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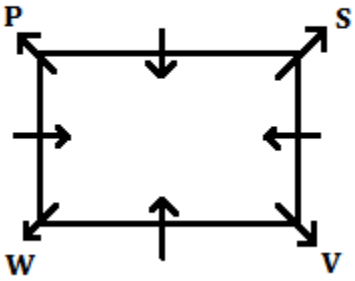
All India MAHA Mock: RRB PO Prelims (14th of July 2019) Solutions

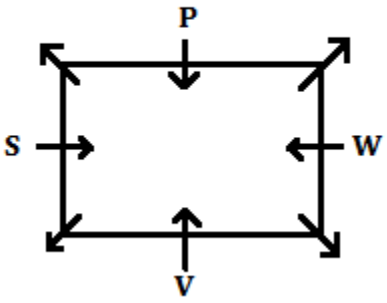
S1. Ans.(b)

Sol. From the given statements, W sits 2nd to the right of V. **Here we get 2 possibilities i.e. Case 1 and Case 2.** Three persons sit between S and W. P sits 2nd to the left of S.

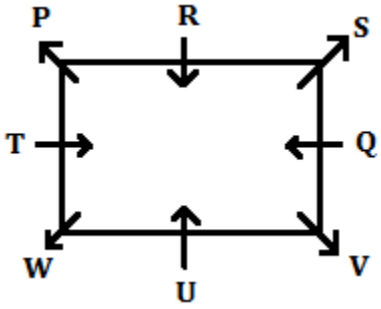
Case 1



Case 2



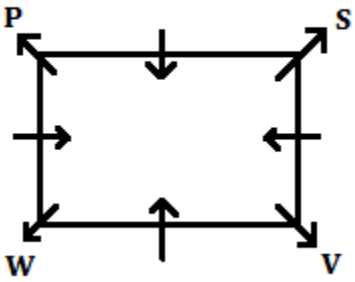
From the given statements, U sits 2nd to the left of Q and sits at the middle side of the table. From this condition Case 2 is ruled out now. T is an immediate neighbor of both P and W. Both R and U are facing to each other.



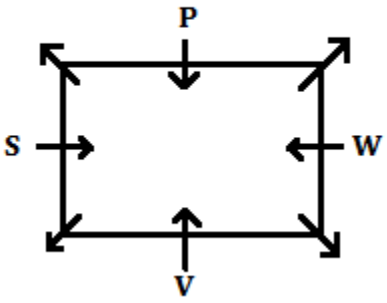
S2. Ans.(a)

Sol. From the given statements, W sits 2nd to the right of V. **Here we get 2 possibilities i.e. Case 1 and Case 2.** Three persons sit between S and W. P sits 2nd to the left of S.

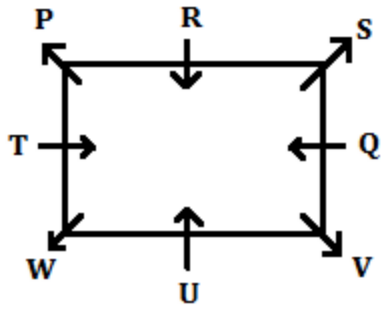
Case 1



Case 2



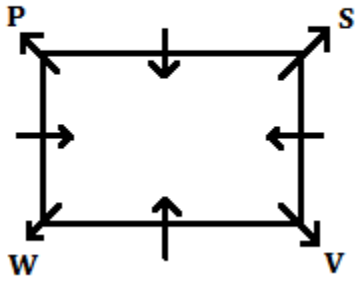
From the given statements, U sits 2nd to the left of Q and sits at the middle side of the table. From this condition Case 2 is ruled out now. T is an immediate neighbor of both P and W. Both R and U are facing to each other.



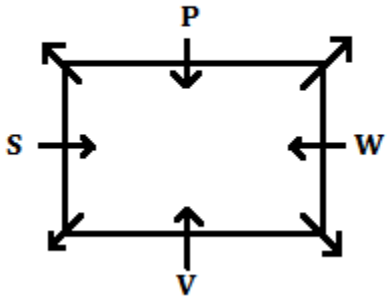
S3. Ans.(e)

Sol. From the given statements, W sits 2nd to the right of V. **Here we get 2 possibilities i.e. Case 1 and Case 2.** Three persons sit between S and W. P sits 2nd to the left of S.

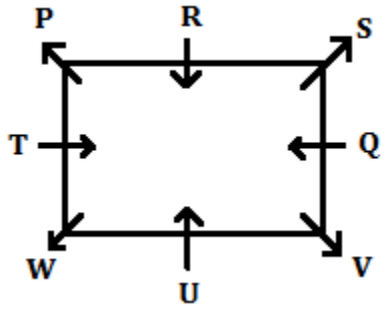
Case 1



Case 2



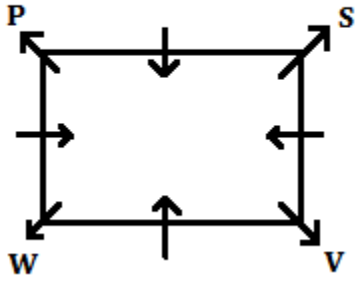
From the given statements, U sits 2nd to the left of Q and sits at the middle side of the table. From this condition Case 2 is ruled out now. T is an immediate neighbor of both P and W. Both R and U are facing to each other.



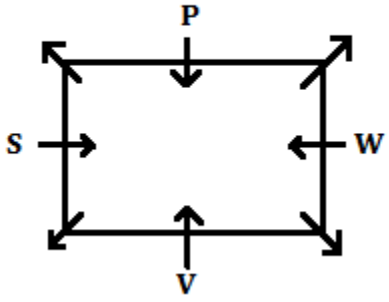
S4. Ans.(b)

Sol. From the given statements, W sits 2nd to the right of V. **Here we get 2 possibilities i.e. Case 1 and Case 2.** Three persons sit between S and W. P sits 2nd to the left of S.

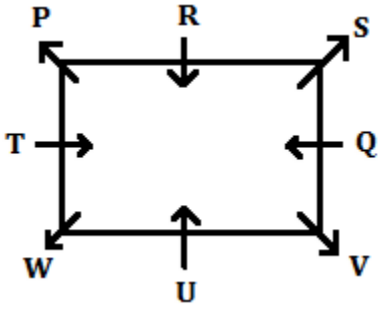
Case 1



Case 2



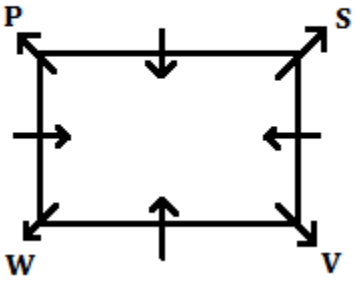
From the given statements, U sits 2nd to the left of Q and sits at the middle side of the table. From this condition Case 2 is ruled out now. T is an immediate neighbor of both P and W. Both R and U are facing to each other.



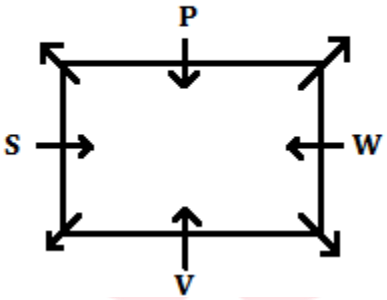
S5. Ans.(b)

Sol. From the given statements, W sits 2nd to the right of V. **Here we get 2 possibilities i.e. Case 1 and Case 2.** Three persons sit between S and W. P sits 2nd to the left of S.

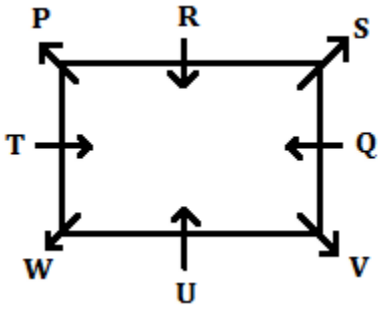
Case 1



Case 2



From the given statements, U sits 2nd to the left of Q and sits at the middle side of the table. From this condition Case 2 is ruled out now. T is an immediate neighbor of both P and W. Both R and U are facing to each other.



S6. Ans.(b)

Sol. I. A > L (True) II. K = Y (False)

S7. Ans.(d)

Sol. I. Q > C (True) II. W < L (True)

S8. Ans.(b)

Sol. I. F > Q (False) II. L < U (False)

S9. Ans.(c)

Sol. first, third, fourth and seventh letters of the word = M, N, E and R
But make no meaning full word.

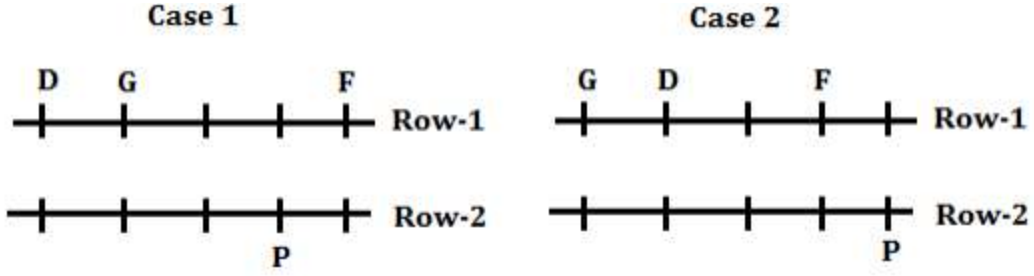
S10. Ans.(b)

Sol.

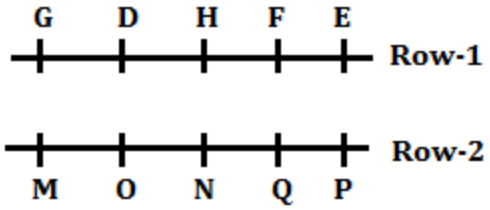
S11. Ans.(d)

Sol.

From the given statements, D faces the one who sits 3rd to the left of P. Here we have 2 possibilities i.e. Case 1 and Case 2. G is an immediate neighbor of D. Two persons sit between G and F.



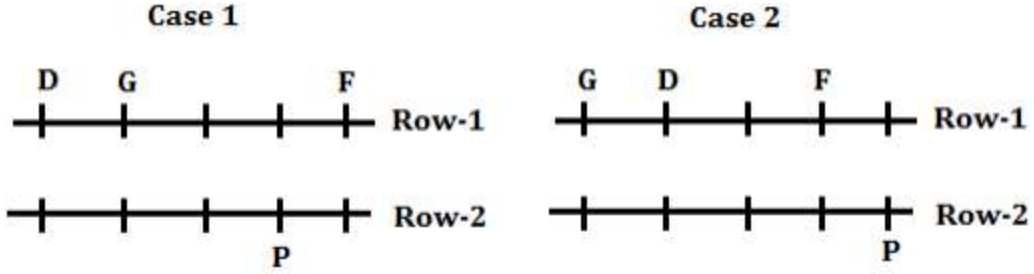
From the given statements, O faces the one who sits 3rd to the right of E. O does not sit at any of the extreme ends. Here Case 1 is ruled out now. Both Q and O are not immediate neighbors. M does not face to H.



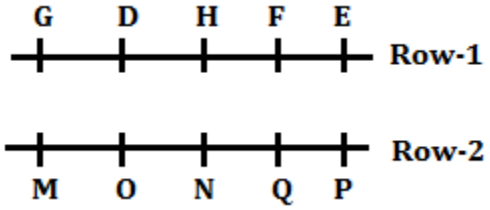
S12. Ans.(a)

Sol.

From the given statements, D faces the one who sits 3rd to the left of P. Here we have 2 possibilities i.e. Case 1 and Case 2. G is an immediate neighbor of D. Two persons sit between G and F.



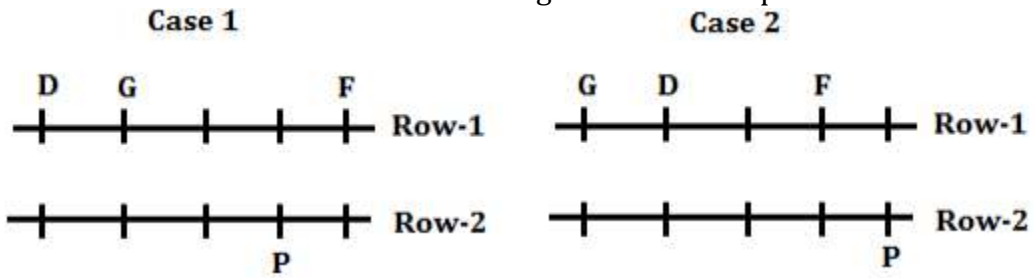
From the given statements, O faces the one who sits 3rd to the right of E. O does not sit at any of the extreme ends. Here Case 1 is ruled out now. Both Q and O are not immediate neighbors. M does not face to H.



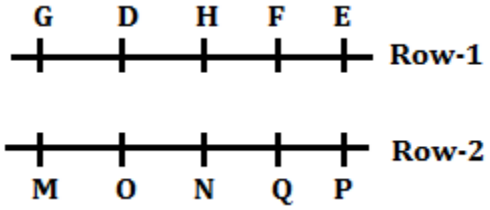
S13. Ans.(c)

Sol.

From the given statements, D faces the one who sits 3rd to the left of P. Here we have 2 possibilities i.e. Case 1 and Case 2. G is an immediate neighbor of D. Two persons sit between G and F.

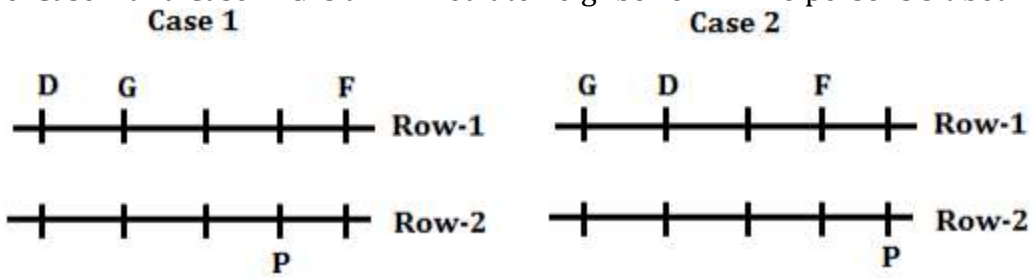


From the given statements, O faces the one who sits 3rd to the right of E. O does not sit at any of the extreme ends. Here Case 1 is ruled out now. Both Q and O are not immediate neighbors. M does not face to H.

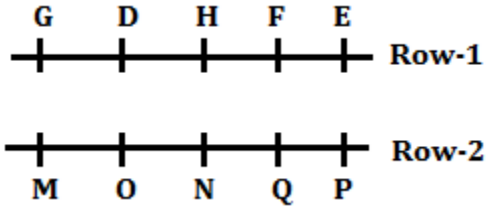


S14. Ans.(a)

Sol. From the given statements, D faces the one who sits 3rd to the left of P. Here we have 2 possibilities i.e. Case 1 and Case 2. G is an immediate neighbor of D. Two persons sit between G and F.



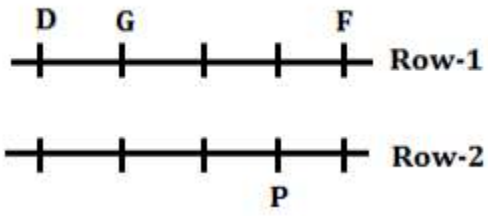
From the given statements, O faces the one who sits 3rd to the right of E. O does not sit at any of the extreme ends. Here Case 1 is ruled out now. Both Q and O are not immediate neighbors. M does not face to H.



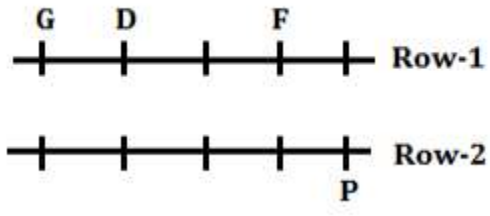
S15. Ans.(b)

Sol. From the given statements, D faces the one who sits 3rd to the left of P. Here we have 2 possibilities i.e. Case 1 and Case 2. G is an immediate neighbor of D. Two persons sit between G and F.

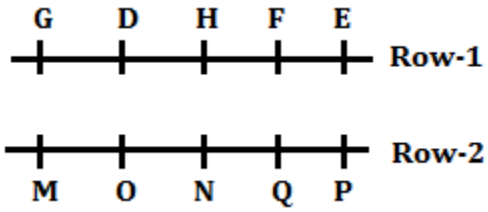
Case 1



Case 2



From the given statements, O faces the one who sits 3rd to the right of E. O does not sit at any of the extreme ends. Here Case 1 is ruled out now. Both Q and O are not immediate neighbors. M does not face to H.



S16. Ans.(b)

Sol. In each step one word and one number arranged together.

Like – Cherry 99

Logic: Words are arranged in alphabetical order from left to right alternate from the left end.

Numbers are arranged in decreasing order from left to right alternate from the left end.

Input: 19 cherry desert 87 99 team 31 vision from 54.

Step I. cherry 99 19 desert 87 team 31 vision from 54

Step II. cherry 99 desert 87 19 team 31 vision from 54

Step III. cherry 99 desert 87 from 54 19 team 31 vision

Step IV. cherry 99 desert 87 from 54 team 31 19 vision

Step V. cherry 99 desert 87 from 54 team 31 vision 19

S17. Ans.(d)

Sol. In each step one word and one number arranged together.

Like – Cherry 99

Logic: Words are arranged in alphabetical order from left to right alternate from the left end.

Numbers are arranged in decreasing order from left to right alternate from the left end.

Input: 19 cherry desert 87 99 team 31 vision from 54.

Step I. cherry 99 19 desert 87 team 31 vision from 54

Step II. cherry 99 desert 87 19 team 31 vision from 54

Step III. cherry 99 desert 87 from 54 19 team 31 vision

Step IV. cherry 99 desert 87 from 54 team 31 19 vision

Step V. cherry 99 desert 87 from 54 team 31 vision 19

S18. Ans.(a)
Sol. In each step one word and one number arranged together.
Like – Cherry 99
Logic: Words are arranged in alphabetical order from left to right alternate from the left end.
Numbers are arranged in decreasing order from left to right alternate from the left end.
Input: 19 cherry desert 87 99 team 31 vision from 54.
Step I. cherry 99 19 desert 87 team 31 vision from 54
Step II. cherry 99 desert 87 19 team 31 vision from 54
Step III. cherry 99 desert 87 from 54 19 team 31 vision
Step IV. cherry 99 desert 87 from 54 team 31 19 vision
Step V. cherry 99 desert 87 from 54 team 31 vision 19

S19. Ans.(c)
Sol. In each step one word and one number arranged together.
Like – Cherry 99
Logic: Words are arranged in alphabetical order from left to right alternate from the left end.
Numbers are arranged in decreasing order from left to right alternate from the left end.
Input: 19 cherry desert 87 99 team 31 vision from 54.
Step I. cherry 99 19 desert 87 team 31 vision from 54
Step II. cherry 99 desert 87 19 team 31 vision from 54
Step III. cherry 99 desert 87 from 54 19 team 31 vision
Step IV. cherry 99 desert 87 from 54 team 31 19 vision
Step V. cherry 99 desert 87 from 54 team 31 vision 19
4^{th} element from left end in the final step = 87, 1^{st} element from right end in the final step = 19
: 87 + 19 = 106

S20. Ans.(b)
Sol. In each step one word and one number arranged together.
Like – Cherry 99
Logic: Words are arranged in alphabetical order from left to right alternate from the left end.
Numbers are arranged in decreasing order from left to right alternate from the left end.
Input: 19 cherry desert 87 99 team 31 vision from 54.
Step I. cherry 99 19 desert 87 team 31 vision from 54
Step II. cherry 99 desert 87 19 team 31 vision from 54
Step III. cherry 99 desert 87 from 54 19 team 31 vision
Step IV. cherry 99 desert 87 from 54 team 31 19 vision
Step V. cherry 99 desert 87 from 54 team 31 vision 19

S21. Ans.(d)
Sol. 9 7 1 5 **9** 5 9 5 5 7 1 1 7 9 5 3 3

S22. Ans.(c)
Sol. 4 5 9 and 2 5 7

S23. Ans.(d)
Sol. 6 **8 4** 9 7 2 1 5 2 9 4 5 9 5 2 5 7 1 6 1 8 7 **8 9** 5 3 **8 4** 8 6 8 3 6

S24. Ans.(a)
Sol. 17th (left end) – 8th (left) = 9th from left end = 2

S25. Ans.(c)
Sol. 7th (Left) + 9th (right end) = 16th from right end = 1

S26. Ans.(b)
Sol. There are four boxes are placed between box E and box C and one of them are placed either at top or at bottom. Only one box is placed between box C and box F, which placed below the box C. From these conditions we have three possible cases-

Case-1	Case-2	Case-3
Box	Box	Box
E	C	
	F	
		C
C	E	F
F		
		E

Three boxes are placed between box G and box H. Box H is placed neither just above nor just below box C. Only one box is placed between H and K. Not more than two boxes are placed below the box K. Box E and Box K are not placed adjacent to each other. By these conditions case- 2 and case- 3 are cancelled. So new arrangement will be-

Case-1
Box
E
G
C
K
F
H

Only one box is placed between box D and B, which placed above box J. So final arrangement will be-

Box
E
B
J
D
G
C
K
F
H

S27. Ans.(a)

Sol. There are four boxes are placed between box E and box C and one of them are placed either at top or at bottom. Only one box is placed between box C and box F, which placed below the box C. From these conditions we have three possible cases-

Case-1	Case-2	Case-3
Box	**Box**	**Box**
E	C	
	F	
		C
C	E	F
F		
		E

Three boxes are placed between box G and box H. Box H is placed neither just above nor just below box C. Only one box is placed between H and K. Not more than two boxes are placed below the box K. Box E and Box K are not placed adjacent to each other. By these conditions case- 2 and case- 3 are cancelled. So new arrangement will be-

Case-1
Box
E
G
C
K
F
H

Only one box is placed between box D and B, which placed above box J. So final arrangement will be-

Box
E
B
J
D
G
C
K
F
H

S28. Ans.(b)

Sol. There are four boxes are placed between box E and box C and one of them are placed either at top or at bottom. Only one box is placed between box C and box F, which placed below the box C. From these conditions we have three possible cases-

Case-1	Case-2	Case-3
Box	Box	Box
E	C	
	F	
		C
C	E	F
F		
		E

Three boxes are placed between box G and box H. Box H is placed neither just above nor just below box C. Only one box is placed between H and K. Not more than two boxes are placed below the box K. Box E and Box K are not placed adjacent to each other. By these conditions case- 2 and case- 3 are cancelled. So new arrangement will be-

Case-1
Box
E
G
C
K
F
H

Only one box is placed between box D and B, which placed above box J. So final arrangement will be-

Box
E
B
J
D
G
C
K
F
H

S29. Ans.(c)

Sol. There are four boxes are placed between box E and box C and one of them are placed either at top or at bottom. Only one box is placed between box C and box F, which placed below the box C. From these conditions we have three possible cases-

Case-1	Case-2	Case-3
Box	**Box**	**Box**
E	C	
	F	
		C
C	E	F
F		
		E

Three boxes are placed between box G and box H. Box H is placed neither just above nor just below box C. Only one box is placed between H and K. Not more than two boxes are placed below the box K. Box E and Box K are not placed adjacent to each other. By these conditions case- 2 and case- 3 are cancelled. So new arrangement will be-

Case-1
Box
E
G
C
K
F
H

Only one box is placed between box D and B, which placed above box J. So final arrangement will be-

Box
E
B
J
D
G
C
K
F
H

S30. Ans.(d)

Sol. There are four boxes are placed between box E and box C and one of them are placed either at top or at bottom. Only one box is placed between box C and box F, which placed below the box C. From these conditions we have three possible cases-

Case-1	Case-2	Case-3
Box	Box	Box
E	C	
	F	
		C
C	E	F
F		
		E

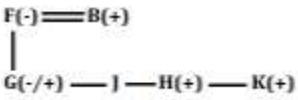
Three boxes are placed between box G and box H. Box H is placed neither just above nor just below box C. Only one box is placed between H and K. Not more than two boxes are placed below the box K. Box E and Box K are not placed adjacent to each other. By these conditions case- 2 and case- 3 are cancelled. So new arrangement will be-

Case-1
Box
E
G
C
K
F
H

Only one box is placed between box D and B, which placed above box J. So final arrangement will be-

Box
E
B
J
D
G
C
K
F
H

S31. Ans.(d)
Sol.
From I and II it is not clear that how many brother J have.



S32. Ans.(a)
Sol. From I it is clear that C gets the lowest marks.
B/E/F > B/E/F > B/E/F > A/D > A/D > C

S33. Ans.(b)
Sol. From II it is clear that Rohan's marriage anniversary is on 21st March.

S34. Ans.(e)
Sol. From I and II it is clear that 'never' will coded as 'ke'.

S35. Ans.(e)
Sol. From I and II-
D's position from right end = 6 + 12 + 1 = 19th

S36. Ans.(c)
Sol. There are more than three students have exam after A. Only one student has exam between A and H. From these conditions we have four possible cases-

	Case- 1	Case- 2	Case- 3	Case- 4
Day	Student	Student	Student	Student
Monday	H			A
Tuesday			A	
Wednesday	A	A		H
Thursday			H	
Friday		H		
Saturday				
Sunday				

G has exam before H but not immediate before H. By this condition case- 1 and case- 4 are cancelled. There are three students have exam between G and B. So new arrangement will be-

	Case- 2	Case- 3
Day	**Student**	**Student**
Monday		G
Tuesday	G	A
Wednesday	A	
Thursday		H
Friday	H	B
Saturday	B	
Sunday		

There are three students have exam between D and E, who does not have exam in the last day of week. By this condition case- 2 is cancelled. So final arrangement will be-

Day	Student
Monday	G
Tuesday	A
Wednesday	E
Thursday	H
Friday	B
Saturday	L
Sunday	D

S37. Ans.(d)

Sol. There are more than three students have exam after A. Only one student has exam between A and H. From these conditions we have four possible cases-

	Case- 1	Case- 2	Case- 3	Case- 4
Day	**Student**	**Student**	**Student**	**Student**
Monday	H			A
Tuesday			A	
Wednesday	A	A		H
Thursday			H	
Friday		H		
Saturday				
Sunday				

G has exam before H but not immediate before H. By this condition case- 1 and case- 4 are cancelled. There are three students have exam between G and B. So new arrangement will be-

	Case- 2	Case- 3
Day	**Student**	**Student**
Monday		G
Tuesday	G	A
Wednesday	A	
Thursday		H
Friday	H	B
Saturday	B	
Sunday		

There are three students have exam between D and E, who does not have exam in the last day of week. By this condition case- 2 is cancelled. So final arrangement will be-

Day	Student
Monday	G
Tuesday	A
Wednesday	E
Thursday	H
Friday	B
Saturday	L
Sunday	D

S38. Ans.(b)

Sol. There are more than three students have exam after A. Only one student has exam between A and H. From these conditions we have four possible cases-

	Case- 1	Case- 2	Case- 3	Case- 4
Day	**Student**	**Student**	**Student**	**Student**
Monday	H			A
Tuesday			A	
Wednesday	A	A		H
Thursday			H	
Friday		H		
Saturday				
Sunday				

G has exam before H but not immediate before H. By this condition case- 1 and case- 4 are cancelled. There are three students have exam between G and B. So new arrangement will be-

	Case- 2	Case- 3
Day	**Student**	**Student**
Monday		G
Tuesday	G	A
Wednesday	A	
Thursday		H
Friday	H	B
Saturday	B	
Sunday		

There are three students have exam between D and E, who does not have exam in the last day of week. By this condition case- 2 is cancelled. So final arrangement will be-

Day	Student
Monday	G
Tuesday	A
Wednesday	E
Thursday	H
Friday	B
Saturday	L
Sunday	D

S39. Ans.(a)

Sol. There are more than three students have exam after A. Only one student has exam between A and H. From these conditions we have four possible cases-

	Case- 1	Case- 2	Case- 3	Case- 4
Day	**Student**	**Student**	**Student**	**Student**
Monday	H			A
Tuesday			A	
Wednesday	A	A		H
Thursday			H	
Friday		H		
Saturday				
Sunday				

G has exam before H but not immediate before H. By this condition case- 1 and case- 4 are cancelled. There are three students have exam between G and B. So new arrangement will be-

	Case- 2	Case- 3
Day	**Student**	**Student**
Monday		G
Tuesday	G	A
Wednesday	A	
Thursday		H
Friday	H	B
Saturday	B	
Sunday		

There are three students have exam between D and E, who does not have exam in the last day of week. By this condition case- 2 is cancelled. So final arrangement will be-

Day	Student
Monday	G
Tuesday	A
Wednesday	E
Thursday	H
Friday	B
Saturday	L
Sunday	D

S40. Ans.(e)

Sol. There are more than three students have exam after A. Only one student has exam between A and H. From these conditions we have four possible cases-

	Case- 1	Case- 2	Case- 3	Case- 4
Day	**Student**	**Student**	**Student**	**Student**
Monday	H			A
Tuesday			A	
Wednesday	A	A		H
Thursday			H	
Friday		H		
Saturday				
Sunday				

G has exam before H but not immediate before H. By this condition case- 1 and case- 4 are cancelled. There are three students have exam between G and B. So new arrangement will be-

	Case- 2	Case- 3
Day	**Student**	**Student**
Monday		G
Tuesday	G	A
Wednesday	A	
Thursday		H
Friday	H	B
Saturday	B	
Sunday		

There are three students have exam between D and E, who does not have exam in the last day of week. By this condition case- 2 is cancelled. So final arrangement will be-

Day	Student
Monday	G
Tuesday	A
Wednesday	E
Thursday	H
Friday	B
Saturday	L
Sunday	D

S41. Ans.(b)

Sol.

Price of each children pass in W1 $= \frac{100000}{(240+260)} = Rs.200$

Required % $= \frac{200}{800} \times 100 = 25\%$

S42. Ans.(d)

Sol.

Female senior citizen who visited waterpark in W1 $= 240 \times \frac{50}{100} = 120$

Required % $= \frac{(120+180)-240}{(120+180)} \times 100$

$= \frac{60}{300} \times 100 = 20\%$

S43. Ans.(c)

Sol.

Total adult who visited waterpark in W1 $= 180 \times \frac{100}{72} = 250$

Required amount = 250 × 800 = Rs. 200000

S44. Ans.(c)
Sol.

Female adult who visited waterpark in W1 = $260 \times \frac{5}{13} = 100$

Male adult who visited waterpark in W1 = $100 \times \frac{3}{2} = 150$

Required number of males = 240 + 150 + 180 = 570

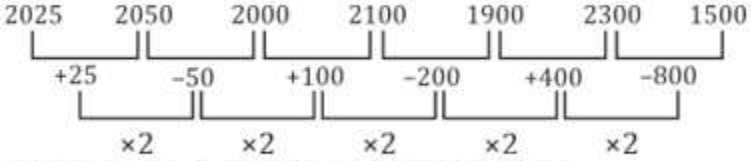
S45. Ans.(e)
Sol.

$$\text{Required ratio} = \frac{\left(\frac{240+180}{2}\right)}{(260+160)}$$

$$= \frac{210}{420} = 1:2$$

S46. Ans.(b)
Sol. Wrong number = 2030

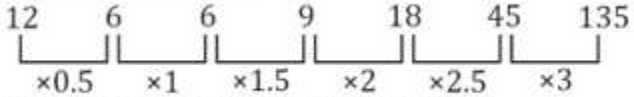
Pattern of series –



So, there should be 2025 in place of 2030.

S47. Ans.(d)
Sol. Wrong number = 10

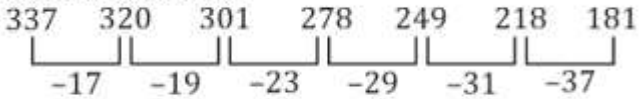
Pattern of series –



So, there should be 12 in place of 10.

S48. Ans.(a)
Sol. Wrong number = 318

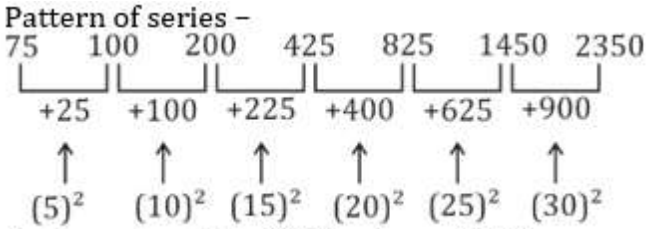
Pattern of series –



So, there should be 320 in place of 318.

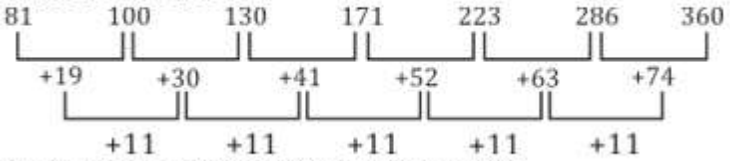
S49. Ans.(d)
Sol. Wrong number = 820

Pattern of series –



So, there should be 825 in place of 820.

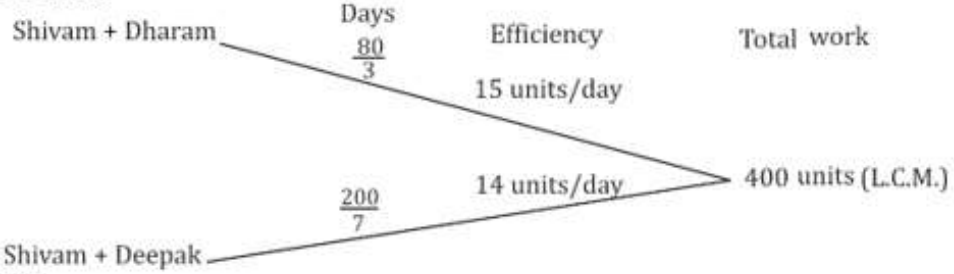
S50. Ans.(b)
Sol.
Wrong number = 285
Pattern of series –



So, there should be 286 in place of 285.

S51. Ans.(c)
Sol.
Let cost price of the article be Rs.100x.
So, marked price of the article $= 100x \times \frac{135}{100} = Rs.135x$
and let selling price of the article be Rs.y.
From I:
ATQ,
$(135x - y) - (y - 100x) = 190$
$135x - y - y + 100x = 190$
$235x - 2y = 190$ _____ (i)
From II:
$\frac{y}{135x} = \frac{4}{5}$
$\Rightarrow y = 108x$ _____ (ii)
On solving (i) & (ii), we get:
$x = 10$
So, cost price of the article = Rs.100x
= Rs. 1000
Hence, both statements taken together are necessary to answer the question.

S52. Ans.(a)
Sol.
Let efficiency of Dharam be '5x units/day'.
So, efficiency of Deepak $= 5x \times \frac{80}{100}$
= '4x units/day'
Now, let efficiency of Shivam be 'y units/day'.
From I:



So,
$5x + y = 15$ _____ (i)
$4x + y = 14$ _____ (ii)

On solving (i) & (ii), we get:
x = 1, y = 10
So, efficiency of Shivam = 10 units/day
From II:
ATQ,
$y \times \frac{40}{100} = 4x$
y = 10x
Total work = 80 × 5x = 400x units
Hence, statement I alone is sufficient to answer the question.

S53. Ans.(c)
Sol.
Amount invested by Asif in scheme – A $= 80000 \times \frac{5}{8} = Rs.50000$
Amount invested by Asif in scheme – B $= 80000 \times \frac{3}{8} = Rs.30000$
From I & II:
Let rate of interest offered by scheme – B be 2R% p.a.
So, rate of interest offered by scheme – A $= 2R \times \frac{1}{2} = R\%\ p.a.$
ATQ,
$\frac{30000\times 2R\times 4}{100} - \frac{50000\times R\times 4}{100} = 6000$
⇒ 2400R – 2000R = 6000
400R = 6000
R = 15%
So, total interest received by Asif $= \frac{30000\times 2\times 15\times 4}{100} + \frac{50000\times 15\times 4}{100}$
= 36000 + 30000
= Rs. 66000
So, both statements together are necessary to answer the question.

S54. Ans.(d)
Sol. Let present age of Aman, Bhanu and Chaman be 'x years', 'y years' & 'z years' respectively.
So, x + y + z = 34 × 3
x + y + z = 102 _____ (i)
From I:
$x = z \times \frac{200}{100}$
x = 2z _____ (ii)
And, $\frac{y+6}{z} = \frac{3}{2}$
2y + 12 = 3z
2y = 3z – 12
$y = \frac{3z-12}{z}$ _____ (iii)
On solving (i), (ii) & (iii), we get:
z = 24 years
From II:
x + y = 78 _____ (iv)
On solving (i) & (iv), we get:
z = 24 years
Hence, either statement I alone or statement II alone is sufficient to answer the question.

S55. Ans.(c)
Sol.
Let length of train – A & train – B be '4x' & 5x' meters respectively.
From I & II:
Let speed of train – A & train – B be 'V_1 m/sec' & 'V_2 m/sec' respectively.
ATQ,
$\frac{4x+500}{28} = V_1$ _____ (i)
And, $\frac{4x+5x}{54} = V_1 - V_2$ _____ (ii)
Put value of (i) in (ii):
$\frac{9x}{54} = \frac{4x+500}{28} - V_2$
$\Rightarrow V_2 = \frac{x+125}{7} - \frac{x}{6}$
$V_2 = \frac{6x+750-7x}{42}$
$V_2 = \frac{750-x}{42}$ _____ (ii)
And, $\frac{5x}{15} = V_2$
$V_2 = \frac{x}{3}$ _____ (iii)
On solving (ii) & (iii), we get:
x = 50
Put value of x in (i):
$\frac{200+500}{28} = V_1$
$\Rightarrow V_1 = 25\ m/sec$
Hence, both statements taken together are necessary to answer the question.

S56. Ans.(c)
Sol.
Female employees in company – C $= \frac{120}{100} \times \left[\frac{\frac{(14+18)}{100} \times 5000}{2}\right]$
$= \frac{120}{100} \times \frac{1350}{2} = 810$
Male employees in company – B $= \frac{36}{100} \times 5000 = 1800$
Required difference = 1800 – 810 = 990

S57. Ans.(e)
Sol.
Female employees in company – C
$= \frac{25}{100} \times \frac{36}{100} \times 5000 = 450$
Female employees in company – A
$= 450 \times \frac{9}{5} = 810$
Required female employees = 810 + 450 = 1260

S58. Ans.(b)

Sol.

Male employees in company – D & E together

$= \frac{(13+17)}{100} \times 5000 = 1500$

Male employees in company – B & C together

$= \frac{(36+14)}{100} \times 5000 = 2500$

Required % $= \frac{2500-1500}{2500} \times 100$

$= \frac{1000}{2500} \times 100 = 40\%$

S59. Ans.(b)

Sol.

Let female employees in company -E be x.

So, female employees in company – C = x + 50

ATQ,

x + x + 50 = 725 × 2

2x + 50 = 1450

⇒ x = 700

Hence, female employees in company – C = x + 50 = 750

Now, male employees in company – A $= \frac{20}{100} \times 5000 = 1000$

Required % $= \frac{750}{1000} \times 100 = 75\%$

S60. Ans.(a)

Sol.

Female employees in company – E $= \frac{36}{100} \times 5000 \times \frac{7}{10} = 1260$

Male employees in company – E $= \frac{17}{100} \times 5000 = 850$

Required employees = 1260 + 850 = 2110

S61. Ans.(a)

Sol.

Required probability $= \frac{{}^{4}C_{1} \times {}^{48}C_{1}}{{}^{52}C_{2}} + \frac{{}^{4}C_{2}}{{}^{52}C_{2}}$

$= \frac{32}{221} + \frac{1}{221} = \frac{33}{221}$

S62. Ans.(d)

Sol.

Let length and breadth of a rectangle be 'l cm' and 'b cm' respectively.

ATQ,

l × b = 432 ____ (i)

And, 2(l + b) = 84

l + b = 42

l = 42 – b _____ (ii)

On solving (i) & (ii), we get:
b = 18 [∵ length is always greater than breadth]
& l = 24
Now, circumscribing circle of maximum possible area can only be drawn when diameter of the circle is equal to diagonal of the rectangle.
So, radius of the circle $= \frac{1}{2} \times \left(\sqrt{l^2 + b^2}\right)$
$= \frac{1}{2} \times \sqrt{900}$
= 15 cm
So, circumference of the circle $= 2 \times \frac{22}{7} \times 15$
$= \frac{660}{7} cm$
$= 94\frac{2}{7} cm$

S63. Ans.(d)
Sol.
Let length and speed of train – A be 'l meters' and 'V m/sec' respectively.
ATQ,
$= \frac{l+240}{11} = V$ _____ (i)
And, $\frac{l}{5} = V$ _____ (ii)
On solving (i) & (ii), we get:
$\frac{l+240}{11} = \frac{l}{5}$
5l + 1200 = 11l
⇒ l = 200 m _____ (iii)
Put value of (iii) in (ii):
V = 40 m/sec
So, length of train – B = l + 160 = 360 m
And speed of train – B $= 40 \times \frac{100}{160} = 25\ m/sec$
Hence, required time $= \frac{360+200}{40-25} = \frac{560}{15}\ seconds = 37\frac{1}{3}$ seconds

S64. Ans.(e)
Sol.
Let total quantity of mixture – A be 50x liters.
So, total quantity of mixture – B $= 50x \times \frac{5}{2} = 125x\ liters$
ATQ,
$50x \times \frac{4}{5} + 125x \times \frac{17}{25} = 75$
40x + 85x = 75
125x = 75
x = 0.6
Required difference $= \left(50x \times \frac{1}{5} + 125x \times \frac{8}{25}\right) - 50x \times \frac{1}{5}$
= 40x
= 24 liters

S65. Ans.(a)

Sol.

Let present age of R be x years.

So, present age of Q = (x + 18) years

And, present age of S = (x + 18 + 6)

= (x + 24) years

And, present age of P $= \left[(x+24) \times \frac{200}{300}\right] years$

$= \left(\frac{2x}{3} + 16\right) years$

ATQ,

$\left(\frac{2x}{3} + 16\right) + x = 33 \times 2$

$\Rightarrow \frac{2x+3x}{3} = 66 - 16$

$\Rightarrow \frac{5x}{3} = 50$

$\Rightarrow$ x = 30 years

Required average $= \frac{(x+18)+x+(x+24)}{3}$

$= \frac{3x+42}{3}$

= x + 14

= 44 years

S66. Ans.(b)

Sol.

$\frac{62.5}{100} \times 1000 + (5)^2 \approx ? \times 26$

$625 + 25 \approx ? \times 26$

$? \approx \frac{650}{26} \approx 25$

S67. Ans.(d)

Sol.

$\frac{?}{100} \times \{(26)^2 - 19 \times 4\} \approx 1818$

$\frac{?}{100} \times \{676 - 76\} \approx 1818$

$\Rightarrow ? \times 6 \approx 1818$

$? \approx 303$

S68. Ans.(a)

Sol.

$35 \times 50 \times \frac{1}{175} \approx ? - \frac{20}{100} \times 1700$

$? \approx 10 + 340$

$? \approx 350$

S69. Ans.(c)
Sol.
$(54)^2 - (12)^3 + (18)^2 \approx ?$
$? \approx 2916 - 1728 + 324$
$? \approx 3240 - 1728$
$? \approx 1512$

S70. Ans.(b)
Sol.
$$\frac{1696}{\left(\frac{?}{100} \times 800\right)} + \sqrt{1024} \approx 58.5$$
$$\frac{212}{?} + 32 \approx 58.5$$
$$\frac{212}{?} \approx 26.5$$
$$? \approx \frac{212}{26.5}$$
$? \approx 8$

S71. Ans.(c)
Sol.
Quantity I:
$x^2 - 16x + 63 = 0$
$x^2 - 9x - 7x + 63 = 0$
$x(x - 9) - 7(x - 9) = 0$
$(x - 9)(x - 7) = 0$
$x = 7, 9$
Quantity II:
$y^2 - 12y + 35 = 0$
$y^2 - 7y - 5y + 35 = 0$
$y(y - 7) - 5(y - 7) = 0$
$(y - 7)(y - 5) = 0$
$y = 5, 7$
So, Quantity I ≥ Quantity II.

S72. Ans.(a)
Sol.
Quantity I:
Let speed of boat in still water be 'x km/hr.'
ATQ,
$$\frac{90}{(x+6)} + \frac{90}{(x-6)} = 8$$
$$\frac{90x - 540 + 90x + 540}{(x^2 - 36)} = 8$$
$$\frac{180x}{x^2 - 36} = 8$$
$45x = 2x^2 - 72$
$0 = 2x^2 - 45x - 72$
$0 = 2x^2 - 48x + 3x - 72$
$0 = 2x(x - 24) + 3(x - 24)$
$0 = (x - 24)(2x + 3)$
$x = 24, -3/2$
So, speed of boat in still water = 24 km/hr.

Quantity II:

Let speed of boat in still water be 'x km/hr.'

ATQ,

$\frac{63}{(x-6)} - \frac{63}{(x+6)} = 4$

$63\left[\frac{x+6-x+6}{x^2-36}\right] = 4$

$\Rightarrow 756 = 4x^2 - 144$

$\Rightarrow 4x^2 = 900$

$x^2 = 225$

$x = \pm 15$

So, speed of boat in downstream = x + 6 = 21 km/hr.

So, Quantity I > Quantity II.

S73. Ans.(e)

Sol.

Quantity I:

$18x^2 - 27x + 10 = 0$

$18x^2 - 15x - 12x + 10 = 0$

$3x(6x - 5) - 2(6x - 5) = 0$

$(6x - 5)(3x - 2) = 0$

$x = \frac{2}{3}, \frac{5}{6}$

Quantity II:

$28y^2 - 45y + 18 = 0$

$28y^2 - 24y - 21y + 18 = 0$

$4y(7y - 6) - 3(7y - 6) = 0$

$(7y - 6)(4y - 3) = 0$

$y = \frac{6}{7}, \frac{3}{4}$

So, no relation can be established between Quantity I and Quantity II.

S74. Ans.(b)

Sol.

Quantity I:

Factors of 28 = 1, 2, 4, 7, 14, 28

Required sum = 1 + 2 + 4 + 7 + 14 + 28 = 56

Quantity II:

Factors of 24 = 1, 2, 3, 4, 6, 8, 12, 24

Required sum = 1 + 2 + 3 + 4 + 6 + 8 + 12 + 24 = 60

So, Quantity I < Quantity II.

S75. Ans.(b)

Sol.

Let radius and height of cylindrical pipe be 'r cm' and '4r cm' respectively.

ATQ,

Volume of cylindrical pipe = 4312 cm^3

$\frac{22}{7} \times r^2 \times (4r) = 4312$

$r^3 = \frac{4312 \times 7}{22 \times 4}$

$r^3 = 343$

$r = 7$

Now, let height of conical tent be 'h cm'.

Volume of conical tent = 1232 cm^3

$\frac{1}{3} \times \frac{22}{7} \times 7 \times 7 \times h = 1232$

$h = \frac{1232 \times 7 \times 3}{22 \times 7 \times 7}$

h = 24 cm

Quantity I:

Slant height of conical tent = $\sqrt{r^2 + h^2}$

$= \sqrt{(7)^2 + (24)^2}$

$= \sqrt{49 + 576}$

= 25 cm

Quantity II:

Height of cylindrical pipe = 4r

= 28 cm

So, Quantity I < Quantity II.

S76. Ans.(c)

Sol.

According to question

$\frac{4}{5} \times 80 - \frac{4}{5}x = \frac{1}{5} \times 80 - \frac{1}{5}x + x$

$64 - \frac{4}{5}x = 16 - \frac{1}{5}x + x$

$48 = \frac{4}{5}x - \frac{1}{5}x + x$

$48 = \frac{3x}{5} + x$

$x = 30\ell$

Or

$\frac{4}{5} \times 80 - \frac{4}{5}x = 40$ (because final concentration is 50%)

$x = 30\ell$

S77. Ans.(a)

Sol.

Two day work of A = $\frac{2}{10} = \frac{1}{5}$

Remaining work = $\frac{4}{5}$

One day work of B and C = $\frac{20 + 15}{15 \times 20} = \frac{35}{15 \times 20} = \frac{7}{60}$

$\frac{4}{5}$ of work will be finished in $\frac{60}{7} \times \frac{4}{5}$ day

$= \frac{48}{7}$ days

S78. Ans.(a)

Sol.

$$\text{Required Probability} = \frac{5}{23} + \frac{8}{23} = \frac{13}{23}$$

S79. Ans.(b)

Sol.

Let width of the rectangle be 5x cm then its length= 6x cm

$6x \times 5x = 4320$

$30x^2 = 4320$

$x = 12$

Length of diagonal $= \sqrt{(6 \times 12)^2 + (5 \times 12)^2} = 12\sqrt{61}$ cm

S80. Ans.(c)

Sol.

$$\begin{cases} \text{Let A's age is} \rightarrow A \\ \text{Let B's age is} \rightarrow B \\ \text{Let C's age is} \rightarrow C \end{cases}$$

$B - A = 6$ ....(i)

$\frac{B+9}{C} = \frac{9}{8}$

$9C - 8B = 72$ ....(ii)

$C = 2A$ ...(iii)

$(ii)\ \&\ (iii)$

$\Rightarrow 18A - 8B = 72$

$\Rightarrow 18(B-6) - 8B = 72 \quad [\because A = B - 6 \ldots (i)]$

$10B = 180$

$B = 18$ year

After 5 years B 's age = 23 years