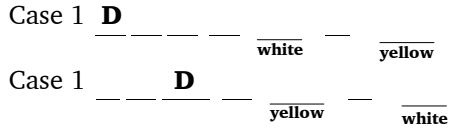


- 1. (b) 2. (a) 3. (c) 4. (d) 5. (e) 6. (c) 7. (d) 8. (e) 9. (e) 10.(b)
- 11.(d) 12.(b) 13.(e) 14.(c) 15.(b) 16.(c) 17.(e) 18.(a) 19.(d) 20.(b)
- 21.(a) 22.(b) 23.(d) 24.(c) 25.(a) 26.(b) 27.(b) 28.(d) 29.(c) 30.(d)

(31 to 33)

31.(d) D's house was 4th to the left of the white house
Number of houses to the right of the yellow house was equal to the number of houses to the left of D's house



G's house was neighbouring D's house and was 3rd to the right of the pink houses thus, 1st arrangement becomes invalid.

B lived in the green house
There were 3houses between B's house and the blue house. Blue house was somewhere to the right of B's house

32.(a)

33.(c)

(34 to 38)

34.(c)

Not less than 3 loads are connected to any substation.
So, one substation has 4 loads and remaining 2substations has 3 load each.
L1 is connected to S2 and L4 is connected to S3.

S1	S2	S3
	L1	L4

L5 and L7 are connected to different substations and none of those is S2.

L2 is connected to the same substation as that of load L6 and L9.

Case 1:-

S1	S2	S3
L5/L7	L1	L4
	L2	L5/L7
	L6	
	L9	

Case 2:-

S1	S2	S3
L5/L7	L1	L4
L2		L5/L7
L6		
L9		

L3 and L10 are connected to same substation.
L7 and L8 are connected to different substations.

Case 1:-

S1	S2	S3
L7	L1	L4
L3	L2	L5
L10	L6	L8
	L9	

Case 2:-

S1	S2	S3
L7	L1	L4
L2	L3	L5
L6	L10	L8
L9		

Substation S1 and S3 has different number loads connected to it. S, we get:-

S1	S2	S3
L7	L1	L4
L2	L3	L5
L6	L10	L8
L9		

L2 is connected to substation S1, which has 4 loads connected to it.

35.(d)

36.(d)

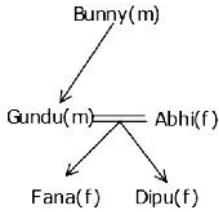
37.(b)

38.(a)

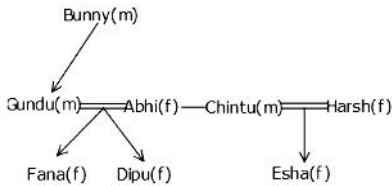
(39 to 41)

39.(b) Fana is daughter of Gundu, who is husband of Abhi.
Dipu is granddaughter of Bunny, who is father-in-law od Abhi.

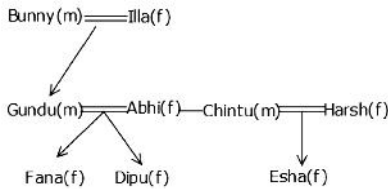
Bunny has only 1 child.
So, Dipu must be daughter of Abhi and Gundu.



Chintu is brother of Abhi and father of Esha.
Esha is daughter of Harsh. So, Harsh and Chintu are married couple.



Illa is female married member of the family.
Since there are 9 members in the family and above figure shows 8 members (Excluding illa)
So, Illa must be married to Bunny.



Dipu is daughter of Chintu's sister. So, Dipu is niece of Chintu.

40.(a)

41.(a)

42.(d) Using Statement I we get.

$$\text{Sleep} = 9, \text{ Tigt} = 1$$

$$\text{Eat/and/Repeat} = 432$$

Using Statement II:

$$\text{Eat/and/exercise} = 2/6/3$$

Using both the statements together.

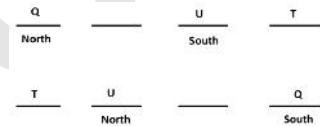
$$\text{Eat/and} = 3/2$$

Thus, we cannot exactly determine the code for eat.

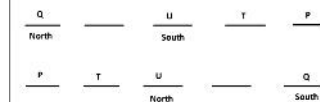
43.(d) From Statement 1:

T was 3rd to the right of Q who was 2nd to the right of U.

U was not seated at the extreme end.



S was 2nd to the right of T who was neighbouring P.



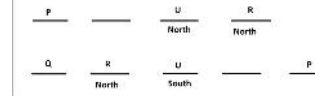
S can be placed between Q and U or at the extreme end neighbouring P. As the direction of P is not known the answer cannot be found out using statement 1

From statement 2 :

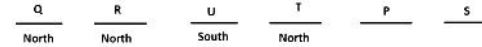
Q was to the immediate left of R who faced North.

P was 2nd to the left of U.

U was seated beside R



As the direction faced by P is not known the answer cannot be found out using statement 2 alone By combining the 2 statements we get:



Thus, either T or S was to the immediate left of P hence no conclusive answer can be found out by combining the statements.

44.(e) Using the data given in statement 1:

Three persons lived between Ravi and Rakesh. Ravi lived above Rakesh.

Rakesh lived just above Rohan.

	Case 1	Case 2
7	Ravi	
6		Ravi
5		
4		
3	Rakesh	
2	Rohan	Rakesh
1		Rohan

Radha lived exactly above Rohit.

Radha and Ravi did not live on consecutive floors.

Rajesh and Ravi lived on consecutive floors.

	Case 1	Case 2
7	Ravi	Rajesh/Ramesh
6	Rajesh	Ravi
5	Radha	Ramesh/Rajesh
4	Rohit	Radha
3	Rakesh	Rohit
2	Rohan	Rakesh
1	Ramesh	Rohan

Thus, either Ravi or Rajesh was on floor 6. Hence the answer cannot be determined using the statement 1 alone using the data given in statement 2:

- Rajesh lived on an odd valued floor, but not on the lowest floor
- Radha's floor number was twice as that Rakesh's floor number.
- Ramesh lived just above Radha

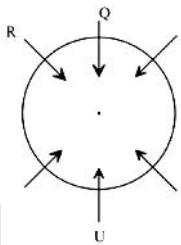
	Case 1	Case 2	
7	Ramesh	Rajesh/	Rajesh
6	Radha		
5	Rajesh	Ramesh /	Rajesh
4		Radha	
3	Rakesh	/Rajesh	Ramesh
2		Rakesh	Radha
1			Rakesh

Thus, we cannot determine who lived on floor 6
Combining both Statements, we get:

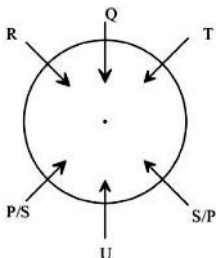
7	Rajesh
6	Ravi
5	Ramesh
4	Radha
3	Rohit
2	Rakesh
1	Rohan

Thus, Ravi lived on floor 6. Hence the answer can be found out by combining both statements together.

45.(c) From I. R sits to the left of U who sits opposite to Q.



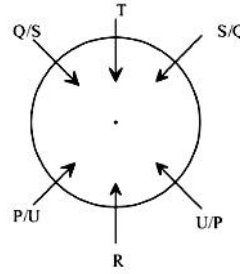
But T is not a neighbour of U, Hence the arrangement is as follows



T sits to the immediate right of Q.

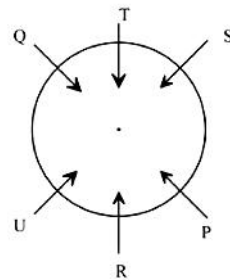
From II.

T and R sit opposite each other and Q is not a neighbour of R and S do not sit adjacent to each other.



But Q sits to the immediate left of U.

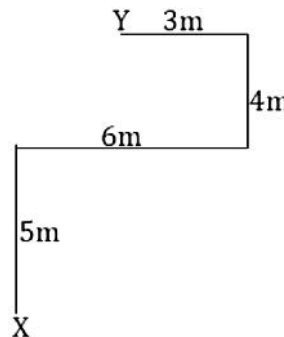
Hence the final arrangement is as:



T sits to the immediate left of Q, hence either statement alone is sufficient.

46.(c)

Point Y is in north-east of point X.



47.(d) For conclusion 1,

$$F < M < R \geq S$$

$$\text{Here, } F < R \geq S$$

Relationship between F & S cannot be established.

So conclusion 1 doesn't follow.

For conclusion 2,

$$P = Q = R < J > K \geq L$$

Here, relationship between L & P cannot be established.

So conclusion 2 doesn't follow

48.(b) For conclusion 1,

$$A < B < D > C$$

Here $S < D > C$. Relationship between A & C cannot be established

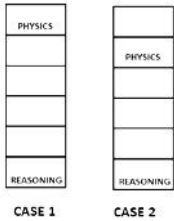
So conclusion 1 doesn't follow.

For conclusion 2,
 $L > E > F > C$
 Here clearly, $L > C$
 So conclusion 2 follows.

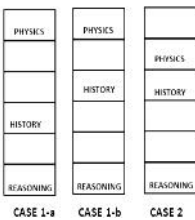
(49 to 53)

49.(a)

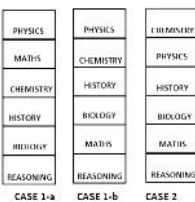
- Physics book is kept above maths book.
- History book above biology book but below Physics book.
- Neither Biology nor chemistry book is kept at bottom place.
- Maths book is kept above reasoning book.



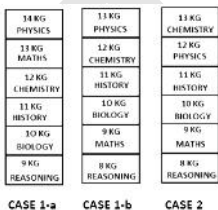
- History book is above biology book but below Physics book.
- Chemistry book is heavier than history book
- Weight increases from bottom to top.



- Maths book is neither immediately above nor immediately below history book.
- Physics book is kept above math book.



- History book weighs 11 kg.
- Weights of books are consecutive nos. and increases from bottom to top.



- Combined weight of Chemistry & Biology book is more than combined weight of math & Physics book

13 KG CHEMISTRY
12 KG PHYSICS
11 KG HISTORY
10 KG BIOLOGY
9 KG MATHS
8 KG REASONING

other cases are eliminated because they don't follow given condition.

CASE 2

Physics book weights 12 kg

50.(c)

51.(b)

52.(c)

53.(e)

(54 to 58)

54.(b) As we can see from the last step of the solved input, the words are arranged together and numbers together. But the exact arrangement is yet not clear. The 1st, 3rd, 5th words are in alphabetical order while the words at even position are in reverse alphabetical order.

In a similar way, the numbers are also arranged. The highest number is placed first then the lowest then second highest and so on.

Both the operations are applied simultaneously

So, for the given input:

INPUT: eggs 31 18 lotus 44 shoot battery 90 delhi 50 78

Step I: battery eggs 31 18 lotus 44 shoot delhi 50 78 90

Step II: battery shoot eggs 31 lootus 44 delhi 50 78 90 18

Step III: battery shoot delhi eggs 31 lotus 44 50 90 18 78

Step IV: battery shoot delhi lotus eggs 44 50 90 18 78 31

Step V: battery shoot delhi lotus eggs 44 90 18 78 31 50

Step VI: battery shoot delhi lotus eggs 90 18 78 31 50 44

6 steps are there in total for the given input.

55.(e)

56.(b)

57.(a)

58.(b)

59.(c) The first alphabet is removed each time. The first 2 special characters are being removed each time

(60 to 64)

60.(e) M was facing J, who is standing at one of the ends. I was facing south and standing 3rd to the left of M. So, I and M are facing south while J must be facing north.

M I

 J _____

A was standing 5th to the right of B and to the immediate right of C.

D was standing 4th to the left of M.

Case 1:-

M I D _____

 J B _____ C A

Case 2:-

M A C I D B

 J _____

G was facing H, who was facing in the south direction. F was standing at one of the corner.

Case 1:-

M H I D F

 J B G _____ C A

Case 2:-

M A C I D H B

 J _____ G F

E was neither facing I nor facing neighbours of I. K was facing the same direction as that of F.

Case 1:- (A)

M E H I D K F

 J B G _____ C A

Case 1:- (B)

M K H I D E F

 J B G _____ C A

Case 1:-

M A C I D H B

 J E _____ G F

N was facing I. N was not neighbour of K. We cannot place N and K in case 2. So, case 2 was invalid. Finally, we get-

Case 1:- (A)

M E H I D K F

 J B G N L C A

Case 1:- (B)

M K H I D E F

 J B G N L C A

K was facing either B or C.

61.(a)

62.(d)

63.(b)

64.(e)

65.(b) C lives at the gap of one floor above G, who does not live on a ground floor.

Floor number	Person
4	C
3	
2	G
1	

D lives below B but above A, who lived below F. F lives on the same floor as that of H. So, F and H lives on 3rd floor.

Floor number	Person
4	C, B
3	F, H
2	G, D
1	A, E

66.(b) Let ages of A, B, C, D and E be $N, N + 2, N + 4, N + 6$ and $N + 8$ years respectively.

As per given,

$$(N + N + 6) = 2 \times 24 = 45$$

$$2N = 42$$

$$N = 21 \text{ years.}$$

Required average

$$= (5N + 20) / 5 = N + 4 = 25 \text{ years}$$

67.(c) Amount of milk in 124 litre mixture

$$= 15 / (15 + 16) \times 124$$

$$= 15 / 31 \times 124$$

Amount of water in 124 litres mixture

$$\begin{aligned}
 &= 16 / (15 + 16) \times 124 \\
 &= 16 / 31 \times 124 \\
 &= 64 \text{ litres}
 \end{aligned}$$

Let quantity of mixture replaced = x litres

According to the question

$$\begin{aligned}
 (60 - 15 \times / 31) / (64 - 16 \times 31 + x) \\
 &= 15 / 47 \\
 \Rightarrow [(1860 - 15x / 31) / (64 - 16x / 31 + x) \\
 &= 15 / 47
 \end{aligned}$$

$$\Rightarrow 47x(1860 - 15x) = 15x(1984 + 15x)$$

$$\Rightarrow 87420 - 750x = 29760 + 225x$$

$$\Rightarrow 57660 = 930x$$

$$\Rightarrow x = 62$$

Amount of water in 62 litres mixture

$$= (16 / 31) \times 62 = 32$$

Amount of water in the final mixture

$$= 64 - 32 + 62 = 94 \text{ litres}$$

$$\text{Required ratio} = 64 : 94 = 32 : 47$$

68.(c) From statement I:

Let A and B N and 2N respectively.

As per given,

$$(N \times 2N) = 128$$

$$2N^2 = 128$$

$$\text{When } N = 8, A = 8, B = 16$$

$$\text{When } N = -8, A = -8, B = -16$$

But given that both A and B are positive values.

So $A = 8, B = 16$

So data in statement I alone is sufficient to answer the question.

From statement II:

As per given, $B^{1/4} = 2$

$$B = 16$$

So, substituting in equation we get

$$32 - 3A = 8$$

$$3A = 24$$

$$A = 8$$

So, data in statement II alone also is sufficient to answer the question."

69.(b) Statement I:

$$(x - 5)^2 > 9^2$$

$$\Rightarrow x - 5 < -9 \text{ or } x - 5 > 9$$

$$\Rightarrow x < -4 \text{ or } x > 14$$

So, whether $x < -2$ cannot be determined.

Statement II:

$$y + 2 < 0$$

$$y < -2$$

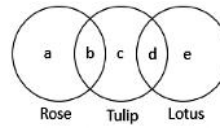
$$y(x + 3) > 0 \text{ and } y < -2$$

$$x + 3 < 0 \Rightarrow x < -3$$

$$\therefore x < -2$$

Statement II alone is sufficient, but statement I alone is not sufficient to answer the question.

70.



$$a + b + c + d + e = 120 \quad \dots(i)$$

From I:

$$b = 20 / 100 \times 120 = 24$$

$$d = 10 / 100 \times 120 = 12$$

Number of students who like only one flower

$$= a + c + e$$

From (i)

$$a + b + c + d + e = 120$$

$$\Rightarrow a + 24 + c + 12 + e = 120$$

$$\Rightarrow a + c + e + 36 = 120$$

$$\Rightarrow a + c + e = 120$$

$$\Rightarrow a + c + e = 84$$

From II:

$$a + b = 35 / 100 \times 120 = 42$$

$$b + c + d = 45 / 100 \times 120 = 54$$

$$d + e = 40 / 100 \times 120 = 48$$

Adding all the three equations

$$a + 2b + c + 2d + e = 42 + 54 + 48$$

$$\Rightarrow a + 2b + c + 2d + e = 144 \quad \dots(ii)$$

Equation (ii) - Equation (i)

$$a + 2b + c + 2d + e - a - b - c - d - e = 144 - 120$$

$$\Rightarrow b + d = 24$$

$$\Rightarrow 2b + 2d = 48$$

Putting this value in equation (ii)

$$a + c + e + 48 = 144 - 48$$

$$\Rightarrow a + c + e = 96$$

Number of students who like only one flower

$$= a + c + e = 96$$

Hence, either the statements I alone or statement II alone is sufficient to answer the question.

71.(c) Let, the speed of the boat in still water = x km/h

And the speed of the stream = y km/h

From I:

$$x - y = 108 / 2$$

$$\Rightarrow x - y = 9$$

From II:

$$x = y + 225 / 100y$$

$$\Rightarrow x = 325y / 100$$

$$\Rightarrow x = 13 / y4$$

From I and II:

$$x - y = 108 / 12$$

$$\Rightarrow x - y = 9 \quad \dots(i)$$

And

$$x = y + 225 / 100 y$$

$$\Rightarrow x = 325y / 100$$

$$\Rightarrow x = 13y / 4 \quad \dots(ii)$$

From (i) and (ii)

$$13y / 4 - y = 9$$

$$\Rightarrow (13y - 4) / 4 = 9$$

$$\Rightarrow 9y = 4 \times 9$$

$$\Rightarrow y = 4 \text{ km/h}$$

Putting the value of y in equation (i)

$$\begin{aligned}x - 4 &= 9 \\ \Rightarrow y &= 9 + 4 \\ \Rightarrow x &= 13 \text{ km/h} \\ \text{Required sum} &= (13 + 4) \times 6 + (13 - 4) \times 8 \\ &= 17 \times 6 + 9 \times 8 \\ &= 102 + 72 \\ &= 174 \text{ km}\end{aligned}$$

Hence, both statements I and II together are needed to answer the question.

72.(c) From I:

$$1/A + 1/B = 1/12 \quad \dots(i)$$

$$1/A + 1/B + 1/C = 1/15 \quad \dots(ii)$$

From (i) and (ii)

$$\begin{aligned}\Rightarrow 1/12 + 1/C &= 1/15 \\ \Rightarrow 1/C &= 1/15 - 1/12 \\ \Rightarrow 1/C &= (4 - 5)/60 \\ \Rightarrow 1/C &= -1/60 \Rightarrow \text{Pipe C is an emptying pipe.}\end{aligned}$$

From II:

$$1/A + 1/D = 1/10 \quad \dots(iii)$$

$$1/B + 1/D = 1/8 \quad \dots(iv)$$

From I and II:

$$1/A + 1/B = 1/12 \quad \dots(i)$$

$$1/A + 1/B + 1/C = 1/15 \quad \dots(ii)$$

From (i) and (ii)

$$\begin{aligned}\Rightarrow 1/12 + 1/C &= 1/15 \\ \Rightarrow 1/C &= 1/15 - 1/12 \\ \Rightarrow 1/C &= (4 - 5)/60 \\ \Rightarrow 1/C &= -1/60 \\ \Rightarrow \text{Pipe C is an emptying pipe.}\end{aligned}$$

$$1/A + 1/D = 1/10 \quad \dots(iii)$$

$$1/B + 1/D = 1/10 \quad \dots(ii)$$

$$1/B + 1/D = 1/8 \quad \dots(iv)$$

Equation (iii) + equation (iv) - equation (i)

$$\begin{aligned}1/A + 1/D + 1/B + 1/D - 1/A - 1/B \\ = 1/10 + 1/8 - 1/12\end{aligned}$$

$$\Rightarrow 2/D = (12 + 15 - 10) / 120$$

$$\Rightarrow 2/D = 17 / 120$$

$$\Rightarrow 1/D = 17 / 240$$

Putting this value in equation (iii)

$$1/A + 17/240 = 1/10$$

$$\Rightarrow 1/A = 1/10 - 17/240$$

$$\Rightarrow 1/A = (24 - 17) / 240$$

$$\Rightarrow 1/A = 7 / 240$$

Let the required time = t minutes

$$t \times (7/240 - 1/60) = 1$$

$$\Rightarrow t \times (7 - 4) / 240 = 1$$

$$\Rightarrow t = 240 / 3$$

$$\Rightarrow t = 80 \text{ minutes}$$

Hence, both statements I and II together are needed to answer the question.

73.(e) The pattern is as follows:

$$(1 \times 1) + 1^2 = 2$$

$$(2 \times 3) + 3^2 = 15$$

$$(15 \times 5) + 5^2 = 100$$

$$(100 \times 7) + 7^2 = 749$$

$$(749 \times 9) + 9^2 = 6822$$

74.(a) The pattern multiplies with prime numbers to the previous term and adds an increasing constant as show below:

$$17 \times 2 + 1 = 35$$

$$35 \times 3 + 2 = 107$$

$$107 \times 5 + 3 = 538$$

$$538 \times 7 + 4 = 3770$$

$$3770 \times 11 + 5 = 41475$$

75.(e) The pattern is as follows:

$$(24 - 5) \times 5 = 95$$

$$(95 - 7) \times 7 = 616$$

$$(95 - 7) \times 7 = 616$$

$$(616 - 9) \times 9 = 59972$$

$$(59972 - 13) \times 13 = 779467$$

76.(a) The pattern is as follows:

$$30155 - 17^3 + 1 = 25243$$

$$25243 - 16^3 + 2 = 21149$$

$$21149 - 15^3 + 3 = 17777$$

$$17777 - 14^3 + 4 = 15037$$

$$15037 - 13^3 + 5 = 12845$$

77.(b) The pattern is as follows:

$$90 + 8^2 = 154$$

$$154 + 10^2 = 254$$

$$254 + 12^2 = 398$$

$$398 + 14^2 = 594$$

$$594 + 16^2 = 850$$

78.(c) Let the investment amount of Ashok and Kumar be Rs. $4x$ and Rs. $5x$

$$\begin{aligned}\text{Ratio shares in the profit} &= (4x + 8x) : (5x + 5x) \\ &= 12x : 10x \\ &= 6 : 5\end{aligned}$$

Share of Ashok being working partner

$$= 5 / 100 \times 121000 = \text{Rs. } 6050$$

Share of Ashok as per ratio of their investment

$$\begin{aligned}&= 6(6 + 5) \times (100 - 5) / 100 \times 21000 \\ &= 6 / 11 \times 95 / 100 \times 121000 \\ &= \text{Rs. } 62700\end{aligned}$$

Total share of Ashok in the profit

$$= 6050 + 62700 = \text{Rs. } 68750$$

79.(c) Cost of each apple = Rs. $(12000 / 800) = \text{Rs. } 15$

Out of 800 apples 120 got rotten hence remaining apples = $(800 - 120) = 680$

Now 30% of 680 apples = $(680 \times 0.3) = 204$

Total selling price of 204 apples

$$= \text{Rs. } (204 \times 15 \times 0.9) = \text{Rs. } 2754$$

Total selling price of 200 apples

$$= \text{Rs } (200 \times 15 \times 1.05) = \text{Rs. } 3150$$

Remaining apples which as to be sold

$$= \text{Rs. } (680 - 200 - 204) = 276$$

Total selling price of these 276 apples in border to achieve break even

$$= \text{Rs } (12000 - 2754 - 3150) = \text{Rs } 6096$$

$$\text{Hence selling price of each apple} = \text{Rs } 6096 / 276 = \text{Rs } 22.1$$

80.(b) Total matches played by India against Australia, New Zealand & Sri Lanka = $(15 + 12 + 8) = 35$

According to the question this is 70% of the total matches played by India hence total matches played by India in year = 2015 = $35 / 70 \times 100 = 50$

Hence India was able to win 80% of the matches from the remaining 15 matches.

$$\begin{aligned} \text{Now total matches won by India in 2015} &= (15 \times 0.4) + (12 \times 0.5) + (8 \times 1) + (15 \times 0.8) \\ &= (6 + 6 + 8 + 12) = 32 \end{aligned}$$

$$\text{Hence winning \%} = 32 / 50 \times 100 = 64\%$$

81.(b) Let total number of flowers in garden 1 be N

Total number of flowers in garden 2 = $1.4N$

Total number of Orange flowers in gardens 1 and 2 together

$$= (0.33N) + (0.27 \times 1.4N)$$

$$= 0.33N + 0.378N = 0.708N$$

Required percentage

$$= ((0.708N) / (N + 1.4N)) \times 100\%$$

$$= ((0.708N) / (2.4N)) \times 100\%$$

$$= 29.5\%$$

82.(d) Let total number of flowers in gardens 1 and 2 be A and B respectively.

As it is given,

$$0.18A = 0.45 \times (0.25B)$$

$$B = ((0.18) / (0.45 \times 0.25))A$$

$$B = 1.6A$$

Total number of flowers in garden 2 is 60% more than total number of flowers in garden 1.

83.(b) Let total number of flowers in garden 1 be N

Total number of flowers in garden 2 be $1.25N$

So as per given,

$$(0.15N) + (0.2 \times 1.25N) = 1600$$

$$0.15N + 0.25N = 1600$$

$$0.4 = 1600$$

$$N = 4000$$

Total number of white flowers in gardens 1 and 2 together

$$= (0.18 \times 4000) + (0.16 \times 1.25 \times 4000)$$

$$= 720 + 800 = 1520$$

84.(b) Let total number of flowers in gardens 1 and 2 be $5N$ and $3N$ respectively

Total number of Pink flowers in gardens 1 and 2

$$= (0.16 \times 5N) + (0.12 \times 3N)$$

$$= 0.8N + 0.36N = 1.16N$$

Required percentage

$$= ((1.16N) / (8N)) \times 100\% = (116 / 8)\% = 14.5\%$$

85.(e) Let total number of flowers in gardens 1 and 2 be A and B respectively.

Total number of yellow and white flowers together in garden 1 = $(0.36A)$

Total number of yellow and white flowers together in garden 2 = $(0.41B)$

As per given,

$$((0.36A) / (0.41B)) = (4 / 5)$$

$$A/B = 41 / 45$$

86.(d) According to the given information the three numbers will be $(7n - 15)$, $(23n - 1)$ and $(16n - 24)$.

Hence; $(7n - 15) + (23n - 1) + (16n - 24) = 2398$

$$\Rightarrow 46n - 40 = 2398$$

$$\Rightarrow 46n = 2438$$

$$\Rightarrow n = 53$$

Hence the highest number out of given three numbers is;

$$\Rightarrow [(23 \times 53) - 1] = 1218$$

87.(b) Lateral height of the cone

$$= L = \sqrt{(R^2 + R^2)} = R\sqrt{2}$$

Curved surface of cone

$$= \pi RL = \sqrt{2}\pi R^2$$

Curved surface of cylinder

$$= 2\pi RH = 2\pi R^2$$

Curved surface of sphere

$$= 4\pi R^2$$

Ratio of curved surface area

$$= \sqrt{2}\pi R^2 : 2\pi R^2 : 4\pi R^2$$

$$= \sqrt{2} : 2 : 4$$

Ratio of price of per unit volume of red colour, blue colour and black colour paint = $4\sqrt{2} : 5 : 3$

Ratio of cost of painting curved surface area of each article = $\sqrt{2} * 4\sqrt{2} : (2 * 5) : (4 * 3) = 4 : 5 : 6$

88.(a)

$$? \approx (350 / 5) - 5 \times 14 + \sqrt{256}$$

$$= 70 - 70 + 16$$

$$= 16$$

89.(b)

$$18^2 = 324, 14^2 = 196, 7^4 = 2401$$

$$? \approx 324 - 14 + 7$$

$$= 317$$

90.(e)

$$? = 3472 \div 62 \times 41 - 18$$

$$= 56 \times 41 - 18$$

$$= 2296 - 18 = 2278$$

91.(e)

$$50\% \text{ of } (?)^2 = 35 + 148 / 4 = 35 + 37 = 72$$

$$?^2 = 72 \times 100 / 50 = 144$$

$$? = 12$$

72.(b)

$$? \approx (70 \times 3720 / 100) + \sqrt{196} - 119$$

$$= 2604 + 14 - 119$$

$$= 2499$$

93.(b) Let the stream speed be 'r' km/hr respectively. The boat was supposed to travel 20 km in 2hr.

$$\therefore 20 - r = 20 / 2 \Rightarrow r = 10 \text{ km/hr.}$$

Now let the increased boat speed be 'b' km/hr.

$$\begin{aligned} \text{By condition, new stream speed} \\ = 1.5 \times 10 = 15 \text{ km/hr.} \end{aligned}$$

$$\therefore b - 15 = 20 / 1.5 \quad [1.5 \text{ hr as it started half an hour late}]$$

$$\Rightarrow b = 85 / 3 \text{ km/hr.}$$

Percentage increase =

$$= (85 / 3 - 20) / 20 \times 100\% = 125 / 3\%$$

94.(b) Let train Q and train R will cover the same distance after time from 6 : 00 PM

$$\Rightarrow 16 \times 4 + 16 \times t = 24 \times t$$

$$\Rightarrow 64 + 16t = 24t$$

$$\Rightarrow 8t = 64$$

$$\Rightarrow t = 8 \text{ hrs}$$

$$\Rightarrow \text{Time} = 6 : 00 \text{ PM} + 8 = 2 : 00 \text{ AM}$$

Required distance

$$= 30 \times (5:00 \text{ PM} - 2 : 00 \text{ AM})$$

$$\Rightarrow 30 \times 9$$

$$\Rightarrow 270 \text{ km}$$

(95 to 99)

95.(d)

States	Production of Wheat	Production of Rice	Imported Wheat	Imported Rice	Consumption of Wheat	Consumption of Rice
A	150	80	20% of 150 = 30	15% of 80 = 12	150 + 30 = 180	80 + 12 = 92
B	175	100	12% of 175 = 21	18% of 100 = 18	175 + 21 = 196	100 + 18 = 118
C	160	75	15% of 160 = 24	16% of 75 = 12	160 + 24 = 184	75 + 12 = 87
D	120	120	25% of 120 = 30	20% of 120 = 24	120 + 30 = 150	120 + 24 = 144
E	200	90	8% of 200 = 16	30% of 90 = 27	200 + 16 = 216	90 + 27 = 117
F	180	60	10% of 180 = 18	25% of 60 = 15	180 + 18 = 198	60 + 15 = 75

Total consumption of wheat and Rice together in village

$$D = 150 + 144 = 294 \text{ tonnes}$$

Total consumption of wheat in the villages B and C together = 196 + 184 = 380 tonnes

$$\text{Required per cent} = (294 / 380) \times 100 = 77.36\%$$

96.(b) Per family consumption of wheat in village

$$F = 198 / 11 = 18 \text{ tonnes}$$

Per family consumption of wheat in village

$$E = 216 / 18 = 12 \text{ tonnes}$$

$$\text{Required per cent} = [(18 - 12) / 12] \times 100 = 50\%$$

97.(e) Average amount of imported rice in villages B, D and E together = (18 + 24 + 27) / 3 = 23 tonnes

Average amount of imported wheat in the villages B, C and F together = (21 + 24 + 18) / 3 = 21 tonnes

Required difference = 23 - 21 = 2 tonnes

98.(e)

$$x = 30 + 21 + 24 = 75 \text{ tonnes}$$

$$y = 12 + 18 + 12 + 24 + 27 + 15 = 108$$

tonnes

$$\begin{aligned} \text{Required ratio} &= \sqrt{x} : \sqrt{y} = \sqrt{75} : \sqrt{108} \\ &= \sqrt{(25 : 36)} = 5 : 6 \end{aligned}$$

99.(a) Total production of rice in village

$$P = (80 + 100 + 75 + 120 + 90 + 60) / 6 = 87.5 \text{ tonnes}$$

Total consumption of rice in village

$$P = 87.5 \times (100 / 70) = 125 \text{ tonnes}$$

Per family consumption of rice in village

$$P = 125 / 50 = 2.5 \text{ tonnes}$$

100.(b) Let the work done by A, R and L per day be 'a', 'r' and 'l' units respectively

$$\text{Then } a + r = 1 / 12 \quad \dots(i)$$

Given that, $l + a + r = 1 / 10$

Since, $l = a / 2$

$$\Rightarrow 3a / 2 + r = 1 / 10 \quad \dots(ii)$$

Solving (i) and (ii), we get

$$a / 2 = 1 / 60 = 1$$

$$a = 1 / 30$$

Thus, we get that A takes 30 days and L takes 60 days to complete the work individually.

No, together, $a + l = 1 / 60 + 1 / 30 = 1 / 20$

\Rightarrow Hence, time taken by A and L to complete the entire work = 20 days