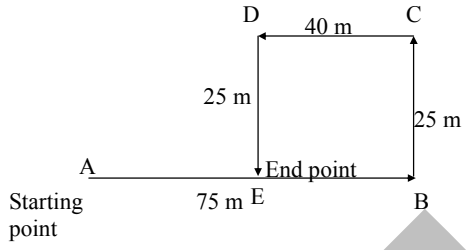
Sol. Since Ranveet always tells truth so Mehar and Ranveet both have a goat and Mehar is lying.

3. 1

Sol. Shaded rectangle moves half position toward right, circle moves 1 position in clockwise direction, In 1st row arrow moves half position in anti clockwise direction, in 2nd row it remains same and in 3rd row again half position in anticlockwise direction.

4. 2

Sol.



AE = AB – EB
= AB – DC
= 75m – 40m
= 35m

5. 4

Sol. III and IV conclusion logically following from given statements.

6. 1 or 4

Sol. $\left(2^2+2^2+4^2+3^2\right)-\left(2+2+4+3\right)=22$

$\left(3^3+2^2+5^2+4^2\right)-\left(3+2+5+4\right)=40$

$\left(4^2+3^2+6^2+5^2\right)-\left(4+3+6+5\right)=68$

OR

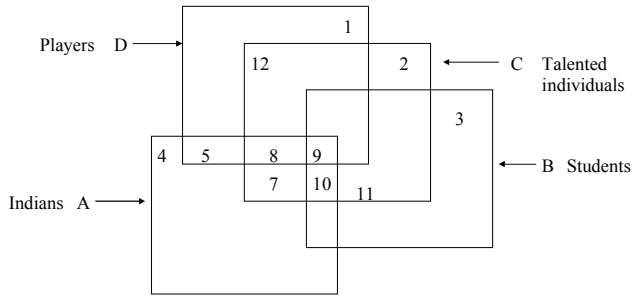
$\frac{\left(3+2\times4\right)\times4}{2}=22$

$\frac{\left(4+3\times4\right)\times5}{2}=40$

$\frac{\left(5+4\times4\right)\times6}{3}=42$

7. 3

Sol.



Number common to A, B and C but not D which is 10.

8. 2

Sol. Number common to C, A and D which are 8 and 9 i..e, 17.

9. 4

Sol. Numbers common to C, A and B, which are 9 and 10 i..e, 19

10. 2

Sol. $\Rightarrow (11 + 5 + x + y) - (15 + 10 + 5 + y) = 10$

$\Rightarrow 16 + x + y - 30 - y = 10$

$\Rightarrow 16 + x = 40$

$\Rightarrow x = 24$

$\therefore$ only B = x = 24

11. 3

Sol. $x + y + 5 = 63$ …. i

and $(x + y + 5 + 11) = 2 (15 + 10 + 5 + y)$ …ii

$\Rightarrow 63 + 11 = 60 + 2y$ (from i and ii)

$\Rightarrow 2y = 14$

$\Rightarrow y = 7$

$\therefore x = 51$

12. 3

Sol. The logical arguments are I and III.

13. 4

Sol. Number of trees and apples remains 4 and 5 respectively in each row and column.

14. 1

Sol. As per observation

15. 3

Sol. Lets assume person A goes uphill and on the same day person B comes dawn hill. There will surely be a point where both of them will meet at a certain time. Similarly, if person A comes dawn hill on the next day, he will be at the same place at the same time on the next day.

16. 2

Sol. Minute hand over takes hour hand 10 times in the given duration.

17. 1

Sol.

M	E	N	T	A	L
↓+6	↓+8	↓+10	↓–14	↓+14	↓-10
S	M	X	F	O	B

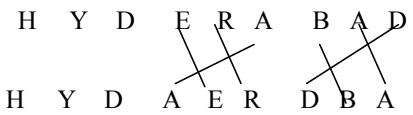
Similarly,

A	B	I	L	I	T	Y
↓+6	↓+8	↓+10	↓-14	↓+14	↓-10	↓-8
G	J	S	X	W	J	Q

18. 1

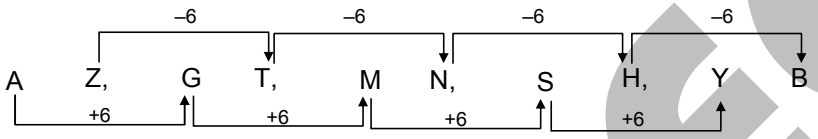
Sol.

Similarly



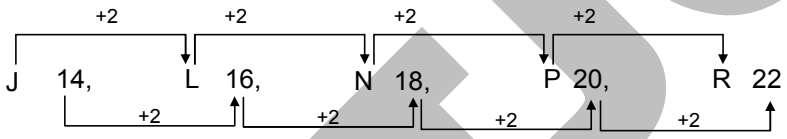
19. 3

Sol



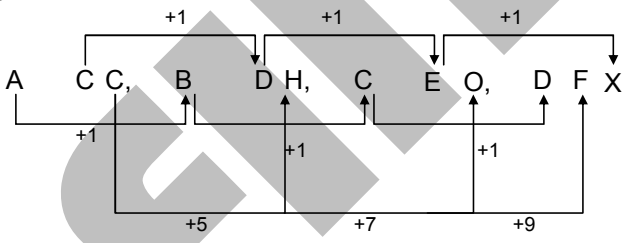
20. 1

Sol



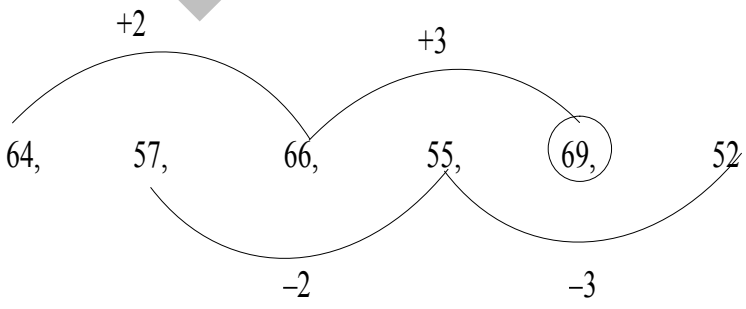
21. 3

Sol



22. 2

Sol



23. 1

Sol. As per observation

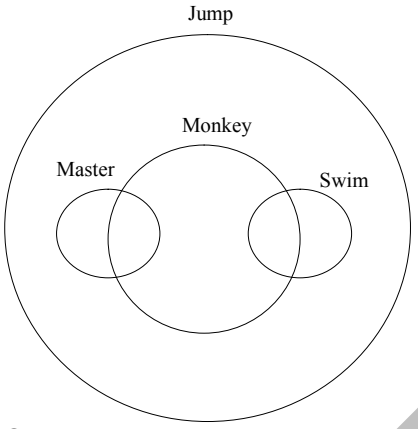
24. 3
Sol. Clay $\rightarrow$ Bricks $\rightarrow$ Wall $\rightarrow$ Room $\Rightarrow$ House
B E A D C

25. 3
Sol. As per observation

26. 3
Sol. As per observation.

27. 1
Sol. As per observation.

28. 2
Sol.



So, second statement is a ….

29. 4
Sol. Neither of the assumption are implicit as the statement is only concerned with population below poverty line of urban area last year $\rightarrow$ so, on assumption of rural area poverty line.

30. 2
Sol. Since one premise is particular, the conclusion must be particular and should not contain the middle term. Thus only II follows.

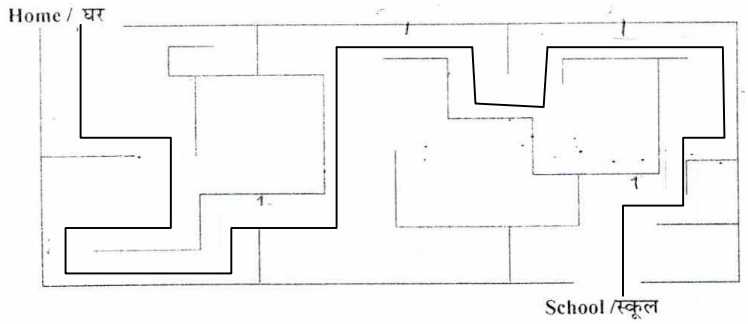
31. 3
Sol. In 24 hours the watch is gaining 10 minutes.
So, in one hour the watch will gain $\frac{10}{24}$min
$\therefore$ in 5 hours it will gain $\frac{10\times 5}{24}$min
By solving the equation the correct time by this watch is 2:02:05 am.

32. 3
Sol. It shows students can take history and geography together or only geography so II and III statement fallows.

33. 4
Sol. It is going $\frac{4}{8}$km northwards and $\frac{3}{8}$km westwards
So, distance between starting point and ending point is $\frac{5}{8}$ km.

34. 3

Sol.

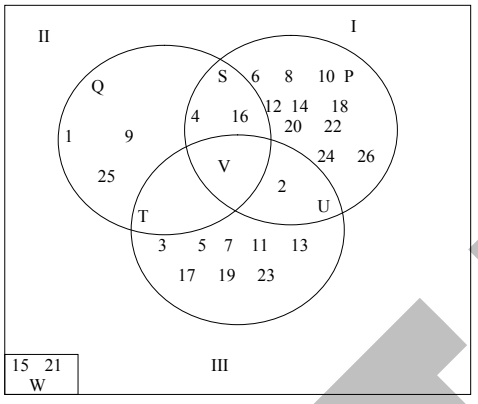


35. 1

Sol. The shaded region including rectangle, traperuma nd pentagon which is region at married male who are teacher.

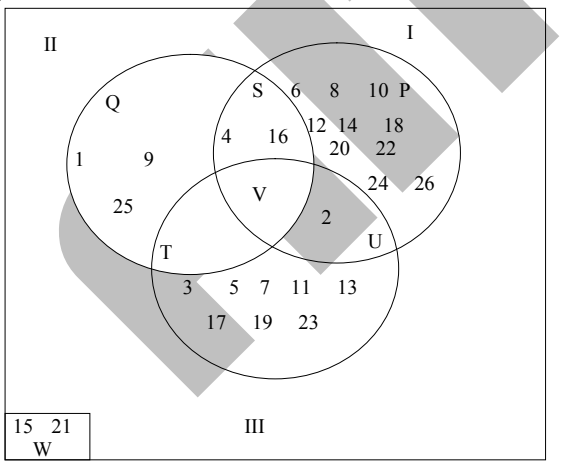
36. 3

Sol.



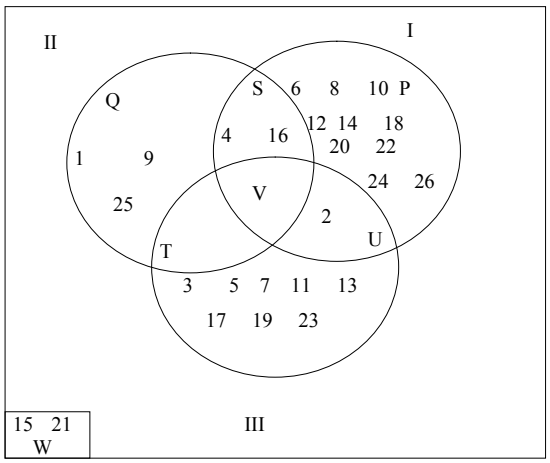
37. 1

Sol.



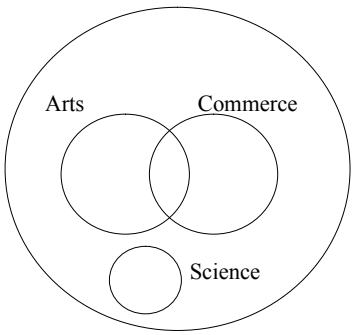
38. 3

Sol.



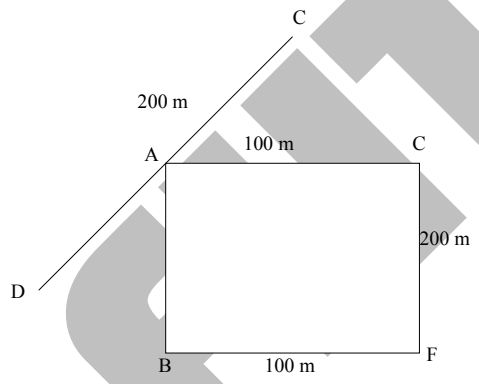
39. 1

Sol.



40. 4

Sol.



So, point B is 200 m south from point A

41. 1

Sol. Let A has Rs 5x, B has Rs 3x and C has Rs x
So, using statement I, 5x – x = 60
x = 15
So, B has Rs 45.

42. 4

Sol. Let the cost of each pen is x
The cost of each pencil is y
So, using first statement the equation 6x + 5y = 30
Using IInd statement

The new price of each pen = $\frac{3}{5}x$

The price of each pencil = $\frac{3y}{5}$

So, using IInd equation= $\frac{12\times 3x}{5}+\frac{10\times 34}{5}=36$ ....(i) 6x + 5y = 30...(ii)

So, even by using both statement answer cannot be found.

43 4

Sol. Ratio of saving cannot be found as no link between expenditure and income has been given.

44. 3

Sol. From statement II we find that

$\text{CP of A} = \text{SP of A} - \text{Profit after selling A}$

CP of A = $\frac{4}{5}$ of SP of A

From statement I

CP of A = SP of B

$\frac{4}{5}\text{SP of A} = \text{SP of B}$

So, ratio of selling price of A and SP of B can be found using both the statement.

45. 4

Sol. STAR = 50, CIRCUS = 65

Adding position of alphabets from back side we will get the required value.

So, PLANET $\rightarrow$ 11 + 15 + 26 + 13 + 22 + 7 = 94

46. 4

Sol. At 6pm the hour hand points towards north but in the given question it is pointing towards south.

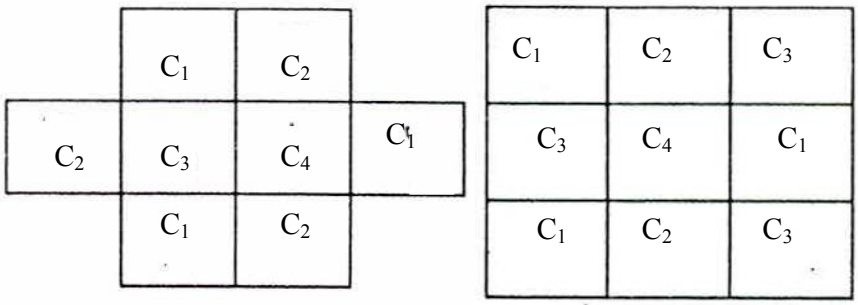
At 9:15 the minute hand point towards east but here it will be pointing towards west.

47. 3

Sol. In the evening the shadow is towards east. So person (Sanjiv) facing north will have shadow in their right. So, Rajni will be facing in South direction.

48. 2

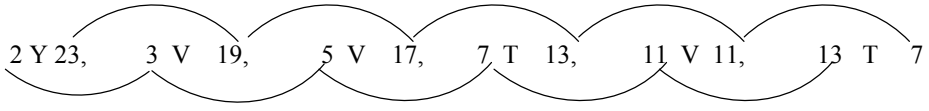
Sol.



C_1, C_2, C_3 & C_4 represents minimum different colours. That are required to fulfill the given condition.

49. 1

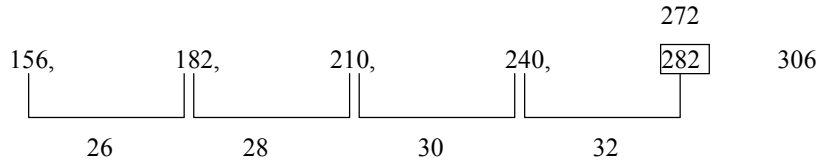
Sol.



By adding the two prime number we get the position of the alphabet which is in between the number.

50. 3

Sol.



51. 3.

Sol.

6	15	35	77	143	221
↓	↓	↓	↓	↓	↓
2x3	3x5	5x7	7x11	11x13	13x17

52. 2

Sol. Pairs $\rightarrow$ (5, 9), (4, 6), (7, 8)

$(5,9) \Rightarrow (5)^2 + (9)^2$

$25 + 81 = 106$

$(4,6) \Rightarrow (4)^2 + (6)^2$

$16 + 36 = 52$

$(7,8) \Rightarrow (7)^2 + (8)^2$

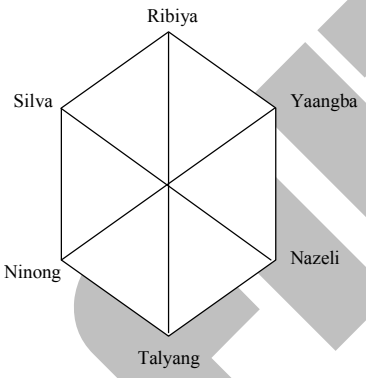
$49 + 64 = 113$

53. 2

Sol. a n t t a n / a n t t a n / a n t t a n

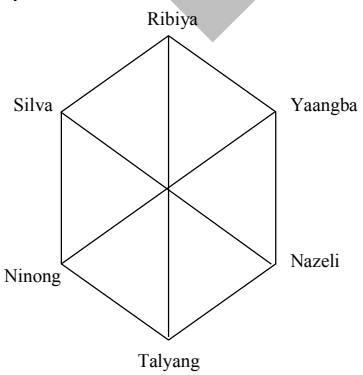
54. 3

Sol.



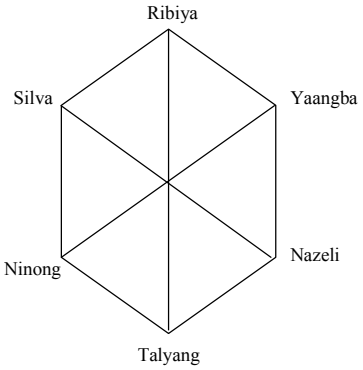
55. 4

Sol.



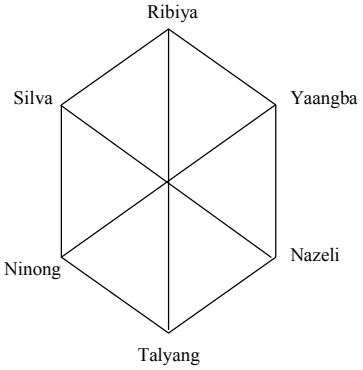
56. 1

Sol.



57. 4

Sol.



58. 3

Sol. By observation

59. 1

Sol. 5 x 4 = 20
3 x 8 = 24
9 x 4 = 36

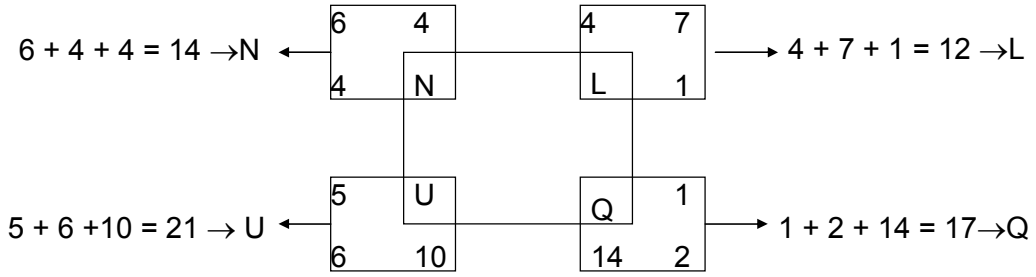
60. 4

Sol.

5	13	8	
E	M	H	$\Rightarrow 5 + 8 \rightarrow 13 \rightarrow M$
14	15	1	
N	O	A	$\Rightarrow 14 + 1 \rightarrow 15 \rightarrow O$
9	13	4	
I	M	D	$\Rightarrow 9 + 4 \rightarrow 13 \rightarrow M$

61. 4

Sol.



62. 2

Sol. $(10\times5)+(10\times3)+(3\times5)=95$

$(3\times6)+(3\times2)+(2\times6)=36$

$(\boxed{3}\times4)+(4\times8)+(8\times\boxed{3})=68$

63. 1

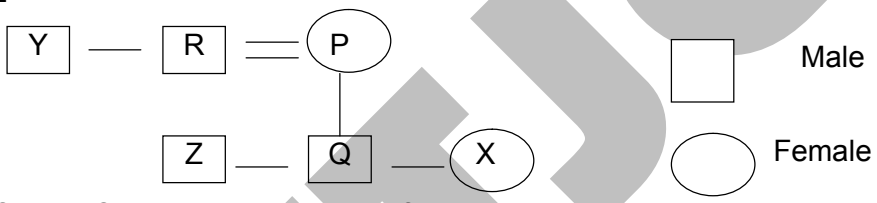
Sol. 13 + 11 +8 + 18 = 50
18 + 13 + 8 +11 = 50
11 + 21 + 9 + 9 = 50
9 + 8 + 10 + 23 = 50
$\Rightarrow$ 13 + m + 10 + 23 = 50
m = 50 – 46
m = 4

64. 3 or 4

Sol. According to Manushi $\rightarrow$ 11, 12, 13, 14, 15, 16
According to Vishakha $\rightarrow$ 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27
Common date $\rightarrow$ 15th & 16th July
If 10th July $\rightarrow$ Thursday
So, 15th July $\rightarrow$ Tuesday
and 16th July $\rightarrow$ Wednesday

65. 2

Sol.



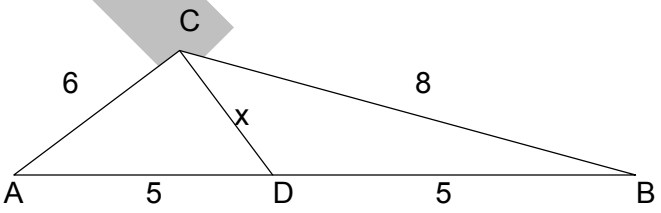
Clearly, Q, X and Z are children of P

66. 1

Sol. On 1st March dusk watch gains = 30 sec
On 2nd march dawn watch loses = 20 sec
So on 2nd morning watch gains = 10 sec
Similarly, on 28th morning watch gains = 270 sec
So, on 28th March dusk watch gains = 270 + 30 = 300 sec
= 5 min

67. 2

Sol.



It's a midpoint of right angle triangle.
So, CD = 5

68. 1

Sol. m + n = o + p … I
m + q = p + n …II
2p < m + q … III
2m > o + n … IV
From eq. II and III

$2p < p + n$
$\Rightarrow p < n$ … V
From eq. I if n > p so o > m … IV
From eq. IV and VI if o > m so m > n
So from eq V, Vi and VII o > m > n > p > q

69. 2
Sol. By observation

70. 4
Sol. 6 opposite 3
1 opposite 2
4 opposite 5

71. 1
Sol. $20 \div 4 \times 12 - 6 + 11$
After change $\rightarrow 20 + 4 - 12 \div 6 \times 11$
$= 20 + 4 - 2 \times 11$
$= 24 - 22$
$= 2$

72. 2
Sol. By observation

73. 4
Sol. Sum of the number are in descending order
5 + 6 + 4 = 15
6 + 5 + 3 = 14
3 + 6 + 4 = 13
4 + 2 + 6 = 12
5 + 4 + 2 = 11
By option 4
1 + 4 + 5 = 10

74. 1
Sol. There are two common number 6 and 2
So 3 is opposite to 1.

75. 1
Sol. $(96 \div 128) + 64 = 2$
Option (1)
$(64 + 128) \div 96 = 2$
$192 \div 96 = 2$
$2 = 2$

76. 2
Sol. $6x = 5y \Rightarrow x = \frac{5}{6}y \quad 2y > 3z \Rightarrow y > \frac{3}{2}z$

$\frac{5}{6}y > \frac{3}{2} \times \frac{5}{6}z \Rightarrow x > \frac{5}{4}z$

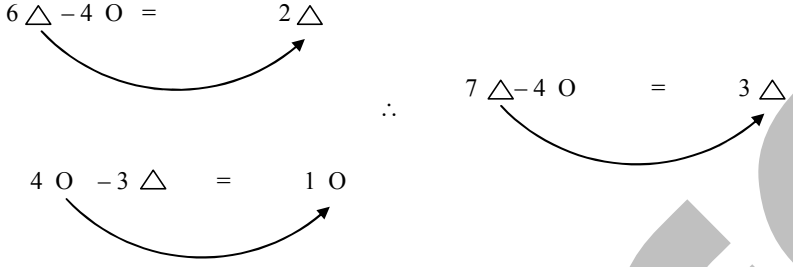
$4x > 5z$
$4x \; ? \; 5z$

77. 2
Sol. $30 \div 2 + 3 \times 6 - 5$

= 15 + 18 – 5
= 28

78. 4
Sol. Step I – Fliped right + 1 circle
Step II – Fliped left
Step III – Fliped right + 1 circle
Step IV - Fliped left
Step V – Fliped right + 1 circle

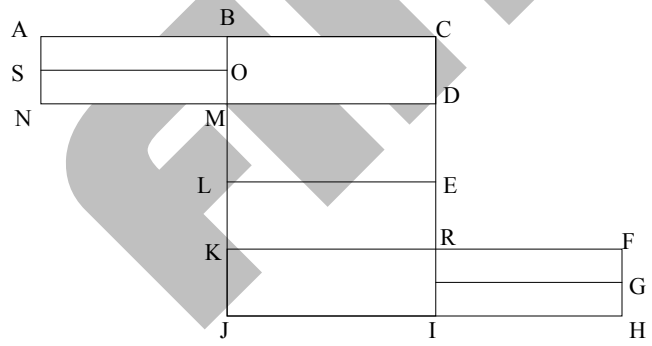
79. 1
Sol. Total number of Δ - total number of O and vice versa in 1st



80. 1
Sol.
$3 \times 8 \div 4 + 2 - 5 = (7 + 12 - 1 \boxed{?} 6$
$6 + 2 - 5 \qquad (19 - 1) \div 6$
$\Rightarrow 3 \qquad 18 \div 6 = 3$
$) \div \Rightarrow] \downarrow$

81. 4
Sol. By observation.

82. 1
Sol.



ABMN, BCDM, MDEL, LERK, RIJK, RFHI, ABOS, SOMN, RFGP, PGHI, BCEL, MDRK, LEIJ, BCRK, MDIJ, ACDN, KFHJ, BCIJ.

83. 2
Sol. From option 2 →

1#	3@	6@	4$	4#
P	E	A	C	E

84. 3
Sol. By observation.

85. 4

Sol.

	5	3	
2	8	1	7
	6	4	

86. 4

Sol. Let number of supervisor be x

Total number of legs $\rightarrow$ 50 x 2 + 45 x 4 + 8 x 4 + 2x

= 312 + 2x

Total number of heads $\rightarrow$ 50 + 45 + 8 + x

= 103 + x

$\Rightarrow$ 312 + 2x – (103 + x) = 224

x = 15

87. 2

Sol. For first letter in upper case $\rightarrow$ coded with first letter in upper case.

Busy $\rightarrow$ Cpu

Crows $\rightarrow$ hup

Only option 2 matches.

88. 2

Sol. From I and II

Flower Red $\rightarrow$ Sa Ma

From I and IV

Red White $\rightarrow$ Ma Ra

For Blue $\rightarrow$ Ga is remained

89. 2

Sol. one digit number $\rightarrow$ 1 to 9 $\rightarrow$ 9

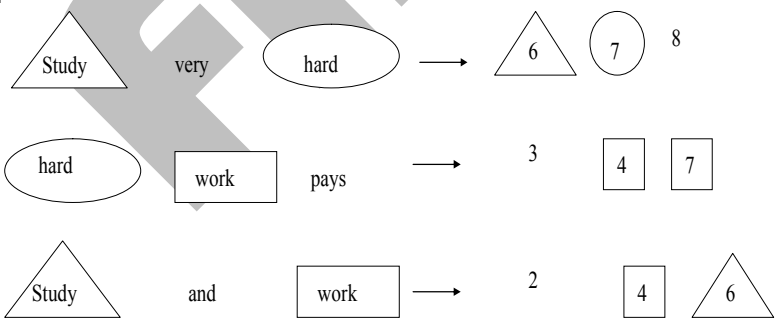
Two digit number $\rightarrow$ 10 to 99 $\rightarrow$ 90 x 2 = 180

three digit number $\rightarrow$ 100 to 199 $\rightarrow$ 100 x 3 = 300

total digit = 9 + 180 + 300 = 489

90. 4

Sol.



91. 2

Sol.

	T	O	M	E		A	R	E
	@	$	*	?		I	&	?
$\Rightarrow$	R	E	M	O	T	E		
	&	?	*	$	@	?		

Direct coding

92. 2

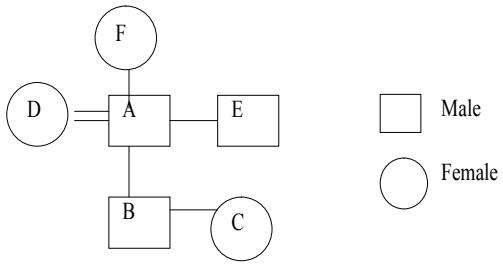
Sol. 23 + 26 – 7 = 42

11 + 15 – 7 = 19

32 + 16 – 7 = 41

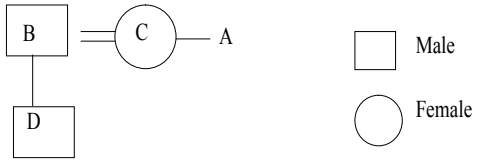
93. 3

Sol.



94. 2

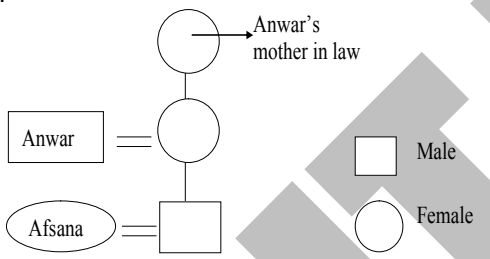
Sol. D * B + C / A



D is the nephew of A.

95. 4

Sol.



Clearly, Anwar is father of her husband i.e., father in law.

96. 4

Sol. Average speed = $\frac{\text{total distance}}{\text{total time}}$

$= \frac{60\times1+80\times2+100\times1+40\times1}{5} = \frac{360}{5} = 72 \text{ km/h}$

97. 4

Sol. 23% of sports $\rightarrow$ 1150 students

Total students = $\frac{1150}{23}\times100 = 5000$

Reading $\rightarrow$ 9% of 5000 = 450

98. 2

Sol. Total students = $\frac{1150}{23}\times100 = 5000$

99. 4

Sol. From F

Boys $\rightarrow$ 14% of 27300 = 3822

Girls $\rightarrow$ 21 % of 24700 = 5187

Ratio $\rightarrow$ 5187 : 3822 i..e, 19:14

100. 2

Sol. Hina wants to go either Goa or Odisha.
Harbhajan cannot go Goa.
So, only Odisha suits all.