

# BOOKS



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# All India MAHA Mock: RRB PO Prelims (27<sup>th</sup> July 2019)

## Solutions

S1. Ans.(e)

Sol.

I.  $T < Z$  (True)      II.  $U < Y$  (True)

S2. Ans.(a)

Sol. I.  $W < G$  (True)      II.  $D \geq N$  (False)

S3. Ans.(a)

Sol. I.  $Y < O$  (True)      II.  $F > T$  (False)

S4. Ans.(c)

Sol.

I.  $O < D$  (False)      II.  $X = D$  (False)

S5. Ans.(b)

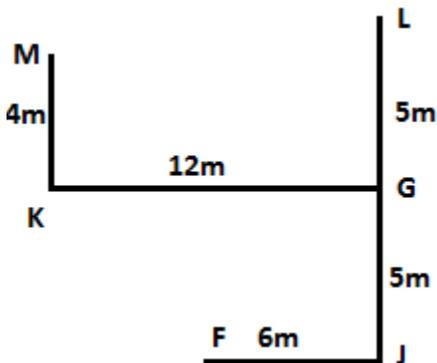
Sol.

I.  $P > S$  (False)      II.  $N \geq G$  (True)

S6. Ans.(d)

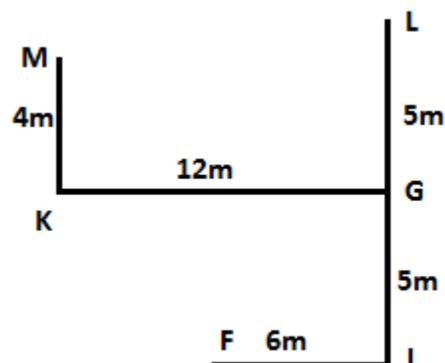
Sol.

Southeast



S7. Ans.(c)

Sol. Distance =  $\sqrt{12^2 + 5^2} = 13$  m



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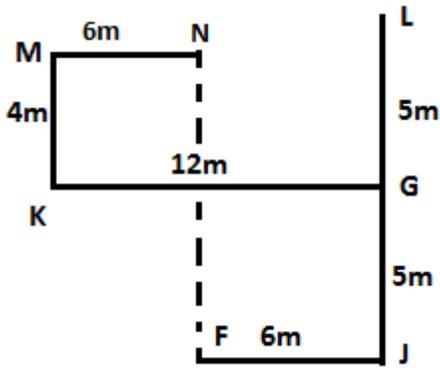
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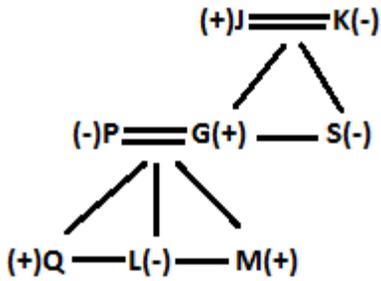
S8. Ans.(c)

Sol. Distance = 5 + 4 = 9 m



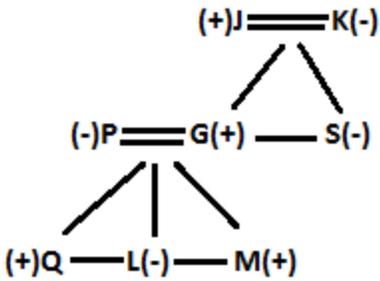
S9. Ans.(a)

Sol.



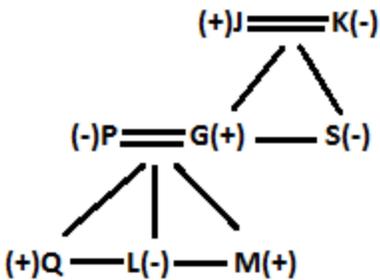
S10. Ans.(c)

Sol.



S11. Ans.(d)

Sol.



S12. Ans.(d)

Sol.

O	U	R	S	E	L	F
#	7	9	5	@	\$	2

S13. Ans.(b)

Sol.

P A R T I C L E  


S14. Ans.(c)

S15. Ans.(b)

S16. Ans.(e)

**Sol.** Only three people live above the floor on which A live. Only one person lives between A and the one travelling to Bengaluru. Only three people live between the ones travelling to Bengaluru and Patna. The one travelling to Mumbai lives on an even numbered floor. F lives immediately below the one travelling to Mumbai. Only two people live between B and the one travelling to Kolkata. The one travelling to Kolkata lives below the floor on which B live. We have two possibilities-

Case 1

Case 2

Floor	Person	City	Floor	Person	City
7			7		
6	B	Bengaluru	6	B	Patna
5			5		
4	A	Mumbai	4	A	Mumbai
3	F	Kolkata	3	F	Kolkata
2		Patna	2		Bengaluru
1			1		

Now, E live immediately above C. E is not travelling to Patna. This will eliminate Case 1. Now, the one travelling to Delhi does not live immediately above or immediately below B. D does not live immediately above or immediately below A. G does not travel to Chennai. So the final arrangement will be-

Floor	Person	City
7	D	Chennai
6	B	Patna
5	G	Lucknow
4	A	Mumbai
3	F	Kolkata
2	E	Bengaluru
1	C	Delhi

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**S17. Ans.(c)**

**Sol.** Only three people live above the floor on which A live. Only one person lives between A and the one travelling to Bengaluru. Only three people live between the ones travelling to Bengaluru and Patna. The one travelling to Mumbai lives on an even numbered floor. F lives immediately below the one travelling to Mumbai. Only two people live between B and the one travelling to Kolkata. The one travelling to Kolkata lives below the floor on which B live. We have two possibilities-

Case 1

Case 2

Floor	Person	City	Floor	Person	City
7			7		
6	B	Bengaluru	6	B	Patna
5			5		
4	A	Mumbai	4	A	Mumbai
3	F	Kolkata	3	F	Kolkata
2		Patna	2		Bengaluru
1			1		

Now, E live immediately above C. E is not travelling to Patna. This will eliminate Case 1. Now, the one travelling to Delhi does not live immediately above or immediately below B. D does not live immediately above or immediately below A. G does not travel to Chennai. So the final arrangement will be-

Floor	Person	City
7	D	Chennai
6	B	Patna
5	G	Lucknow
4	A	Mumbai
3	F	Kolkata
2	E	Bengaluru
1	C	Delhi

**S18. Ans.(e)**

**Sol.** Only three people live above the floor on which A live. Only one person lives between A and the one travelling to Bengaluru. Only three people live between the ones travelling to Bengaluru and Patna. The one travelling to Mumbai lives on an even numbered floor. F lives immediately below the one travelling to Mumbai. Only two people live between B and the one travelling to Kolkata. The one travelling to Kolkata lives below the floor on which B live. We have two possibilities-

Case 1

Case 2

Floor	Person	City	Floor	Person	City
7			7		
6	B	Bengaluru	6	B	Patna
5			5		
4	A	Mumbai	4	A	Mumbai
3	F	Kolkata	3	F	Kolkata
2		Patna	2		Bengaluru
1			1		

Now, E live immediately above C. E is not travelling to Patna. This will eliminate Case 1. Now, the one travelling to Delhi does not live immediately above or immediately below B. D does not live immediately above or immediately below A. G does not travel to Chennai. So the final arrangement will be-



Floor	Person	City
7	D	Chennai
6	B	Patna
5	G	Lucknow
4	A	Mumbai
3	F	Kolkata
2	E	Bengaluru
1	C	Delhi

**S19. Ans.(c)**

**Sol.** Only three people live above the floor on which A live. Only one person lives between A and the one travelling to Bengaluru. Only three people live between the ones travelling to Bengaluru and Patna. The one travelling to Mumbai lives on an even numbered floor. F lives immediately below the one travelling to Mumbai. Only two people live between B and the one travelling to Kolkata. The one travelling to Kolkata lives below the floor on which B live. We have two possibilities-

Case 1

Case 2

Floor	Person	City	Floor	Person	City
7			7		
6	B	Bengaluru	6	B	Patna
5			5		
4	A	Mumbai	4	A	Mumbai
3	F	Kolkata	3	F	Kolkata
2		Patna	2		Bengaluru
1			1		

Now, E live immediately above C. E is not travelling to Patna. This will eliminate Case 1. Now, the one travelling to Delhi does not live immediately above or immediately below B. D does not live immediately above or immediately below A. G does not travel to Chennai. So the final arrangement will be-

Floor	Person	City
7	D	Chennai
6	B	Patna
5	G	Lucknow
4	A	Mumbai
3	F	Kolkata
2	E	Bengaluru
1	C	Delhi

**S20. Ans.(e)**

**Sol.** Only three people live above the floor on which A live. Only one person lives between A and the one travelling to Bengaluru. Only three people live between the ones travelling to Bengaluru and Patna. The one travelling to Mumbai lives on an even numbered floor. F lives immediately below the one travelling to Mumbai. Only two people live between B and the one travelling to Kolkata. The one travelling to Kolkata lives below the floor on which B live. We have two possibilities-

Case 1

Case 2

Floor	Person	City	Floor	Person	City
7			7		
6	B	Bengaluru	6	B	Patna
5			5		
4	A	Mumbai	4	A	Mumbai
3	F	Kolkata	3	F	Kolkata
2		Patna	2		Bengaluru
1			1		

Now, E live immediately above C. E is not travelling to Patna. This will eliminate Case 1. Now, the one travelling to Delhi does not live immediately above or immediately below B. D does not live immediately above or immediately below A. G does not travel to Chennai. So the final arrangement will be-

Floor	Person	City
7	D	Chennai
6	B	Patna
5	G	Lucknow
4	A	Mumbai
3	F	Kolkata
2	E	Bengaluru
1	C	Delhi



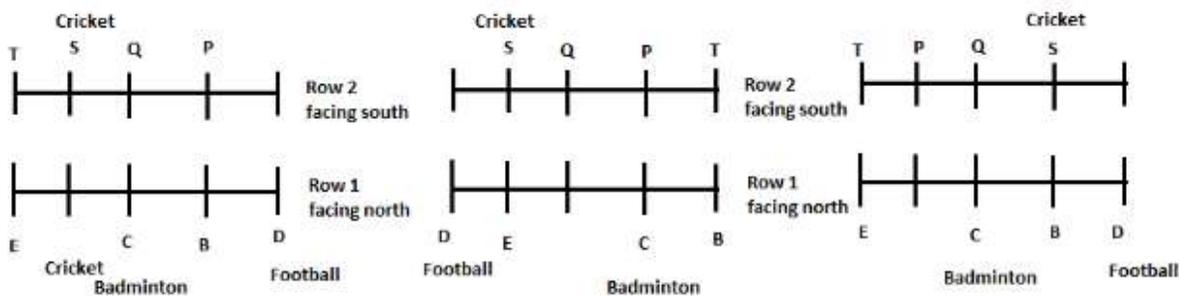
**S21. Ans.(b)**

**Sol.** B sits third to the right of E and one of them sits at an extreme end of the row. One person sit between S and P and neither of them sits at any end. The pair who likes Badminton sits to the immediate left of B. C sits second to the right of E. S likes Cricket. D likes football and sits at one of the end. T sits at one of the end and does not like Football. Q does not like Football. We have three possibilities-

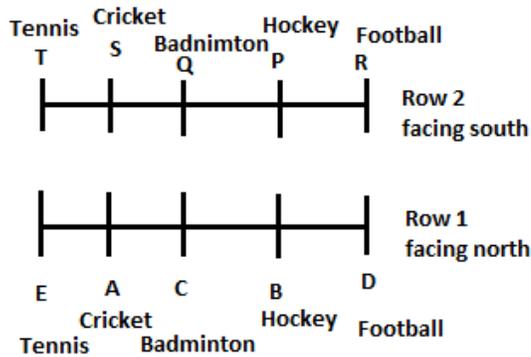
Case 1

Case 2

Case 3

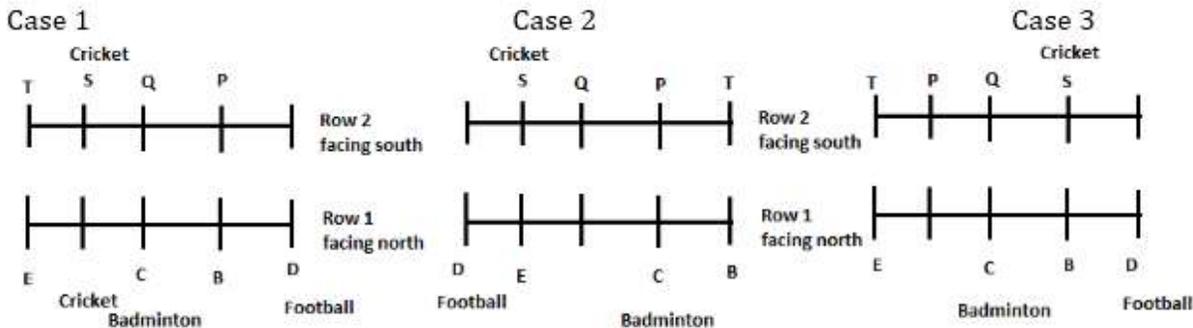


Now, Q does not face A. This will eliminate Case 2. Now, either of the pair who sits at the extreme ends does not like Hockey. The pair who likes Tennis does not sit to the immediate right of P. This will eliminate Case 3. So the final arrangement will be-

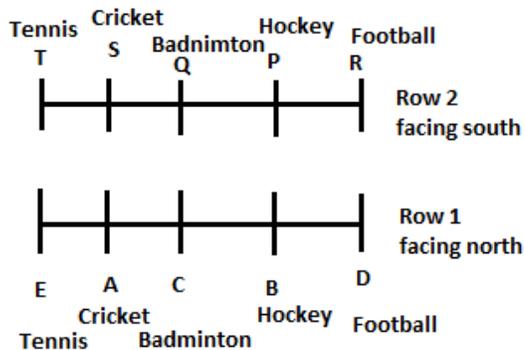


**S22. Ans.(c)**

**Sol.** B sits third to the right of E and one of them sits at an extreme end of the row. One person sit between S and P and neither of them sits at any end. The pair who likes Badminton sits to the immediate left of B. C sits second to the right of E. S likes Cricket. D likes football and sits at one of the end. T sits at one of the end and does not like Football. Q does not like Football. We have three possibilities-

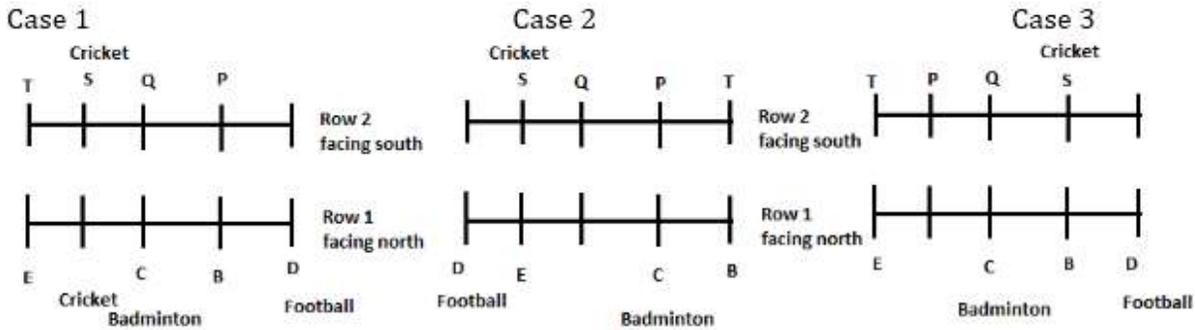


Now, Q does not face A. This will eliminate Case 2. Now, either of the pair who sits at the extreme ends does not like Hockey. The pair who likes Tennis does not sit to the immediate right of P. This will eliminate Case 3. So the final arrangement will be-

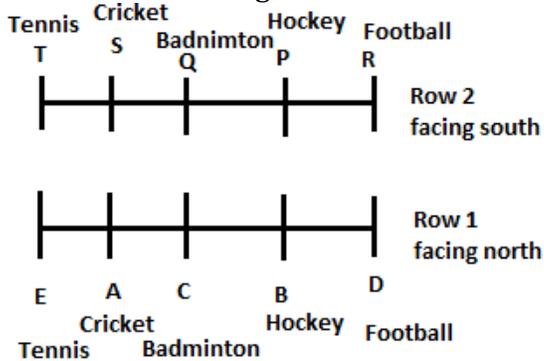


**S23. Ans.(d)**

**Sol.** B sits third to the right of E and one of them sits at an extreme end of the row. One person sit between S and P and neither of them sits at any end. The pair who likes Badminton sits to the immediate left of B. C sits second to the right of E. S likes Cricket. D likes football and sits at one of the end. T sits at one of the end and does not like Football. Q does not like Football. We have three possibilities-

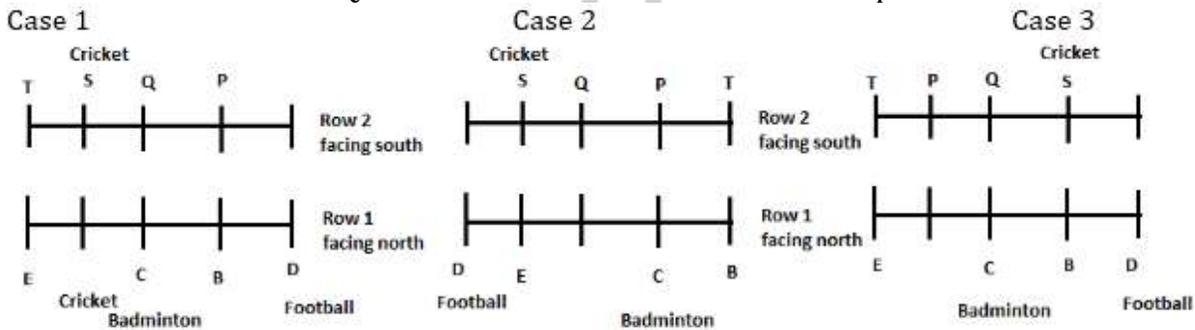


Now, Q does not face A. This will eliminate Case 2. Now, either of the pair who sits at the extreme ends does not like Hockey. The pair who likes Tennis does not sit to the immediate right of P. This will eliminate Case 3. So the final arrangement will be-

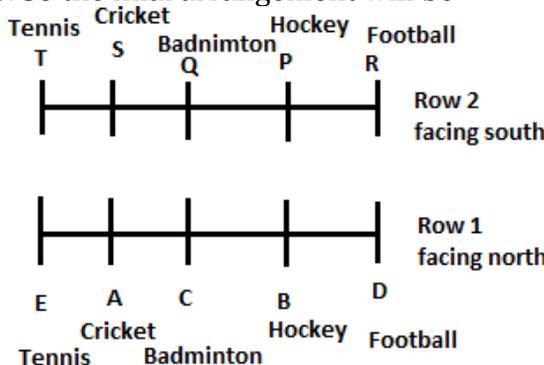


**S24. Ans.(b)**

**Sol.** B sits third to the right of E and one of them sits at an extreme end of the row. One person sit between S and P and neither of them sits at any end. The pair who likes Badminton sits to the immediate left of B. C sits second to the right of E. S likes Cricket. D likes football and sits at one of the end. T sits at one of the end and does not like Football. Q does not like Football. We have three possibilities-

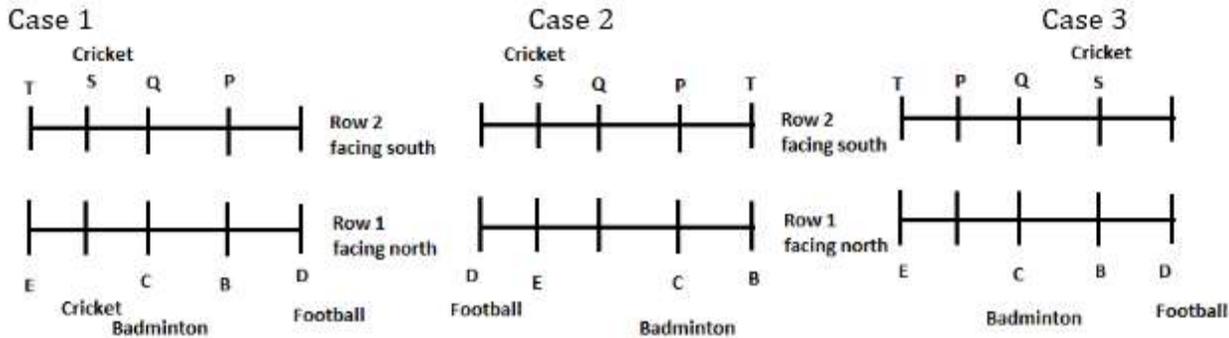


Now, Q does not face A. This will eliminate Case 2. Now, either of the pair who sits at the extreme ends does not like Hockey. The pair who likes Tennis does not sit to the immediate right of P. This will eliminate Case 3. So the final arrangement will be-

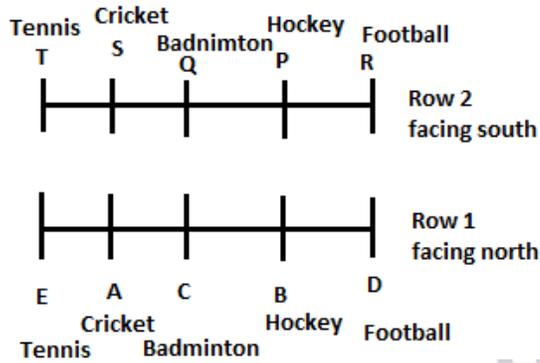


**S25. Ans.(e)**

**Sol.** B sits third to the right of E and one of them sits at an extreme end of the row. One person sits between S and P and neither of them sits at any end. The pair who likes Badminton sits to the immediate left of B. C sits second to the right of E. S likes Cricket. D likes football and sits at one of the end. T sits at one of the end and does not like Football. Q does not like Football. We have three possibilities-



Now, Q does not face A. This will eliminate Case 2. Now, either of the pair who sits at the extreme ends does not like Hockey. The pair who likes Tennis does not sit to the immediate right of P. This will eliminate Case 3. So the final arrangement will be-



**S26. Ans.(b)**

**Sol.** The machine rearranges one word and one number in each step. The “words” are arranged in the reverse alphabetical order as per they appear in the dictionary from the left end in the last step. Such that “better” will arrange first in step I, then “company” in step II and so on. “numbers” are arranged according to the words that are arranged as the “number” are twice the number of words that appears in the input. It means for “better” number “12” will arrange first then for “company” “14” will arrange and so on.

Input: **roast 14 cricket 16 plug 12 twilight 10 output 8**

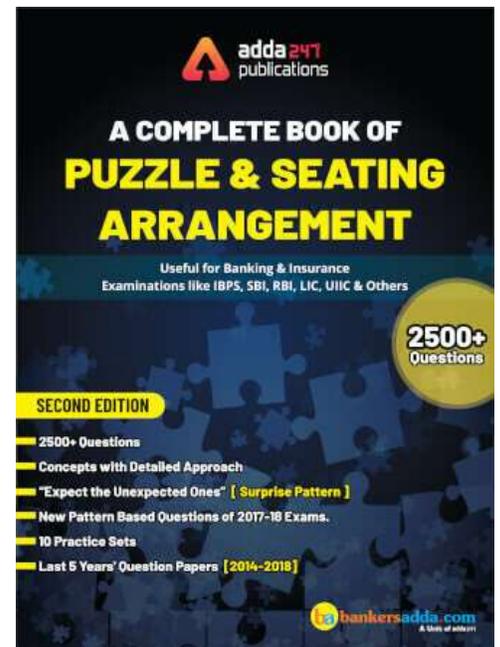
Step I: **cricket roast 16 plug 12 twilight 10 output 8 14**

Step II: **output cricket roast 16 plug twilight 10 8 14 12**

Step III: **plug output cricket roast 16 twilight 10 14 12 8**

Step IV: **roast plug output cricket 16 twilight 14 12 8 10**

Step V: **twilight roast plug output cricket 14 12 8 10 16**



**S27. Ans.(a)**

**Sol.** The machine rearranges one word and one number in each step. The “words” are arranged in the reverse alphabetical order as per they appear in the dictionary from the left end in the last step. Such that “better” will arrange first in step I, then “company” in step II and so on. “numbers” are arranged according to the words that are arranged as the “number” are twice the number of words that appears in the input. It means for “better” number “12” will arrange first then for “company” “14” will arrange and so on.

Input: **roast 14 cricket 16 plug 12 twilight 10 output 8**

Step I: cricket roast 16 plug 12 twilight 10 output 8 14

Step II: output cricket roast 16 plug twilight 10 8 14 12

Step III: plug output cricket roast 16 twilight 10 14 12 8

Step IV: roast plug output cricket 16 twilight 14 12 8 10

Step V: twilight roast plug output cricket 14 12 8 10 16

**S28. Ans.(c)**

**Sol.** The machine rearranges one word and one number in each step. The “words” are arranged in the reverse alphabetical order as per they appear in the dictionary from the left end in the last step. Such that “better” will arrange first in step I, then “company” in step II and so on. “numbers” are arranged according to the words that are arranged as the “number” are twice the number of words that appears in the input. It means for “better” number “12” will arrange first then for “company” “14” will arrange and so on.

Input: **roast 14 cricket 16 plug 12 twilight 10 output 8**

Step I: cricket roast 16 plug 12 twilight 10 output 8 14

Step II: output cricket roast 16 plug twilight 10 8 14 12

Step III: plug output cricket roast 16 twilight 10 14 12 8

Step IV: roast plug output cricket 16 twilight 14 12 8 10

Step V: twilight roast plug output cricket 14 12 8 10 16

**S29. Ans.(d)**

**Sol.** The machine rearranges one word and one number in each step. The “words” are arranged in the reverse alphabetical order as per they appear in the dictionary from the left end in the last step. Such that “better” will arrange first in step I, then “company” in step II and so on. “numbers” are arranged according to the words that are arranged as the “number” are twice the number of words that appears in the input. It means for “better” number “12” will arrange first then for “company” “14” will arrange and so on.

Input: **roast 14 cricket 16 plug 12 twilight 10 output 8**

Step I: cricket roast 16 plug 12 twilight 10 output 8 14

Step II: output cricket roast 16 plug twilight 10 8 14 12

Step III: plug output cricket roast 16 twilight 10 14 12 8

Step IV: roast plug output cricket 16 twilight 14 12 8 10

Step V: twilight roast plug output cricket 14 12 8 10 16

**S30. Ans.(b)**

**Sol.** The machine rearranges one word and one number in each step. The “words” are arranged in the reverse alphabetical order as per they appear in the dictionary from the left end in the last step. Such that “better” will arrange first in step I, then “company” in step II and so on. “numbers” are arranged according to the words that are arranged as the “number” are twice the number of words that appears in the input. It means for “better” number “12” will arrange first then for “company” “14” will arrange and so on.

Input: **roast 14 cricket 16 plug 12 twilight 10 output 8**

Step I: cricket roast 16 plug 12 twilight 10 output 8 14

Step II: output cricket roast 16 plug twilight 10 8 14 12

Step III: plug output cricket roast 16 twilight 10 14 12 8

Step IV: roast plug output cricket 16 twilight 14 12 8 10

Step V: twilight roast plug output cricket 14 12 8 10 16

**S31. Ans.(c)****Sol.**

Codes of elements are:

Codes	Elements
study	dy
rent	rt
is	si
room	rm
book	bk
high	gh
more	me
pay	yp
work/hard	wk/hd

**S32. Ans.(c)****Sol.**

Codes of elements are:

Codes	Elements
study	dy
rent	rt
is	si
room	rm
book	bk
high	gh
more	me
pay	yp
work/hard	wk/hd

**S33. Ans.(d)****Sol.**

Codes of elements are:

Codes	Elements
study	dy
rent	rt
is	si
room	rm
book	bk
high	gh
more	me
pay	yp
work/hard	wk/hd

**S34. Ans.(b)****Sol.**

Codes of elements are:

Codes	Elements
study	dy
rent	rt
is	si
room	rm
book	bk
high	gh
more	me
pay	yp
work/hard	wk/hd

**S35. Ans.(e)****Sol.**

Codes of elements are:

Codes	Elements
study	dy
rent	rt
is	si
room	rm
book	bk
high	gh
more	me
pay	yp
work/hard	wk/hd

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**S36. Ans.(b)**

**Sol.** M likes Mathematics and does not study in class X. K likes Biology. N studies in Class XI and neither likes Computer nor studies with the one who likes English. P likes Hindi and studies with O. J likes English and does not study in class XI. O does not like Sanskrit. According to the given conditions-

Person	Subject	Class
J	English	<del>Class XI</del>
K	Biology	
L		
M	Mathematics	<del>Class X</del>
N	<del>Computer</del>	Class XI
O		
P	Hindi	

Now, the one who likes Sanskrit is studying with the one who likes Physics. K studies in a class only with the one who likes Computer. So the given arrangement will be-

Person	Subject	Class
J	English	Class IX
M	Mathematics	Class IX
L	Computer	Class X
K	Biology	Class X
N	Sanskrit	Class XI
O	Physics	Class XI
P	Hindi	Class XI

**S37. Ans.(e)**

**Sol.** M likes Mathematics and does not study in class X. K likes Biology. N studies in Class XI and neither likes Computer nor studies with the one who likes English. P likes Hindi and studies with O. J likes English and does not study in class XI. O does not like Sanskrit. According to the given conditions-

Person	Subject	Class
J	English	<del>Class XI</del>
K	Biology	
L		
M	Mathematics	<del>Class X</del>
N	<del>Computer</del>	Class XI
O		
P	Hindi	

Now, the one who likes Sanskrit is studying with the one who likes Physics. K studies in a class only with the one who likes Computer. So the given arrangement will be-

Person	Subject	Class
J	English	Class IX
M	Mathematics	Class IX
L	Computer	Class X
K	Biology	Class X
N	Sanskrit	Class XI
O	Physics	Class XI
P	Hindi	Class XI

**S38. Ans.(d)**

**Sol.** M likes Mathematics and does not study in class X. K likes Biology. N studies in Class XI and neither likes Computer nor studies with the one who likes English. P likes Hindi and studies with O. J likes English and does not study in class XI. O does not like Sanskrit. According to the given conditions-

Person	Subject	Class
J	English	<del>Class XI</del>
K	Biology	
L		
M	Mathematics	<del>Class X</del>
N	<del>Computer</del>	Class XI
O		
P	Hindi	

Now, the one who likes Sanskrit is studying with the one who likes Physics. K studies in a class only with the one who likes Computer. So the given arrangement will be-

Person	Subject	Class
J	English	Class IX
M	Mathematics	Class IX
L	Computer	Class X
K	Biology	Class X
N	Sanskrit	Class XI
O	Physics	Class XI
P	Hindi	Class XI

**S39. Ans.(d)**

**Sol.** M likes Mathematics and does not study in class X. K likes Biology. N studies in Class XI and neither likes Computer nor studies with the one who likes English. P likes Hindi and studies with O. J likes English and does not study in class XI. O does not like Sanskrit. According to the given conditions-

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Person	Subject	Class
J	English	<del>Class XI</del>
K	Biology	
L		
M	Mathematics	<del>Class X</del>
N	<del>Computer</del>	Class XI
O		
P	Hindi	

Now, the one who likes Sanskrit is studying with the one who likes Physics. K studies in a class only with the one who likes Computer. So the given arrangement will be-

Person	Subject	Class
J	English	Class IX
M	Mathematics	Class IX
L	Computer	Class X
K	Biology	Class X
N	Sanskrit	Class XI
O	Physics	Class XI
P	Hindi	Class XI

#### S40. Ans.(c)

**Sol.** M likes Mathematics and does not study in class X. K likes Biology. N studies in Class XI and neither likes Computer nor studies with the one who likes English. P likes Hindi and studies with O. J likes English and does not study in class XI. O does not like Sanskrit. According to the given conditions-

Person	Subject	Class
J	English	<del>Class XI</del>
K	Biology	
L		
M	Mathematics	<del>Class X</del>
N	<del>Computer</del>	Class XI
O		
P	Hindi	

Now, the one who likes Sanskrit is studying with the one who likes Physics. K studies in a class only with the one who likes Computer. So the given arrangement will be-

Person	Subject	Class
J	English	Class IX
M	Mathematics	Class IX
L	Computer	Class X
K	Biology	Class X
N	Sanskrit	Class XI
O	Physics	Class XI
P	Hindi	Class XI

**S41. Ans.(a)****Sol.**

$$\begin{aligned} \text{I. } & 21x^2 - 22x + 5 = 0 \\ & \Rightarrow 21x^2 - 15x - 7x + 5 = 0 \\ & \Rightarrow 3x(7x - 5) - 1(7x - 5) = 0 \\ & \Rightarrow (3x - 1)(7x - 5) = 0 \\ & \Rightarrow x = \frac{1}{3} \text{ or } \frac{5}{7} \end{aligned}$$

$$\begin{aligned} \text{II. } & 63y^2 - 54y + 11 = 0 \\ & \Rightarrow 63y^2 - 21y - 33y + 11 = 0 \\ & \Rightarrow 21y(3y - 1) - 11(3y - 1) = 0 \\ & \Rightarrow (21y - 11)(3y - 1) = 0 \\ & \Rightarrow y = \frac{11}{21} \text{ or } \frac{1}{3} \end{aligned}$$

∴ no relation can be established.

**S42. Ans.(e)****Sol.**

$$\begin{aligned} \text{I. } & 9x^2 - 64 = 0 \\ & \Rightarrow x^2 = \frac{64}{9} \\ & \Rightarrow x = \pm \frac{8}{3} \end{aligned}$$

$$\begin{aligned} \text{II. } & 12y^2 - 65y + 88 = 0 \\ & \Rightarrow 12y^2 - 32y - 33y + 88 = 0 \\ & \Rightarrow 4y(3y - 8) - 11(3y - 8) = 0 \\ & \Rightarrow (4y - 11)(3y - 8) = 0 \\ & \Rightarrow y = \frac{11}{4} \text{ or } \frac{8}{3} \end{aligned}$$

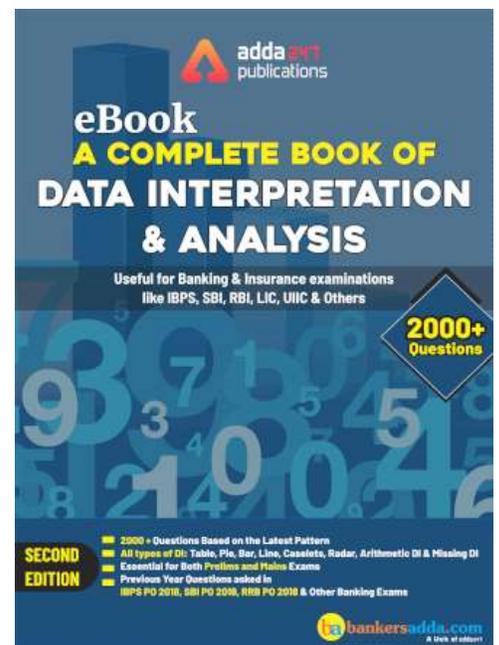
$y \geq x$

**S43. Ans.(b)****Sol.**

$$\begin{aligned} \text{I. } & 6x^2 + 42x + 72 = 0 \\ & \Rightarrow 6x^2 + 24x + 18x + 72 = 0 \\ & \Rightarrow 6x(x + 4) + 18(x + 4) = 0 \\ & \Rightarrow (6x + 18)(x + 4) = 0 \\ & \Rightarrow x = -4 \text{ or } -3 \end{aligned}$$

$$\begin{aligned} \text{II. } & 6y^2 + 57y + 135 = 0 \\ & \Rightarrow 6y^2 + 30y + 27y + 135 = 0 \\ & \Rightarrow 6y(y + 5) + 27(y + 5) = 0 \\ & \Rightarrow y = -\frac{9}{2} \text{ or } -5 \end{aligned}$$

$x > y$



**S44. Ans.(d)****Sol.**

$$\begin{aligned} \text{I. } & 2(x+5) - 7 = 3(x-2) \\ & \Rightarrow 2x + 10 - 7 = 3x - 6 \\ & \Rightarrow x = 9 \end{aligned}$$

$$\begin{aligned} \text{II. } & 3y^2 - 243 = 0 \\ & \Rightarrow y^2 = 81 \\ & \Rightarrow y = \pm 9 \end{aligned}$$

$$x \geq y$$

**S45. Ans.(a)****Sol.**

$$\begin{aligned} \text{I. } & 8x^2 - 38x + 45 = 0 \\ & \Rightarrow 8x^2 - 20x - 18x + 45 = 0 \\ & \Rightarrow 4x(2x-5) - 9(2x-5) = 0 \\ & \Rightarrow x = \frac{9}{4} \text{ or } \frac{5}{2} \end{aligned}$$

$$\begin{aligned} \text{II. } & 10y^2 - 41y + 42 = 0 \\ & \Rightarrow 10y^2 - 20y - 21y + 42 = 0 \\ & \Rightarrow 10y(y-2) - 21(y-2) = 0 \\ & \Rightarrow y = \frac{21}{10} \text{ or } 2 \end{aligned}$$

no relation

**S46. Ans.(c)****Sol.**

$$\begin{aligned} \text{Required avg.} &= \frac{30,000+18,000+15,000+15,000+12,000}{5} \\ &= \frac{90,000}{5} = 18,000 \end{aligned}$$

**S47. Ans.(a)****Sol.** Total educated male population from cities A and E together

$$\begin{aligned} &= \frac{50000 \times 56}{100} + \frac{60000 \times 55}{100} \\ &= 28,000 + 33,000 \\ &= 61,000 \end{aligned}$$

Total educated male population from cities B and C together

$$\begin{aligned} &= \frac{52,000 \times 75}{100} + \frac{60,000 \times 55}{100} \\ &= 39,000 + 33,000 \\ &= 72,000 \end{aligned}$$

$$\begin{aligned} \text{Required \%} &= \frac{11,000}{72,000} \times 100 \\ &= \frac{275}{18} \% = 15 \frac{5}{18} \% \end{aligned}$$

**S48. Ans.(d)**

**Sol.** Number of male in city A =  $80,000 \times \frac{9}{16} = 45,000$

Number of female in city A = 35,000

Total educated population = 50,000

Number of educated male =  $\frac{50,000 \times 56}{100} = 28,000$

Number of educated female = 22,000

Required ratio =  $\frac{13,000}{17,000} = \frac{13}{17}$

**S49. Ans.(b)**

**Sol.** Number of educated females from cities B and D together

$$= \frac{52,000 \times 25}{100} + \frac{45,000 \times 40}{100}$$

$$= 13,000 + 18,000$$

$$= 31,000$$

Number of educated male from city B

$$= \frac{52,000 \times 75}{100}$$

$$= 39,000$$

Required difference = 8,000

**S50. Ans.(a)**

**Sol.** Total population of city F

$$= \frac{50,000 + 52,000 + 60,000 + 45,000 + 60,000}{5} = 53,400$$

Employed population of city F

$$= 53,400 \times \frac{1}{3}$$

$$= 17,800$$

Number of employed male in city F

$$= \frac{17,800 \times 60}{100}$$

$$= 10,680$$

**S51. Ans.(a)**

**Sol.** Quantity of gold in final alloy mixture

$$= \frac{6 \times 3}{5} + \frac{18 \times 2}{5}$$

$$= 3.6 + 7.2$$

$$= 10.8 \text{ kg}$$

Quantity of silver in final alloy mixture

$$= 24 - 10.8 = 13.2 \text{ kg}$$

$$\text{Required ratio} = \frac{10.8}{13.2} = \frac{9}{11}$$



**S52. Ans.(b)****Sol.**

$$\text{Required probability} = \frac{6}{14} = \frac{3}{7}$$

**S53. Ans.(c)****Sol.** Let two numbers are x and y respectively

According to question.

$$\frac{70 \times x}{100} = \frac{30 \times y}{100}$$

$$\Rightarrow \frac{x}{y} = \frac{3}{7}$$

$$\Rightarrow x = \frac{3}{7}y \dots(i)$$

$$\text{Now Average of numbers} = \frac{x+y}{2} = 24$$

$$\Rightarrow x + y = 48 \dots(ii)$$

Put value of x from (i) into (ii)

$$\Rightarrow \frac{3}{7}y + y = 48$$

$$\Rightarrow \frac{10y}{7} = 48$$

$$\Rightarrow y = 33.6$$

$$\Rightarrow x = 48 - 33.6 = 14.4$$

Larger number = 33.6

**S54. Ans.(a)****Sol.** S.I. for one year is Rs. 2000

$$\text{Rate of interest} = \frac{180}{2000} \times 100 = 9\%$$

$$\text{Required S.I.} = \frac{9000 \times 3 \times 9}{100} = \text{Rs } 2430$$

**S55. Ans.(c)****Sol.** Let the original CP be Rs. 100x

CP at which Saurav buys

$$= 160x \times \frac{85}{100} \times \frac{90}{100}$$

$$= \text{Rs. } \frac{612x}{5}$$

Selling price on which Saurav sold this scooter

$$= 100x \times \frac{132}{100}$$

$$= 132x$$

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ATQ,

$$\Rightarrow 132x - \frac{612x}{5} = \text{Rs. } 4800$$

$$\Rightarrow \frac{48x}{5} = 4800$$

$$\Rightarrow x = 500$$

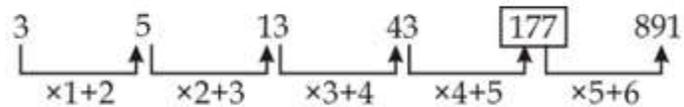
$$\text{Original CP} = 500 \times 100$$

$$= \text{Rs. } 50,000$$

**S56. Ans.(d)**

**Sol.**

Pattern is

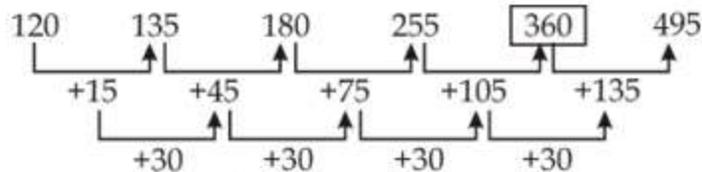


Wrong no. = 175

**S57. Ans.(c)**

**Sol.**

Pattern is

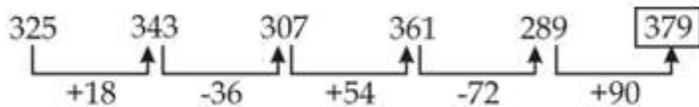


Wrong no. = 365

**S58. Ans.(e)**

**Sol.**

Pattern is

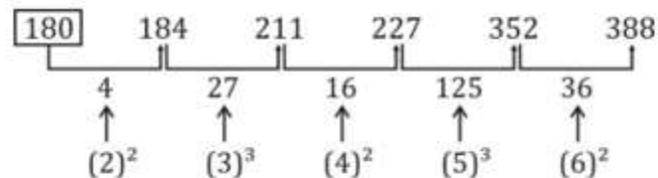


$\therefore$  wrong no. = 375

**S59. Ans.(a)**

**Sol.**

Pattern is

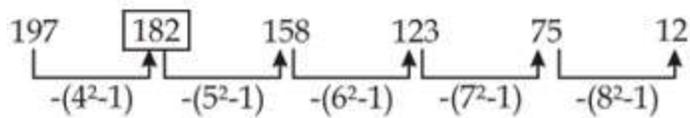


Wrong no. = 178

S60. Ans.(d)

Sol.

Pattern is



Wrong no. = 180

S61. Ans.(b)

Sol.

Number of students who joined the college  
in year 2013 and 2014 together  
= 225 + 400 = 625

Number of students who left the college in  
year 2012 and 2013 together  
= 250 + 350  
= 600

$$\begin{aligned} \text{Required percentage} &= \frac{625-600}{600} \times 100 \\ &= \frac{25}{600} \times 100 \\ &= 4\frac{1}{6}\% \end{aligned}$$



S62. Ans.(e)

Sol.

$$\begin{aligned} \text{For year 2011} &= \frac{300-200}{200} \times 100 = 50\% \\ \text{For year 2012} &= \frac{50}{300} \times 100 = 16\frac{2}{3}\% \\ \text{For year 2013} &= \frac{100}{250} \times 100 = 40\% \\ \text{For year 2014} &= \frac{200}{350} \times 100 = \frac{400}{7}\% = 57\frac{1}{7}\% \\ \text{For year 2015} &= \frac{125}{150} \times 100 = \frac{250}{3}\% = 83\frac{1}{3}\% \end{aligned}$$

Answer → 2015

S63. Ans.(a)

Sol.

$$\begin{aligned} \text{Required average} \\ &= \frac{250+200+300+225+400+300}{6} = 279\frac{1}{6} \end{aligned}$$

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**S64. Ans.(c)**

**Sol.**

$$\begin{aligned} \text{Number of students studying in year 2012} \\ &= 2500 + 250 + 200 + 300 - 200 - 300 - 250 \\ &= 2500 \end{aligned}$$

$$\begin{aligned} \text{Number of students studying in year 2013} \\ &= 2500 + 225 - 350 = 2375 \end{aligned}$$

$$\begin{aligned} \text{Required \%} &= \frac{(2500-2375)}{2500} \times 100 \\ &= \frac{125}{2500} \times 100 \\ &= 5\% \end{aligned}$$

**S65. Ans.(b)**

**Sol.**

Total number of students who joined the college in all the six years = 1675  
And, the total number of students who left the college in all the six years  
= 200 + 300 + 250 + 350 + 150 + 275  
= 1525

$$\text{Required difference} = 1675 - 1525 = 150$$

**S66. Ans.(b)**

**Sol.**

$$\begin{aligned} (17)^2 + (21)^2 + \sqrt{2916} &\approx (?)^2 \\ \Rightarrow 289 + 441 + 54 &= (?)^2 \\ \Rightarrow ? &= \sqrt{784} = 28 \end{aligned}$$



**S67. Ans.(d)**

**Sol.**

$$\begin{aligned} 60\% \text{ of } 960 + 65\% \text{ of } 240 &\approx ?\% \text{ of } 6100 \\ \Rightarrow \frac{60}{100} \times 960 + \frac{65}{100} \times 240 &= \frac{?}{100} \times 6100 \\ \Rightarrow ? &= \frac{732}{61} = 12 \end{aligned}$$

**S68. Ans.(a)**

**Sol.**

$$\begin{aligned} \Rightarrow \sqrt{(13)^2 + 28 + 4 - (27) + ?} &\approx 16 \\ \Rightarrow \sqrt{169 + 7 - 27 + ?} &= 16 \\ \Rightarrow 149 + ? &= 256 \\ \Rightarrow ? &= 107 \end{aligned}$$

**S69. Ans.(a)**

**Sol.**

$$\Rightarrow 286 \times 10 + 65 \times 54 \approx ? + 164$$

$$\Rightarrow 2860 + 3510 = ? + 164$$

$$\Rightarrow ? = 6206$$

**S70. Ans.(c)**

**Sol.**

$$\Rightarrow 1000 \div 25 \approx ? - 223$$

$$\Rightarrow 40 = ? - 223$$

$$\Rightarrow ? = 263$$

**S71. Ans.(c)**

**Sol.**

Required Difference

$$= \frac{(63+90)-(60+27)}{360} \times 1440 = 264$$

**S72. Ans.(b)**

**Sol.**

Total number of Ducks and pigeons together = 90

Total number of Fowl and Emus together

$$= 45 + 75 = 120$$

$$\text{Required \%} = \frac{(120-90)}{120} \times 100 = 25\%$$

**S73. Ans.(c)**

**Sol.**

$$\text{Required Percentage} = \frac{(60+63+27)}{360} \times 100 = 41\frac{2}{3}\%$$

**S74. Ans.(a)**

**Sol.**

$$\text{Required percentage} = \frac{(45+63)}{(60+75)} \times 100$$

$$= \frac{108}{135} \times 100$$

$$= 80\%$$

**S75. Ans.(c)**

**Sol.**

$$\text{Required ratio} = \frac{90+27+63}{60+45+75} = \frac{180}{180} = 1 : 1$$

# EPFO SSA 2019 PRIME

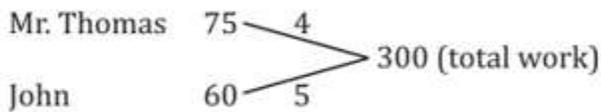
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**S76. Ans.(b)****Sol.** Total time taken by Mr. Thomas = 75 hours

Total time taken by John = 60 hours



$$\text{Required time} = \frac{300}{9 \times 4} = \frac{25}{3} = 8 \frac{1}{3} \text{ days.}$$

**S77. Ans.(d)****Sol.** Let the present age of Abhi = x years

Then, present age of Veer = (56 - x) years.

Present age of Satish = (x + 2) + 2 = (x + 4) yr.

ATQ,

$$\Rightarrow x + x + 4 = 52$$

$$\Rightarrow 2x = 48$$

$$\Rightarrow x = 24 \text{ yr.}$$

Present age of Veer = 32 years.

**S78. Ans.(a)****Sol.** Let the speed of current be x km/hr.

Then, speed in upstream = 3x km/hr

Speed of boat in still water = 3x + x = 4x km/hr

ATQ,

$$\Rightarrow 5x = 30$$

$$\Rightarrow x = 6 \text{ km/hr}$$

$$\text{Required time} = \frac{63}{3 \times 6} = 3.5 \text{ hr.}$$

**S79. Ans.(d)****Sol.** Area of equilateral triangle =  $\frac{\sqrt{3}}{4} a^2 = 49\sqrt{3}$ 

$$\Rightarrow a = 14 \text{ cm} = \text{radius of cone}(r)$$

Slant height of cone = 50 cm

Then, height of cone =  $\sqrt{50^2 - 14^2} = 48 \text{ cm}$ 

$$\therefore \text{Volume of cone} = \frac{1}{3} \pi r^2 h$$

$$= \frac{1}{3} \times \frac{22}{7} \times 14 \times 14 \times 48$$

$$= 9856 \text{ cm}^3$$

**S80. Ans.(b)****Sol.** Let the time period for Q's investment be y months.

ATQ,

$$\frac{5 \times 7}{9 \times y} = \frac{7}{9}$$

$$\Rightarrow y = 5 \text{ months.}$$

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