

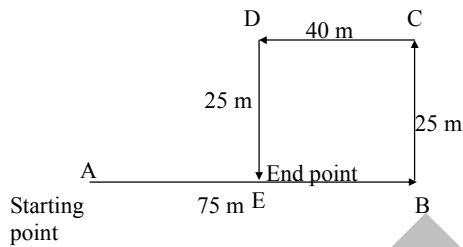
NTSE STAGE II
CODE: 13 –15
MAT
HINTS & SOLUTIONS

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.



$$\begin{aligned} AE &= AB - EB \\ &= AB - DC \\ &= 75\text{m} - 40\text{m} \\ &= 35\text{m} \end{aligned}$$

5. 4
 Sol. III and IV conclusion logically following from given statements.

6. 1 or 4
 Sol.

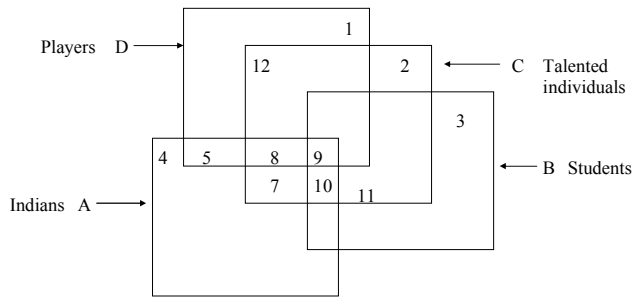
$$\begin{aligned} (2^2 + 2^2 + 4^2 + 3^2) - (2 + 2 + 4 + 3) &= 22 \\ (3^3 + 2^2 + 5^2 + 4^2) - (3 + 2 + 5 + 4) &= 40 \\ (4^2 + 3^2 + 6^2 + 5^2) - (4 + 3 + 6 + 5) &= 68 \end{aligned}$$

OR

$$\begin{aligned} \frac{(3 + 2 \times 4) \times 4}{2} &= 22 \\ \frac{(4 + 3 \times 4) \times 5}{2} &= 40 \\ \frac{(5 + 4 \times 4) \times 6}{3} &= 42 \end{aligned}$$

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 down hill. There will surely be a point where both of them will meet at a certain time. Similarly, if person A comes down 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. J A I S A L M E R
J A I L S A R M E

Similarly

H Y D E R A B A D
H Y D A E R D B A

19. 3
Sol.

20. 1
Sol.

21. 3
Sol.

22. 2
Sol.

23. 1
Sol. As per observation

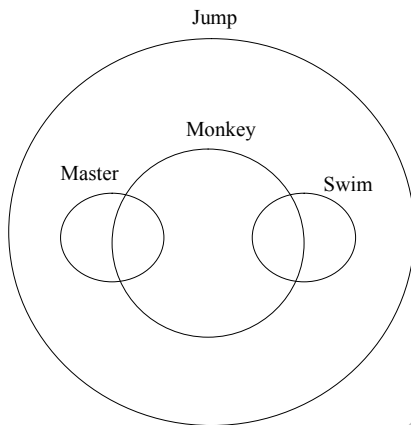
24. 3
 Sol. Clay → Bricks → Wall → Room ⇒ House
 B E A D C

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 → 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

∴ in 5 hours it will gain $\frac{10 \times 5}{24}$ min

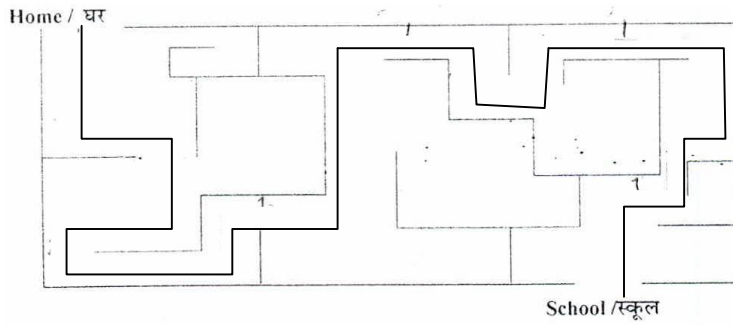
By solving the equation the correct time by this watch is 2:02:05 am.

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

33. 4
 Sol. It is going $\frac{4}{8}$ km northwards and $\frac{3}{8}$ km westwards

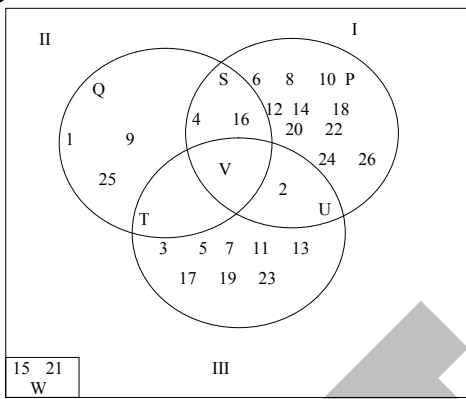
So, distance between starting point and ending point is $\frac{5}{8}$ km.

34. 3
Sol.

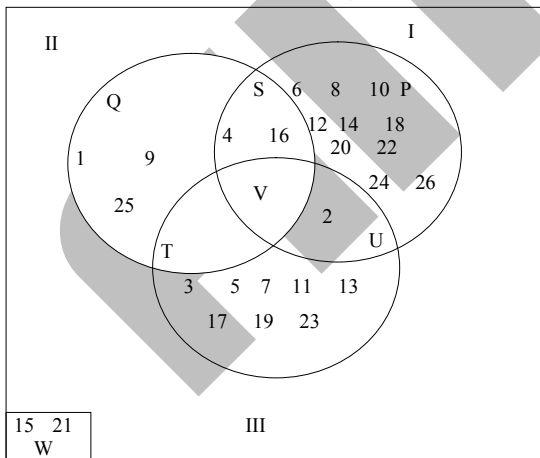


35. 1
Sol. The shaded region including rectangle, trapezium and pentagon which is region at married male who are teacher.

36. 3
Sol.

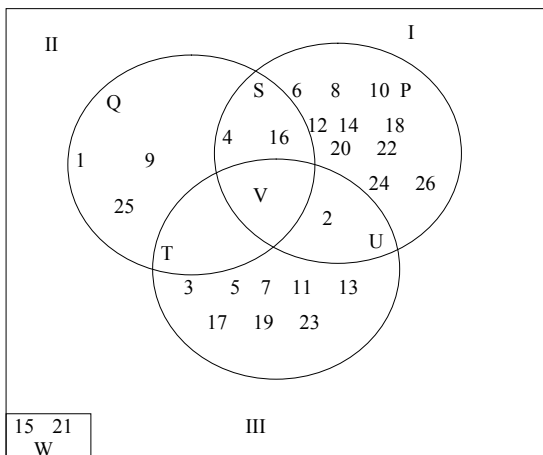


37. 1
Sol.

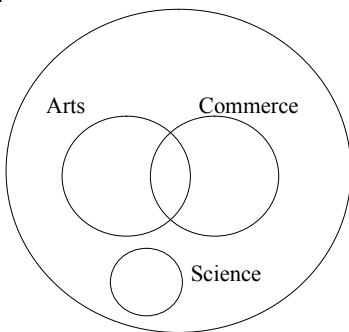


38. 3

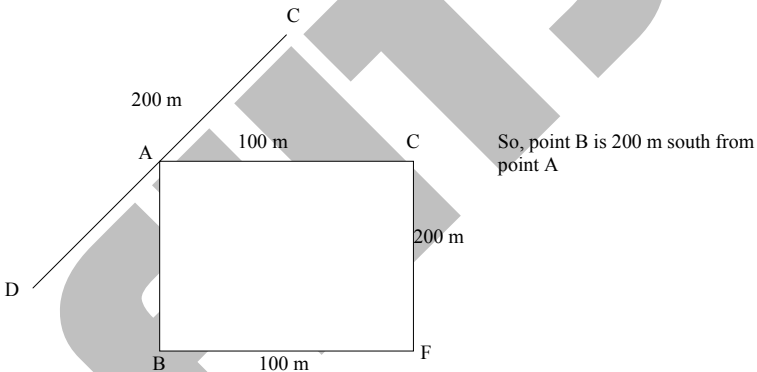
Sol.



39. Sol. 1



40. Sol. 4



41. Sol. 1
 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. Sol. 4
 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
CP of A = SP of A – Profit after selling A

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

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 → 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.

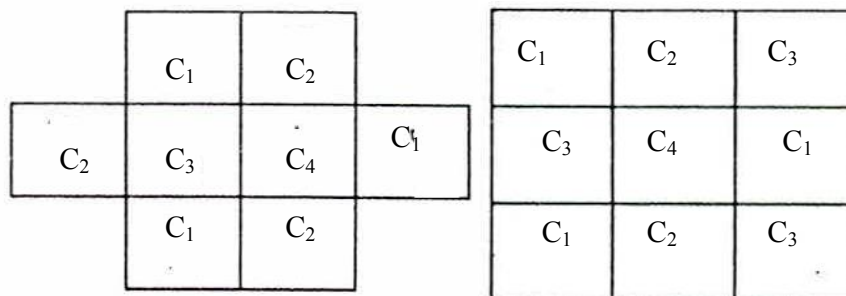
At 9:15 the minute hand point towards east but here it will be pointing towards west.

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

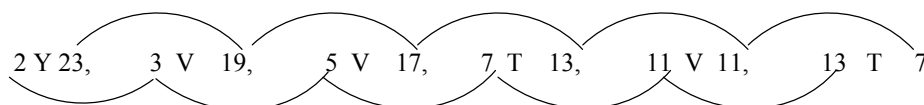
Sol.



C₁, C₂, C₃ & C₄ represents minimum different colours. That are required to fulfill the given condition.

49. 1

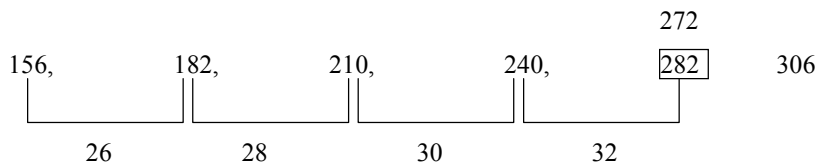
Sol.



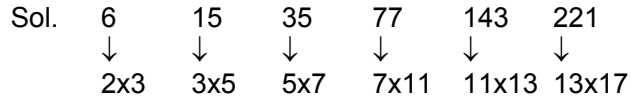
By adding the two prime number we get the position of the alphabet which is in between the number.

50. 3

Sol.



51. 3.



52. 2

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

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

$$25 + 81 = 106$$

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

$$16 + 36 = 52$$

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

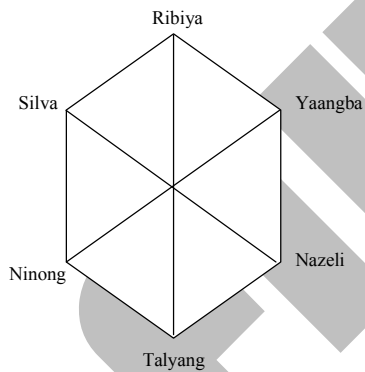
$$49 + 64 = 113$$

53. 2

Sol. a nttan / anttan / anttan

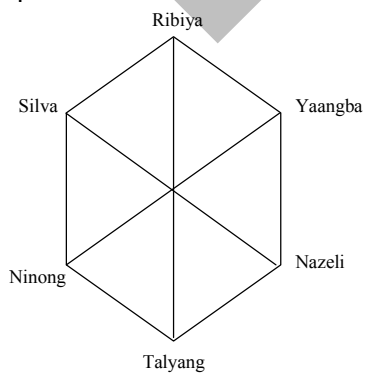
54. 3

Sol.



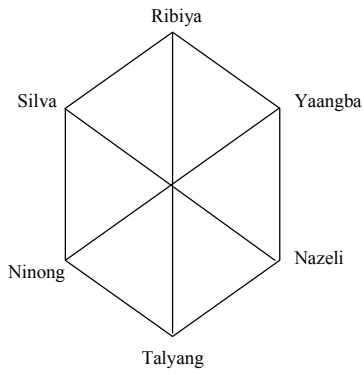
55. 4

Sol.

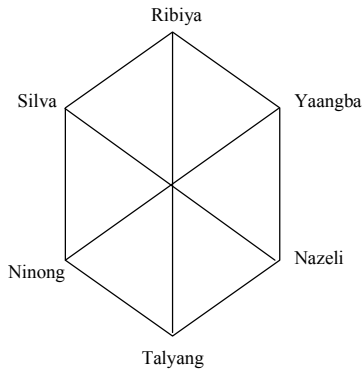


56. 1

Sol.



57. 4
Sol.



58. 3
Sol. By observation

59. 1
Sol. $5 \times 4 = 20$
 $3 \times 8 = 24$
 $9 \times 4 = 36$

60. 4
Sol.

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

61. 4
Sol.

$6 + 4 + 4 = 14 \rightarrow N$	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>6</td><td>4</td></tr> <tr><td>4</td><td>N</td></tr> </table>	6	4	4	N	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>4</td><td>7</td></tr> <tr><td>L</td><td>1</td></tr> </table>	4	7	L	1	$\rightarrow 4 + 7 + 1 = 12 \rightarrow L$
6	4										
4	N										
4	7										
L	1										
$5 + 6 + 10 = 21 \rightarrow U$	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>5</td><td>U</td></tr> <tr><td>6</td><td>10</td></tr> </table>	5	U	6	10	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>Q</td><td>1</td></tr> <tr><td>14</td><td>2</td></tr> </table>	Q	1	14	2	$\rightarrow 1 + 2 + 14 = 17 \rightarrow Q$
5	U										
6	10										
Q	1										
14	2										

62. 2

Sol. $(10 \times 5) + (10 \times 3) + (3 \times 5) = 95$
 $(3 \times 6) + (3 \times 2) + (2 \times 6) = 36$
 $(\boxed{3} \times 4) + (4 \times 8) + (8 \times \boxed{3}) = 68$

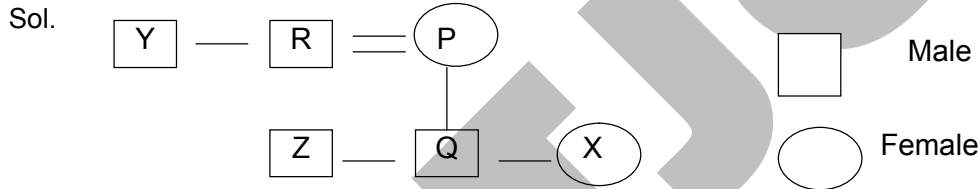
63. 1

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 $\rightarrow 15^{\text{th}}$ & 16^{th} July
If 10^{th} July \rightarrow Thursday
So, 15^{th} July \rightarrow Tuesday
and 16^{th} July \rightarrow Wednesday

65. 2

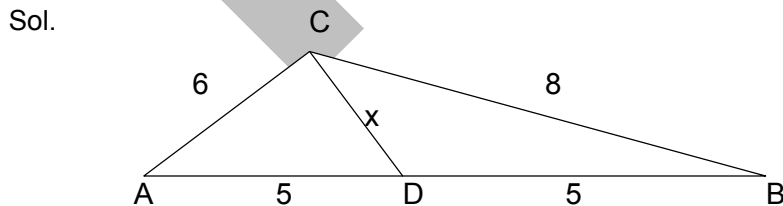


Clearly, Q, X and Z are children of P

66. 1

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

67. 2



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

68. 1

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

$2p < p + n$
 $\Rightarrow p < n \dots V$
 From eq. I if $n > p$ so $o > m \dots IV$
 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. $6x = 5y \Rightarrow x = \frac{5}{6}y$ $2y > 3z \Rightarrow y > \frac{3}{2}z$

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

$$4x > 5z$$

$$4x ? 5z$$

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

$$6 \Delta - 4 O = 2 \Delta$$

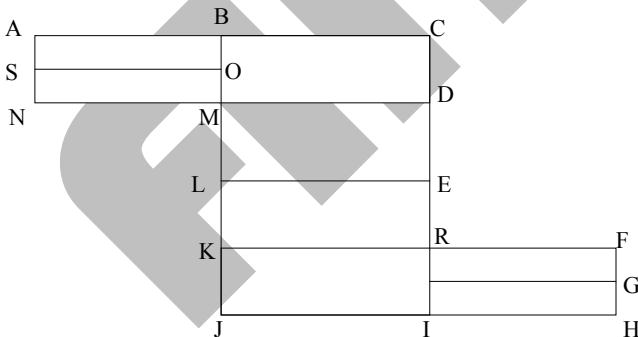
$$4 O - 3 \Delta = 1 O$$

$$\therefore 7 \Delta - 4 O = 3 \Delta$$

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

81. 4
 Sol. By observation.

82. 1
 Sol.



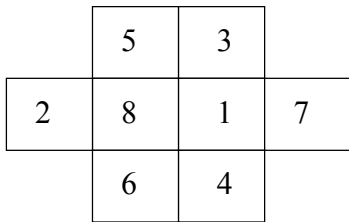
ABMN, BCDM, MDEL, LERK, RIJK, RFHI, ABOS, SOMN, RFGP, PGHI, BCEL, MDRK, LEIJ, BCRK, MDIJ, ACDN, KFHJ, BCIJ.

83. 2
 Sol. From option 2 \rightarrow 1# 3@ 6@ 4\$ 4#
 P E A C E

84. 3
 Sol. By observation.

85. 4

Sol.



86. 4

Sol. Let number of supervisor be x
 Total number of legs $\rightarrow 50 \times 2 + 45 \times 4 + 8 \times 4 + 2x$
 $= 312 + 2x$
 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.

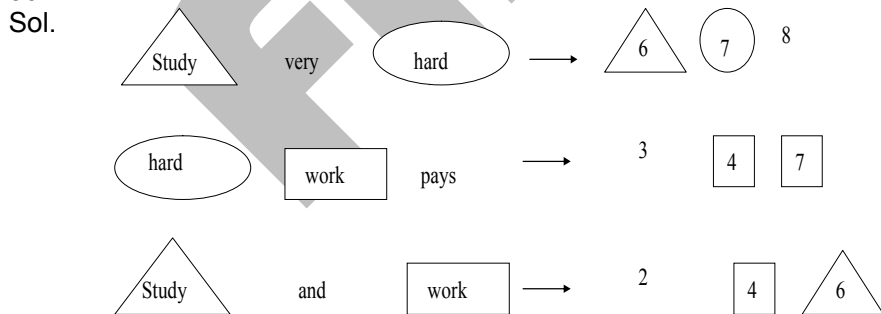
88. 2

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 $99 \rightarrow 90 \times 2 = 180$
 three digit number $\rightarrow 100$ to $199 \rightarrow 100 \times 3 = 300$
 total digit $= 9 + 180 + 300 = 489$

90. 4



91. 2

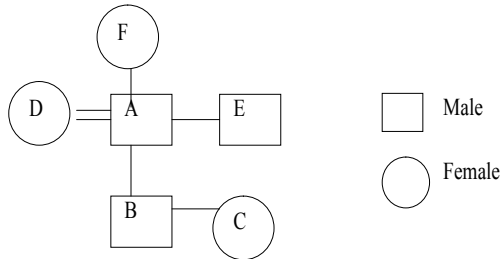
Sol.

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

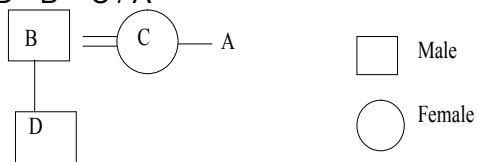
Direct coding

92. 2
 Sol. $23 + 26 - 7 = 42$
 $11 + 15 - 7 = 19$
 $32 + 16 - 7 = 41$

93. 3
 Sol.

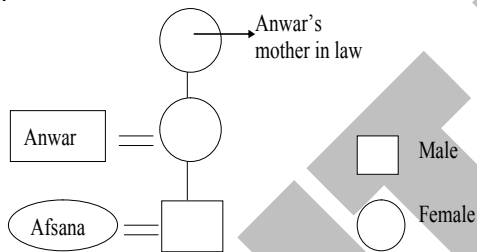


94. 2
 Sol. $D * B + C / A$



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 = $\frac{\text{total distance}}{\text{total time}}$
 $= \frac{60 \times 1 + 80 \times 2 + 100 \times 1 + 40 \times 1}{5} = \frac{360}{5} = 72 \text{ km/h}$

97. 4

Sol. 23% of sports \rightarrow 1150 students
 Total students = $\frac{1150}{23} \times 100 = 5000$
 Reading \rightarrow 9% of 5000 = 450

98. 2

Sol. Total students = $\frac{1150}{23} \times 100 = 5000$

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.

FITJEE