RRB PO Pre 2022 (20th August) Shift-Wise Previous Year Paper Mock 03

Directions (1-3): Study the following information carefully and answer the questions given below.

Waqar walks 9m towards west to reach point A. Then he turns to left and walks 7m to reach point B. Then, he turns to right and walks 12m to reach point C and again he turns to left and walks 15m to reach point D. After that he turns to left and walks 25m to reach point E. Finally, he turns to right and walks 5m to reach point F.

Q1. What is the shortest distance between point A and point E?

(a) 25m
(b) 23m
(c) $\sqrt{653}$m
(d) $5\sqrt{26}$m
(e) None of these

Q2. In which direction is point E with respect to starting point?

(a) North-east
(b) South-west
(c) North-west
(d) South-east
(e) None of these

Q3. If Waqar walks 4m towards west from point F to reach point G, then in which direction point G is with respect to starting point?

(a) South-east
(b) South
(c) South-west
(d) North-east
(e) None of these

Q4. If in the number "7263586391", positions of the first and the second digits are interchanged, positions of the third and fourth digits are interchanged and so on till the positions of 9th and 10th digits are interchanged, then find the multiple value of 3rd and 6th number from the left end respectively?

(a) 21
(b) 42
(c) 15
(d) 35
(e) None of these

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Directions (5-7): Study the following information carefully and answer the given questions.
In a family of nine members there are five male members. M is the son of V. V is married to J. L is daughter-In-law of V. J has three children and two of them are married. U is the mother of B. W is son-in-law of J. S is aunt of B and she is unmarried. J is grandfather of A. B don't have any siblings. S doesn't have child.

Q5. How is B related to M?
(a) Son
(b) Daughter
(c) Nephew
(d) Niece
(e) None of these

Q6. How is V related to B?
(a) Mother
(b) Maternal Grandmother
(c) Paternal Grandmother
(d) Aunt
(e) Cannot be determined

Q7. How is A related to M?
(a) Son
(b) Daughter
(c) Nephew
(d) Niece
(e) Cannot be determined

Q8. If a four letter meaningful word will be formed from the first, fourth, seventh and ninth letter from the left end of the word "SEPTEMBER" then which letter is 4th from the left end in the meaningful word thus formed? If more than one word is formed, then mark the answer as X and if no meaningful word is formed then mark the answer as Z.
(a) T
(b) X
(c) R
(d) Z
(e) B

Directions (9-13): Study the following instructions and answer the questions given below:
Eight persons are sitting around a square table. Four persons are sitting at the corner and facing outside while four persons are sitting at the side and facing inside.
M sits second to the right of P. Only one person sits between M and R. N is an immediate neighbor of P and sits second to the left of the one who sits second to the left of O. S sits third to the right of Q who sits immediate left of L. L does not face inside.

Q9. Who among the following sits opposite to M?
(a) L
(b) Q
(c) S
(d) O
(e) None of these

Q10. Who among the following sits second to the left of S?
(a) R
(b) M
(c) P
(d) O
(e) None of these

Q11. Four of the following five pairs are alike in a certain way so form a group, which of the following does not belong to that group?
(a) M-R
(b) N-L
(c) S-O
(d) Q-P
(e) L-O

Q12. How many persons sit between P and O, when counted from the right of P?
(a) One
(b) Four
(c) None
(d) Three
(e) None of these

Q13. Who among the following sits second to the left of the one who sits third to the right of N?
(a) M
(b) R
(c) S
(d) O
(e) None of these

Directions (14-18): Study the information carefully and answer the questions given below.
Seven persons A, B, C, D, E, F and G of a college are working (but not necessarily in the same order) at seven different designations viz. Chancellor, Vice Chancellor (VC), Dean, HOD, Professor, Assistant Professor and Lecturer. All the designations given are to be considered in a given order (as Chancellor is considered as Senior-most and Lecturer is considered as the Junior-most).
Not more than two persons are junior to E. Two designations are between E and B. A is senior to D. C is neither VC nor Chancellor. C is Senior to F. More than two persons are senior to A. D is not Lecturer.

Q14. Who among the following person is HOD?
(a) B
(b) C
(c) F
(d) D
(e) None of these

Q15. Who among the following is VC?
(a) C
(b) G
(c) B
(d) D
(e) E

Q16. How many designations lie between G and D?
(a) Three
(b) Five
(c) None
(d) Four
(e) More than Five

Q17. Who among the following is Chancellor?
(a) G
(b) F
(c) A
(d) D
(e) None of these

Q18. Which of the following statement is true regarding F?
(a) F is senior to only one person
(b) D is just junior to F
(c) F is Lecturer
(d) F is junior to only three persons
(e) None is true

Directions (19-22): In each of the questions below. Some statements are given followed by conclusions/group of conclusions. You have to assume all the statements to be true even if they seem to be at variance from the commonly known facts and then decide which of the given conclusions logically follow from the information given in the statements:

Q19. Statements:
Only a few wall is floor.
Some door is fan.
No floor is door.
Conclusions:
I. Some fan is not floor.
II. All wall being door is a possibility.
(a) If only conclusion I follows.
(b) If only conclusion II follows.
(c) If either conclusion I or II follows.
(d) If neither conclusion I nor II follows.
(e) If both conclusions I and II follow.

Q20. Statements:
All jeep are car.
Some car is not truck.
Only a few van is truck.
Conclusions:
I. All jeep being truck is a possibility.
II. All van being truck is a possibility.
(a) If only conclusion I follows.
(b) If only conclusion II follows.
(c) If either conclusion I or II follows.
(d) If neither conclusion I nor II follows.
(e) If both conclusions I and II follow.

Q21. Statements:
Some Park is cabin.
Only cabin is coach.
No park is metro.
Conclusions:
I. Some coach being park is a possibility.
II. All cabin being metro is a possibility.
(a) If only conclusion I follows.
(b) If only conclusion II follows.
(c) If either conclusion I or II follows.
(d) If neither conclusion I nor II follows.
(e) If both conclusions I and II follow.

Q22. Statements:
Some new are not old.
Only a few old are same.
All same are again.
Conclusions:
I. Some again is not old.
II. All same being new is a possibility.
(a) If only conclusion I follows.
(b) If only conclusion II follows.
(c) If either conclusion I or II follows.
(d) If neither conclusion I nor II follows.
(e) If both conclusions I and II follow.

Directions (23-26): Study the following information carefully and answer the questions given below:
Seven persons i.e. A, B, P, R, X, Y and Z were born on different days of the same week but not necessarily in the same order. Week starts from Monday.
Y was born just before P and just after A. X was born just after B. B was born before Wednesday. Z was born before of the day when R was born. P was not born on Sunday. Z was neither born on Monday nor on Saturday.

Q23. On which of the following day Z was born?
(a) Tuesday
(b) Wednesday
(c) Thursday
(d) Friday
(e) Sunday

Q24. How many persons were born between X and P?
(a) None
(b) One
(c) Two
(d) Three
(e) More than three

Q25. Who among the following person was born on Friday?
(a) P
(b) A
(c) Y
(d) Z
(e) R

Q26. Which of the following pair of persons were born on Monday and Sunday respectively?
(a) R and X
(b) B and R
(c) P and Z
(d) X and B
(e) None of these

Directions (27-30): In these questions, a relationship between different elements is shown in the statements. The statements are followed by two conclusions. Give answer

Q27.
Statement:
$P < Q = G < D \leq E < F > M$
Conclusions:
I. $M \geq Q$
II. $M < G$
(a) If only conclusion II is true.
(b) If only conclusion I is true.
(c) If neither conclusion I nor II is true.
(d) If either conclusion I or II is true.
(e) If both conclusions I and II are true.

Q28.
Statement:
$M \geq K > A > S = H > D > B$
Conclusions:
I. $A > B$
II. $K < D$
(a) If both conclusion I and II are true.
(b) If only conclusion I is true.
(c) If neither conclusion I nor II is true.
(d) If either conclusion I or II is true.
(e) If only conclusion II is true.

Q29.
Statements:
$A \geq K$; $N < T$; $M \geq N$; $K \geq T$
Conclusions:
I. $K \geq N$
II. $A > M$
(a) If only conclusion II is true.
(b) If either conclusion I or II is true.
(c) If neither conclusion I nor II is true.
(d) If only conclusion I is true.
(e) If both conclusions I and II are true.

Q30.

Statements:

J > T; R ≤ N; T > R; N < M

Conclusions:

I. R < M

II. J > M

(a) If only conclusion II is true.

(b) If only conclusion I is true.

(c) If neither conclusion I nor II is true.

(d) If either conclusion I or II is true.

(e) If both conclusions I and II are true.

Directions (31-35): Study the following information carefully and answer the questions given below:

756 946 845 549 291

Q31. If '1' is subtracted from the first digit of each number and then all the numbers are arranged in ascending order from left to right, then which of the following number is second from right end?

(a) 549

(b) 946

(c) 756

(d) 291

(e) 845

Q32. If in each number, the first and the third digits are interchanged then which number will be the lowest?

(a) 946

(b) 291

(c) 756

(d) 549

(e) 845

Q33. If the first and the second digits in each number are interchanged, then which number will be the fourth smallest?

(a) 946

(b) 291

(c) 845

(d) 549

(e) 756

Q34. What is the sum of 2nd digit of the 3rd number from left end and 1st digit of 2nd number from right end?
(a) 5
(b) 2
(c) 4
(d) 9
(e) 8

Q35. If in each number first digit is shifted to the third digit, second digit is shifted to the first digit and third digit is shifted to the second digit, then which number will be the highest?
(a) 946
(b) 291
(c) 845
(d) 549
(e) None of these

Directions (36-38): Study the following information to answer the given questions:
A certain number of persons are sitting in a row such that all are facing towards the north direction. Three persons sit between Q and S. R sits fifth right of S. U sits third from the right end of the row. T sits exactly between S and U. Only four persons sit to the left of Q. Number of persons sit to the right of R is two more than the number of persons sit left of P. Not more than two persons sit between U and T who does not sit left of Q.

Q36. Who among the following sits second to the right of P?
(a) R
(b) T
(c) Unknown person
(d) S
(e) None of these

Q37. How many persons sit between Q and T?
(a) Four
(b) Six
(c) Seven
(d) Five
(e) None of these

Q38. What the position of R with respect to T?
(a) Third to the left
(b) Second to the left
(c) Immediate right
(d) Second to the right
(e) None of these

Q39. In a class Piyush is 10th from the top and Aarya is 20th from the bottom. Naveen is 11 ranks above Aarya and 21 ranks below Piyush. How many students are there in the class?
(a) 60
(b) 61
(c) 62
(d) 58
(e) None of these

Q40. How many such pair of letters are there in the word "HOUSEFUL'", each of which has as many letters between them in the word as they have in English alphabet (from the both forward and backward direction)?
(a) Four
(b) Two
(c) One
(d) Three
(e) More than four

Directions (41 -45): In the following questions, there are two equations in x and y. You have to solve both the equations and give answer

Q41.

I. $2x^2 - 5x - 7 = 0$
II. $2y^2 - 16y + 32 = 0$
(a) if x > y
(b) if x < y
(c) if x ≥ y
(d) if x ≤ y
(e) if x = y or there is no relation between x and y

Q42.
I. $2x^2 - 9x + 10 = 0$
II. $3y^2 - 7y + 4 = 0$
(a) if x > y
(b) if x < y
(c) if x ≥ y
(d) if x ≤ y
(e) if x = y or there is no relation between x and y

Q43.
I. $x^2 + 11x + 24 = 0$
II. $4y^2 + 13y + 10 = 0$

(a) if x > y
(b) if x < y
(c) if x ≥ y
(d) if x ≤ y
(e) if x = y or there is no relation between x and y

Q44.

I. $2x^2 + 13x + 21 = 0$
II. $y^2 + 6y + 9 = 0$

(a) if x > y
(b) if x < y
(c) if x ≥ y
(d) if x ≤ y
(e) if x = y or there is no relation between x and y

Q45.

I. $3x^2 - x - 2 = 0$
II. $4y^2 - 2y - 2 = 0$

(a) if x > y
(b) if x < y
(c) if x ≥ y
(d) if x ≤ y
(e) if x = y or there is no relation between x and y

Directions (46-50): Read the given information carefully and answer the following questions.
There are four covid hospitals i.e., P, Q, R and S.
In hospital P: Number of male patients are 120 and number of female patients are 30% more than that of number of female patients in hospital Q.
In hospital Q: Number of male patients are double than that of number of female patients.
In hospital R: Number of male patients are 100 more than that of male patients in hospital P and total number patients in hospital R is 1000.
In hospital S: Number of male patients is 182 more than the number of male patients in hospital P. Average of number of female patients in hospital P and that of in hospital S is 223.Number of male patients in hospital S is 98 less number male patients in hospital Q.

Q46. Find difference between number of male patients and female patients in S is what percent of difference between number of male patients and female patients in Q?
(a) 53%
(b) 58%
(c) 63%
(d) 60%
(e) 57.5%

Q47. Find difference between total number patients in hospital P and total number patients in hospital S?
(a) 108
(b) 118
(c) 112
(d) 98
(e) 128

Q48. Find ratio of total number of patients in Q to that of in R?
(a) 3: 5
(b) 2: 5
(c) 3: 4
(d) 4: 5
(e) 6: 5

Q49. If 20 male patients from each hospital have recovered and left their respective hospitals, then find the average of remaining male patients in all the hospitals?
(a) 239.5
(b) 235
(c) 250.5
(d) 240.5
(e) 245.5

Q50. Total number of male patients in P and female patients in R together is what percent more than number of male patients in Q?
(a) 100%
(b) 125%
(c) 150%
(d) 137.5%
(e) 175%

Directions (51-55): What will come in place of (?) in the following number series?

Q51. 150, 186, 106, 230, ?, 274
(a) 94
(b) 88
(c) 62
(d) 80
(e) 74

Q52. 6, 6, 12, 48, ?, 6144
(a) 354
(b) 374
(c) 388
(d) 382
(e) 384

Q53. 680, 675, 660, 615, 480, ?
(a) 75
(b) 120
(c) 110
(d) 95
(e) 55

Q54. ?, 328, 285, 238, 185, 126
(a) 369
(b) 382
(c) 375
(d) 362
(e) 387

Q55. ?, 1728, 1000, 512, 216, 64
(a) 225
(b) 3375
(c) 196
(d) 2744
(e) 2197

Directions (56-60): What approximate value should come in place of (?) in the following questions.

Q56. $45.01\%\ of\ 599.99 \div \{(25.02 + 14.99)\%\ of\ 499.94\} = ? \div 39.978$
(a) 62
(b) 48
(c) 54
(d) 58
(e) 46

Q57. $\frac{?-80.03}{14.99\times24.01}\ of\ 432.02 \times 24.96 = 4799.98$
(a) 260
(b) 230
(c) 250
(d) 270
(e) 240

Q58. $(?)^2 = 210.05\%\ of\ 799.99 + (38.01)^2 + 108.03 \times 8.99$

(a) 64
(b) 54
(c) 84
(d) 94
(e) 74

Q59. $?\times 23.01 = 24.04 \times 44.99 + 820.01 - 60.03\%\ of\ 2399.99$

(a) 20
(b) 50
(c) 40
(d) 80
(e) 60

Q60. $?\%\ of\ 3500.02 = 1683.98 - 487.998 - 30.97\%\ of\ 1599.99$

(a) 40
(b) 30
(c) 25
(d) 20
(e) 35

Q61. Ankit invested Rs. 1080 at the rate of 7.5% p.a. for two years on simple interest and Rs. 'P' at the rate of 20% p.a. for two years on compound interest annually. If ratio of total simple interest after two years to the total compound interest received by Ankit in the second year is 9 : 10, then find 'P'?

(a) Rs. 720
(b) Rs. 640
(c) Rs. 840
(d) Rs. 750
(e) Rs. 800

Q62. B is twice as old as A. Average of present age of A and B is 24 years and average of present age of B and C is 38 years. Find present age of C is what percent less than present age of A and B together?

(a) $4\frac{2}{9}\%$
(b) $11\frac{6}{11}\%$
(c) $5\frac{1}{5}\%$
(d) $13\frac{2}{7}\%$
(e) $8\frac{1}{3}\%$

Q63. Pipe P alone takes 20% less time than that of pipe Q alone to fill a tank. When both pipes together open for 8 hours in the same tank, then 90% of the tank filled. Find difference between their individual time to fill the same tank?

(a) 4.5 hours
(b) 4 hours
(c) 5 hours
(d) 6 hours
(e) 8 hours

Q64.The ratio of the radius and height of a cylinder is 7: 12. If its volume is 6237 cm^3 then find difference between its total surface area and curved surface area?

(a) 700 cm^2
(b) 686 cm^2
(c) 679 cm^2
(d) 672 cm^2
(e) 693 cm^2

Q65. The ratio of investment of P to Q is 4 : 5 and P & Q invested for 10 months and 6 months respectively. If R invested Rs '2X' in that business for last 8 months and profit of R is twice of profit of Q, then find investment of Q is what percent more or less than that of R?

(a) $33\frac{1}{3}\%$
(b) $28\frac{1}{3}\%$
(c) $44\frac{1}{6}\%$
(d) 50%
(e) $26\frac{1}{4}\%$

Directions (66-70):- The table given below shows the no. of books published by 4 different publishers in 4 months. Study the data and answer the following questions.

Month / Publisher	February	March	April	May
A	2000	2400	1800	2500
B	1500	1850	2000	2100
C	1750	2000	2250	2400
D	1200	1350	800	1250

Q66. What is the average no. of books published by A in all the given months?
(a) 1740
(b) 2275
(c) 2050
(d) 2175
(e) 2250

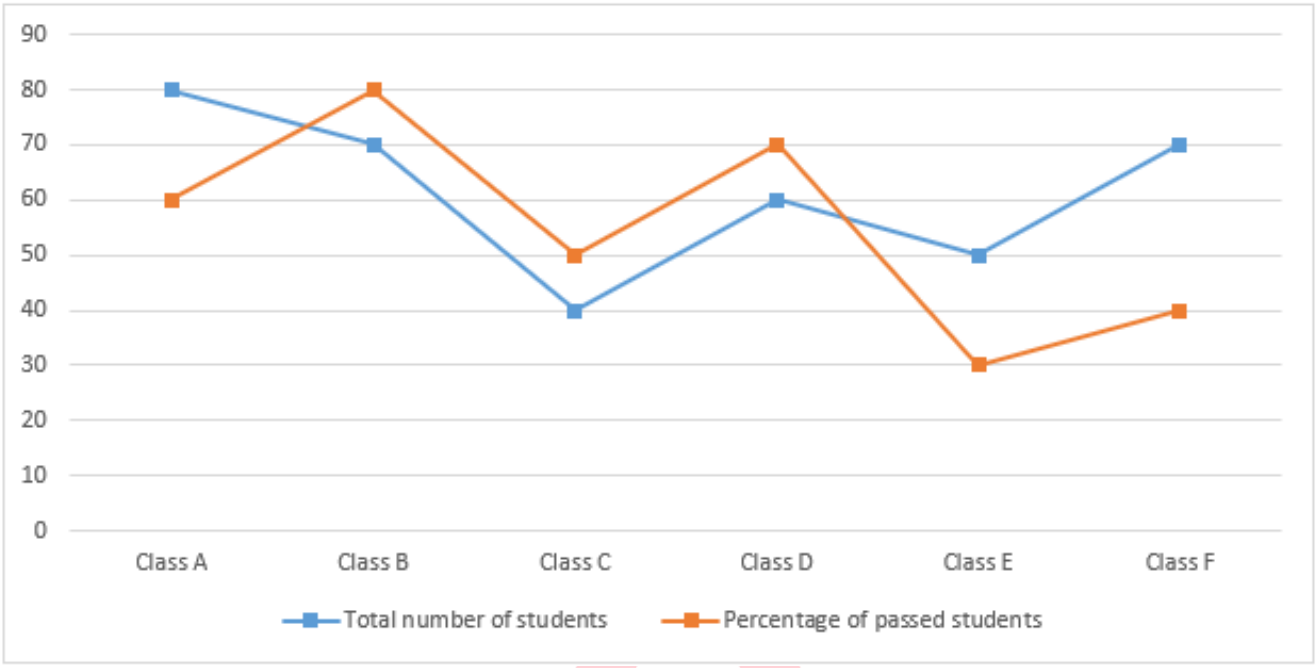
Q67. Books published by B in February and March together is what percent more/less than that by C in March and April? (approximate)
(a) 21%
(b) 24%
(c) 16%
(d) 12%
(e) 27%

Q68. Find the ratio between books published by C to D in all given months.
(a) 23 : 45
(b) 24 : 43
(c) 42 : 23
(d) 41 : 25
(e) 23 : 42

Q69. Find the revenue obtained by B in March is how much more/less than that by D in same month, if selling price of book is Rs 120 and all books are sold. (Note – cost price and selling price of each book is same for all publishers)
(a) Rs 50,000
(b) Rs 40,000
(c) Rs 55,000
(d) Rs 70,000
(e) Rs 60,000

Q70. Books published by A in April is what percent of book published by C in March?
(a) $\frac{1000}{9}\%$
(b) 90%
(c) 10%
(d) $\frac{100}{9}\%$
(e) 75%

Directions (71-75): Line chart given below shows total number of students in six different classes(A, B , C , D , E & F) and percentage of passed students out of total number of students in these six classes. Study the line charts carefully and answer the following questions.



Note – (i) Total number of students in any class = Number of passed students + Number of failed students
(ii) All students appeared for the exam from all the six classes.

Q71. Find average number of students in class A & D is how much more or less than average number of students in class C & E?
(a) 45
(b) 40
(c) 35
(d) 25
(e) 15

Q72. Total number of passed students in class A & F together is what percentage of total number of students in class E?
(a) 102%
(b) 120%
(c) 162%
(d) 110%
(e) 152%

Q73. Find the ratio of total number of passed students in class A & B together to total number of failed students in class C & E together?
(a) 101:55
(b) 103:50
(c) 101:51
(d) 104:55
(e) 103:53

Q74. Find the average number of students in class A, B & D?
(a) 64
(b) 58
(c) 70
(d) 80
(e) 72

Q75. If in another class G, the number of passed student is equal to average number of passed students in class D & F together, then find the number of passed students in class G?
(a) 35
(b) 44
(c) 32
(d) 40
(e) 42

Q76. A boat covers 192 km in upstream in 6 hours. If speed of boat in still water is 200% more than speed of stream, then find time taken by boat to cover 240 km in downstream.
(a) 3 hours 45 minutes
(b) 3 hours 15 minutes
(c) 4 hours 45 minutes
(d) 4 hours 15 minutes
(e) 5 hours 45 minutes

Q77. Length of rectangle is 5m more than side of square, whose area is 225m^2. Ratio of length to breadth of rectangle is 5 : 4, then find perimeter of rectangle.
(a) 60m
(b) 68m
(c) 84m
(d) 90m
(e) 72m

Q78. Vinit made a loss of 15% on selling his scooter. If he had sold it for Rs. 1500 more, he would have made a profit of 5%. Find the selling price when it is sold at 10% profit?

(a) Rs. 8050
(b) Rs. 8250
(c) Rs. 8170
(d) Rs. 8350
(e) Rs. 8150

Q79. Ayush can travel from his house to office in 'a' hours if he does not stop at any place. If he increases his speed by 8 km/hr but stops at Tea & cigarette shop for total 30 minutes, then he reaches his office 30 minutes earlier. If the distance between his house & office is 48 km then find value of 'a'?

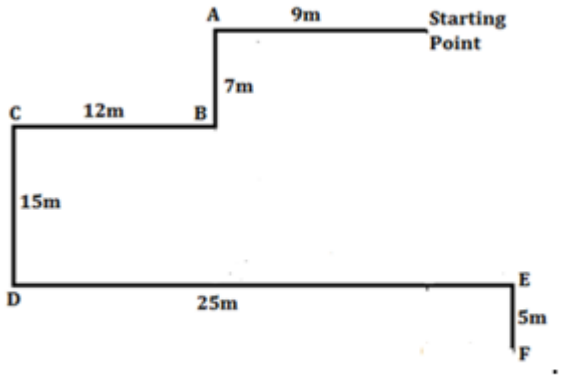
(a) 5
(b) 4
(c) 2.5
(d) 2
(e) 3

Q80. There are five numbers and the second number is 25% more than the first number, while third number is 20% more than second number. If the average of all the five numbers is 126 and that of first, fourth and fifth number is 100, then find the sum of last two numbers?

(a) 180
(b) 120
(c) 140
(d) 156
(e) None of these

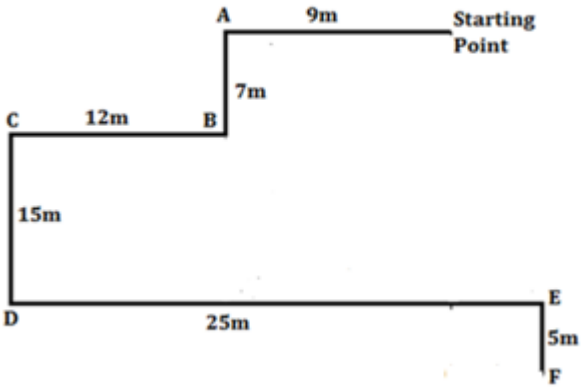
Solutions

S1. Ans.(c)
Sol.

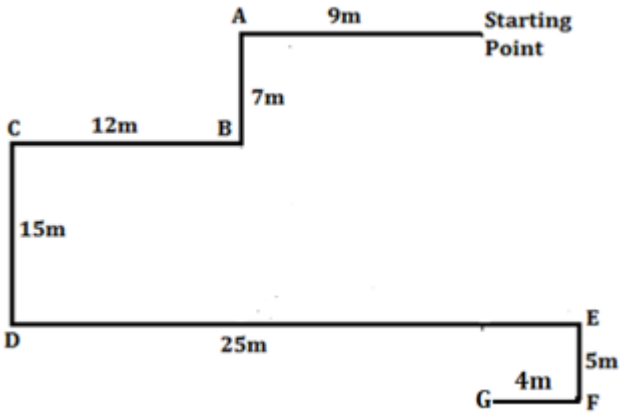


(AE)^2 = 22^2 + 13^2 = 484 + 169 = 653
AE = √653m

S2. Ans.(d)
Sol.



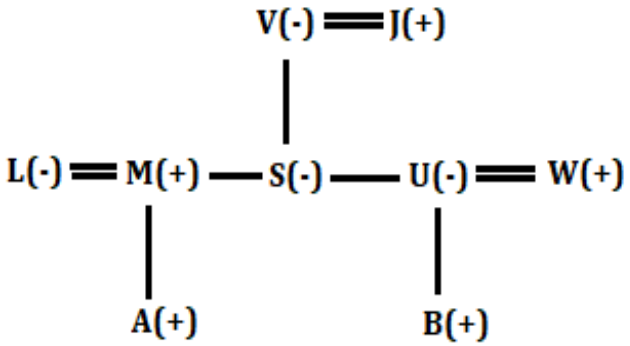
S3. Ans.(b)
Sol.



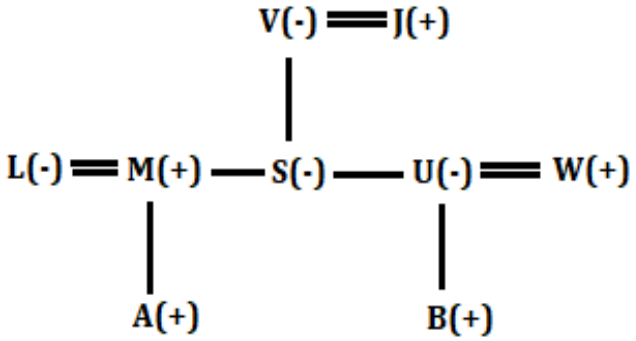
S4. Ans.(c)
Sol.

7263586391
2736853619
3*5 = 15

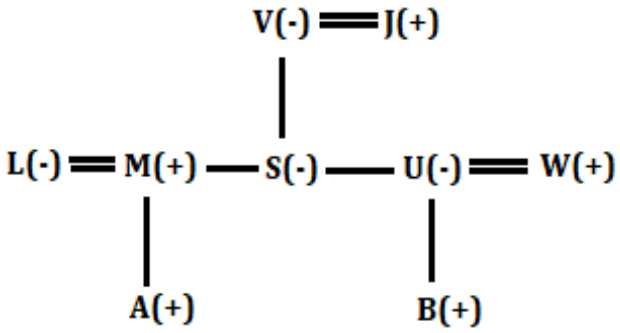
S5. Ans.(c)
Sol.



S6. Ans.(b)
Sol.



S7. Ans.(a)
Sol.

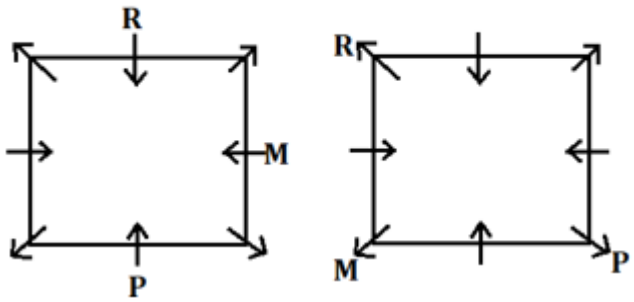


S8. Ans.(d)

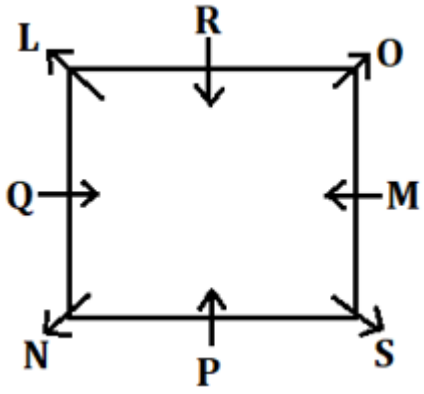
S9. Ans.(b)

Sol. From the given information, M sits second to the right of P. There are two possibilities. Only one person sits between M and R.

Case-1 Case-2



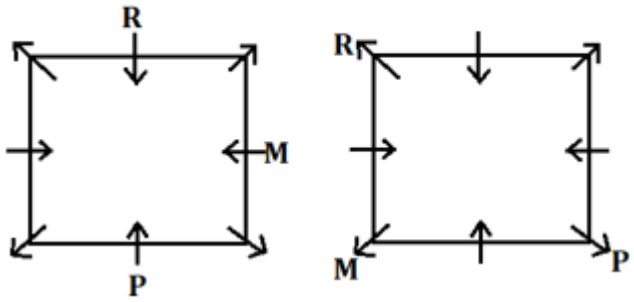
N is an immediate neighbor of P and sits second to the left of the one who sits second to the left of O. S sits third to the right of Q who sits immediate left of L. L does not face inside. From these conditions, case-2 will be eliminated and the final arrangement is-



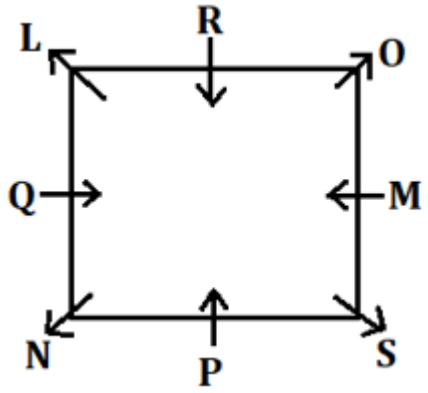
S10. Ans.(d)

Sol. From the given information, M sits second to the right of P. There are two possibilities. Only one person sits between M and R.

Case-1 Case-2

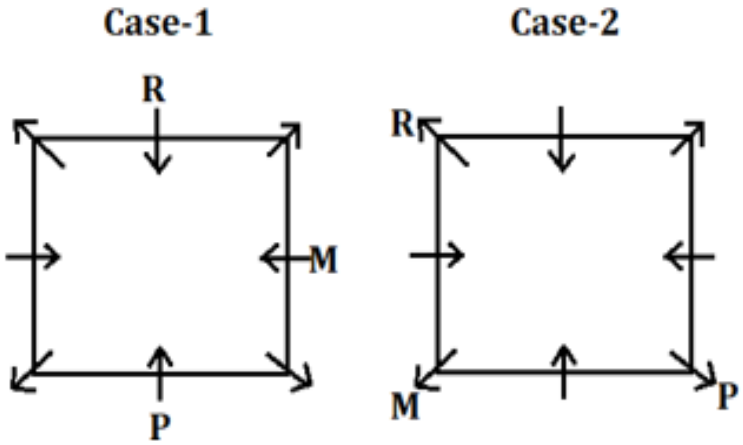


N is an immediate neighbor of P and sits second to the left of the one who sits second to the left of O. S sits third to the right of Q who sits immediate left of L. L does not face inside. From these conditions, case-2 will be eliminated and the final arrangement is-

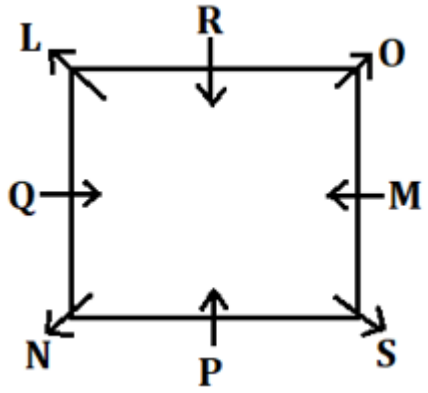


S11. Ans.(c)

Sol. From the given information, M sits second to the right of P. There are two possibilities. Only one person sits between M and R.



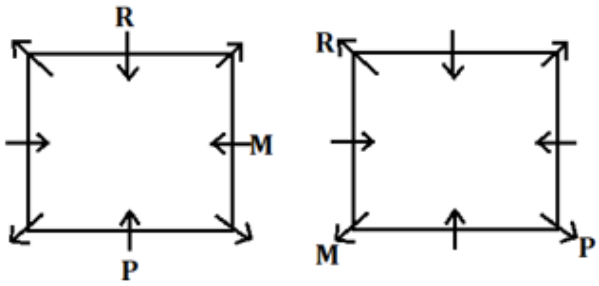
N is an immediate neighbor of P and sits second to the left of the one who sits second to the left of O. S sits third to the right of Q who sits immediate left of L. L does not face inside. From these conditions, case-2 will be eliminated and the final arrangement is-



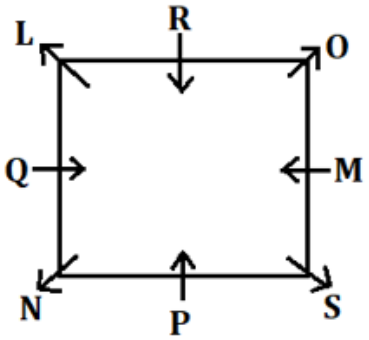
S12. Ans.(e)

Sol. From the given information, M sits second to the right of P. There are two possibilities. Only one person sits between M and R.

Case-1 Case-2



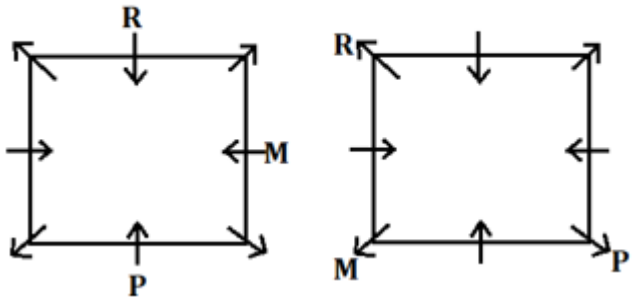
N is an immediate neighbor of P and sits second to the left of the one who sits second to the left of O. S sits third to the right of Q who sits immediate left of L. L does not face inside. From these conditions, case-2 will be eliminated and the final arrangement is-



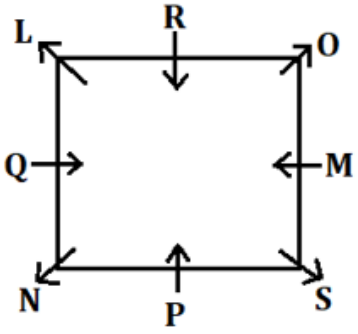
S13. Ans.(a)

Sol. From the given information, M sits second to the right of P. There are two possibilities. Only one person sits between M and R.

Case-1 Case-2



N is an immediate neighbor of P and sits second to the left of the one who sits second to the left of O. S sits third to the right of Q who sits immediate left of L. L does not face inside. From these conditions, case-2 will be eliminated and the final arrangement is-



S14. Ans.(e)

Sol. From the given information, not more than two persons are junior to E. There are three possibilities. Two designations are between E and B. A is senior to D. More than two persons are senior to A. D is not Lecturer.

	Case-1	Case-2	Case-3
Designation	**Person**	**Person**	**Person**
Chancellor			
Vice Chancellor	B		
Dean		B	
HOD	A	A	B
Professor	E	D	A
Assistant Professor	D	E	D
Lecturer			E

C is neither VC nor Chancellor. C is Senior to F. From these conditions case-2 and case-3 will be eliminated. The final arrangement is-

Designation	Person
Chancellor	G
Vice Chancellor	B
Dean	C
HOD	A
Professor	E
Assistant Professor	D
Lecturer	F

S15. Ans.(c)

Sol. From the given information, not more than two persons are junior to E. There are three possibilities. Two designations are between E and B. A is senior to D. More than two persons are senior to A. D is not Lecturer.

	Case-1	Case-2	Case-3
Designation	**Person**	**Person**	**Person**
Chancellor			
Vice Chancellor	B		
Dean		B	
HOD	A	A	B
Professor	E	D	A
Assistant Professor	D	E	D
Lecturer			E

C is neither VC nor Chancellor. C is Senior to F. From these conditions case-2 and case-3 will be eliminated. The final arrangement is-

Designation	Person
Chancellor	G
Vice Chancellor	B
Dean	C
HOD	A
Professor	E
Assistant Professor	D
Lecturer	F

S16. Ans.(d)

Sol. From the given information, not more than two persons are junior to E. There are three possibilities. Two designations are between E and B. A is senior to D. More than two persons are senior to A. D is not Lecturer.

	Case-1	Case-2	Case-3
Designation	**Person**	**Person**	**Person**
Chancellor			
Vice Chancellor	B		
Dean		B	
HOD	A	A	B
Professor	E	D	A
Assistant Professor	D	E	D
Lecturer			E

C is neither VC nor Chancellor. C is Senior to F. From these conditions case-2 and case-3 will be eliminated. The final arrangement is-

Designation	Person
Chancellor	G
Vice Chancellor	B
Dean	C
HOD	A
Professor	E
Assistant Professor	D
Lecturer	F

S17. Ans.(a)

Sol. From the given information, not more than two persons are junior to E. There are three possibilities. Two designations are between E and B. A is senior to D. More than two persons are senior to A. D is not Lecturer.

	Case-1	Case-2	Case-3
Designation	**Person**	**Person**	**Person**
Chancellor			
Vice Chancellor	B		
Dean		B	
HOD	A	A	B
Professor	E	D	A
Assistant Professor	D	E	D
Lecturer			E

C is neither VC nor Chancellor. C is Senior to F. From these conditions case-2 and case-3 will be eliminated. The final arrangement is-

Designation	Person
Chancellor	G
Vice Chancellor	B
Dean	C
HOD	A
Professor	E
Assistant Professor	D
Lecturer	F

S18. Ans.(c)

Sol. From the given information, not more than two persons are junior to E. There are three possibilities. Two designations are between E and B. A is senior to D. More than two persons are senior to A. D is not Lecturer.

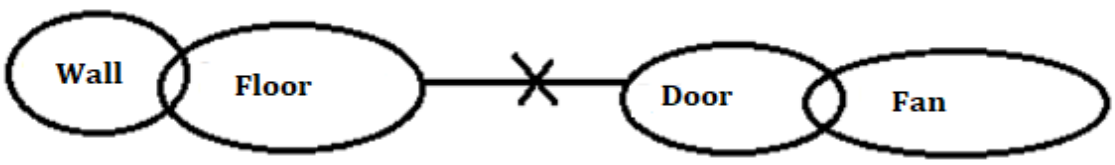
	Case-1	Case-2	Case-3
Designation	**Person**	**Person**	**Person**
Chancellor			
Vice Chancellor	B		
Dean		B	
HOD	A	A	B
Professor	E	D	A
Assistant Professor	D	E	D
Lecturer			E

C is neither VC nor Chancellor. C is Senior to F. From these conditions case-2 and case-3 will be eliminated. The final arrangement is-

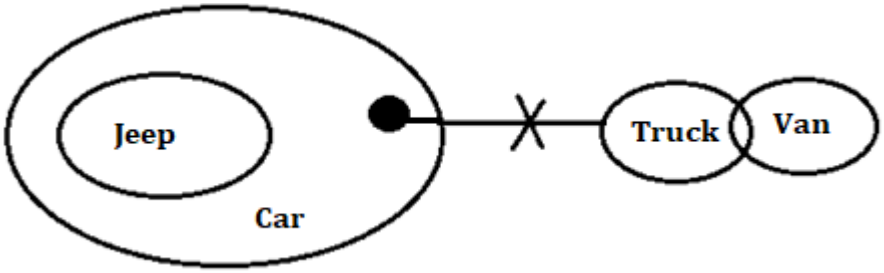
Designation	Person
Chancellor	G
Vice Chancellor	B
Dean	C
HOD	A
Professor	E
Assistant Professor	D
Lecturer	F

S19. Ans.(a)

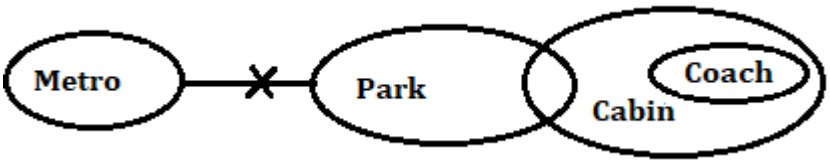
Sol.



S20. Ans.(a)
Sol.



S21. Ans.(d)
Sol.



S22. Ans.(b)
Sol.

S23. Ans.(b)
Sol. From the given statements, B was born before Wednesday. Here we get 2 possibilities i.e., Case 1 and Case 2. X was born just after B. P was not born on Sunday. Y was born just before P and just after A. Here one more case was added Case 1a.

Days	Case 1	Case 1a	Case 2
	Persons	Persons	Persons
Monday	B	B	
Tuesday	X	X	B
Wednesday	A		X
Thursday	Y	A	A
Friday	P	Y	Y
Saturday		P	P
Sunday			

Z was born before of the day when R was born. Z was neither born on Monday nor on Saturday. From these conditions Case 1 and Case 2 are ruled out now.
So, the final arrangements will be like this-

Days	Persons
Monday	B
Tuesday	X
Wednesday	Z
Thursday	A
Friday	Y
Saturday	P
Sunday	R

S24. Ans.(d)

Sol. From the given statements, B was born before Wednesday. Here we get 2 possibilities i.e., Case 1 and Case 2. X was born just after B. P was not born on Sunday. Y was born just before P and just after A. Here one more case was added Case 1a.

Days	Case 1	Case 1a	Case 2
	Persons	Persons	Persons
Monday	B	B	
Tuesday	X	X	B
Wednesday	A		X
Thursday	Y	A	A
Friday	P	Y	Y
Saturday		P	P
Sunday			

Z was born before of the day when R was born. Z was neither born on Monday nor on Saturday. From these conditions Case 1 and Case 2 are ruled out now.

So, the final arrangements will be like this-

Days	Persons
Monday	B
Tuesday	X
Wednesday	Z
Thursday	A
Friday	Y
Saturday	P
Sunday	R

S25. Ans.(c)

Sol. From the given statements, B was born before Wednesday. Here we get 2 possibilities i.e., Case 1 and Case 2. X was born just after B. P was not born on Sunday. Y was born just before P and just after A. Here one more case was added Case 1a.

Days	Case 1	Case 1a	Case 2
	Persons	Persons	Persons
Monday	B	B	
Tuesday	X	X	B
Wednesday	A		X
Thursday	Y	A	A
Friday	P	Y	Y
Saturday		P	P
Sunday			

Z was born before of the day when R was born. Z was neither born on Monday nor on Saturday. From these conditions Case 1 and Case 2 are ruled out now.
So, the final arrangements will be like this-

Days	Persons
Monday	B
Tuesday	X
Wednesday	Z
Thursday	A
Friday	Y
Saturday	P
Sunday	R

S26. Ans.(b)
Sol. From the given statements, B was born before Wednesday. Here we get 2 possibilities i.e., Case 1 and Case 2. X was born just after B. P was not born on Sunday. Y was born just before P and just after A. Here one more case was added Case 1a.

Days	Case 1	Case 1a	Case 2
	Persons	Persons	Persons
Monday	B	B	
Tuesday	X	X	B
Wednesday	A		X
Thursday	Y	A	A
Friday	P	Y	Y
Saturday		P	P
Sunday			

Z was born before of the day when R was born. Z was neither born on Monday nor on Saturday. From these conditions Case 1 and Case 2 are ruled out now.
So, the final arrangements will be like this-

Days	Persons
Monday	B
Tuesday	X
Wednesday	Z
Thursday	A
Friday	Y
Saturday	P
Sunday	R

S27. Ans.(d)

Sol. I. M ≥ Q(False) II. M < G(False)

S28. Ans.(b)

Sol. I. A>B(True) II. K<D (False)

S29. Ans.(c)

Sol. I. K≥N(False) II. A>M (False)

S30. Ans.(b)

Sol. I. R< M (True) II. J>M (False)

S31. Ans.(e)

Sol.

756	946	845	549	291
656	846	745	449	191
191	449	656	745	846

S32. Ans.(b)

Sol.

756	946	845	549	291
657	649	548	945	192

S33. Ans.(e)

Sol.

756	946	845	549	291
576	496	485	459	921

S34. Ans.(d)

Sol.

756 946 845 549 291

2nd digit of 3rd number from left end = 4

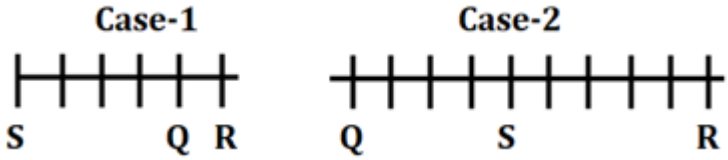
1st digit of 2nd number from right end = 5

4 + 5 = 9

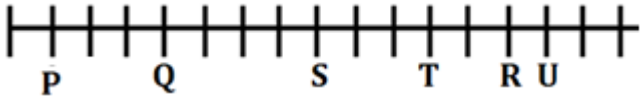
S35. Ans.(b)
Sol.

756	946	845	549	291
567	469	458	495	912

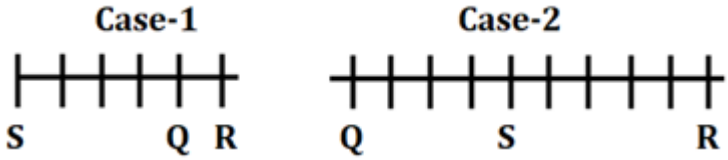
S36. Ans.(c)
Sol. Three persons sit between Q and S. There are two possibilities. R sits fifth right of S.



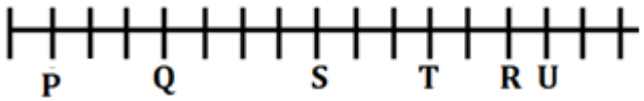
Not more than two persons sit between U and T who does not sit left of Q. From this conditions case-1 will be eliminated. T sits exactly between S and U. Only four persons sit to the left of Q. Number of persons sit to the right of R is two more than the number of persons sit left of P. U sits third from the right end of the row. The final arrangement is-



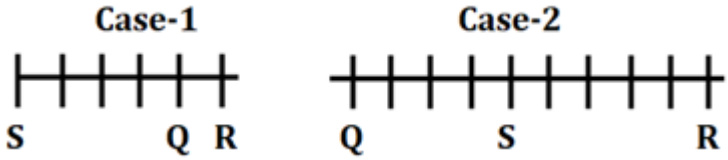
S37. Ans.(b)
Sol. Three persons sit between Q and S. There are two possibilities. R sits fifth right of S.



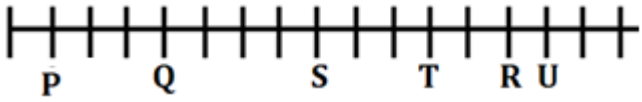
Not more than two persons sit between U and T who does not sit left of Q. From this conditions case-1 will be eliminated. T sits exactly between S and U. Only four persons sit to the left of Q. Number of persons sit to the right of R is two more than the number of persons sit left of P. U sits third from the right end of the row. The final arrangement is-



S38. Ans.(d)
Sol. Three persons sit between Q and S. There are two possibilities. R sits fifth right of S.



Not more than two persons sit between U and T who does not sit left of Q. From this conditions case-1 will be eliminated. T sits exactly between S and U. Only four persons sit to the left of Q. Number of persons sit to the right of R is two more than the number of persons sit left of P. U sits third from the right end of the row. The final arrangement is-



S39. Ans.(b)

Sol. Naveen's rank from bottom= 31

Naveen's rank from top= 31

Hence, total number of students in the class = 31+31-1 = 61

S40. Ans.(c)

Sol.

S41. Ans.(b)

Sol.

I. $2x^2 - 5x - 7 = 0$

$\Rightarrow 2x^2 - 7x + 2x - 7 = 0$

$\Rightarrow x(2x - 7) + 1(2x - 7) = 0$

$\Rightarrow (2x - 7)(x + 1) = 0$

$\Rightarrow x = 3.5, -1$

II. $2y^2 - 16y + 32 = 0$

$2y^2 - 8y - 8y + 32 = 0$

$\Rightarrow 2y(y - 4) - 8(y - 4) = 0$

$\Rightarrow y = 4$

$\Rightarrow y > x$

S42. Ans.(a)

Sol.

I. $2x^2 - 9x + 10 = 0$

$\Rightarrow 2x^2 - 4x - 5x + 10 = 0$

$\Rightarrow (2x - 5)(x - 2) = 0$

$\Rightarrow x = 2.5, 2$

II. $3y^2 - 7y + 4 = 0$

$\Rightarrow 3y^2 - 3y - 4y + 4 = 0$

$\Rightarrow (3y - 4)(y - 1) = 0$

$\Rightarrow y = \frac{4}{3}, 1$

$x > y$

S43. Ans.(b)

Sol.

I. $x^2 + 11x + 24 = 0$

$\Rightarrow x^2 + 8x + 3x + 24 = 0$

$\Rightarrow (x + 8)(x + 3) = 0$

$\Rightarrow x = -8, -3$

II. $4y^2 + 13y + 10 = 0$

$\Rightarrow 4y^2 + 8y + 5y + 10 = 0$

$\Rightarrow (y + 2)(4y + 5) = 0$

$\Rightarrow y = -2, -\frac{5}{4}$

$x < y$

S44. Ans.(d)

Sol.

I. $2x^2 + 13x + 21 = 0$

$\Rightarrow 2x^2 + 7x + 6x + 21 = 0$

$\Rightarrow x(2x + 7) + 3(2x + 7) = 0$

$\Rightarrow (x + 3)(2x + 7) = 0$

$\Rightarrow x = -3, -\frac{7}{2}$

II. $y^2 + 6y + 9 = 0$

$\Rightarrow y^2 + 3y + 3y + 9 = 0$

$\Rightarrow y(y + 3) + 3(y + 3) = 0$

$\Rightarrow (y + 3)(y + 3) = 0$

$\Rightarrow y = -3$

$\therefore y \geq x$

S45. Ans.(e)

Sol.

I. $3x^2 - x - 2 = 0$

$3x^2 - 3x + 2x - 2 = 0$

$\Rightarrow (x - 1)(3x + 2) = 0$

$\Rightarrow x = 1, -\frac{2}{3}$

II. $4y^2 - 2y - 2 = 0$

$\Rightarrow 4y^2 - 4y + 2y - 2 = 0$

$\Rightarrow (y - 1)(4y + 2) = 0$

$\Rightarrow y = 1, -\frac{1}{2}$

No relation

S46. Ans.(b)

Sol.

Let number of female patients in Q=100x

Then number of male patients in hospital Q=200x

Number of female patients in P = $100x \times \frac{130}{100} = 130x$

Number of male patients in R =120+100=220

Number of female patients in hospital R=1000-220=780

Total number of female patients in P and that of in S=$2 \times 223 = 446$

Number of female patients in hospital S=(446-130x)

Number of male patients in S =302

ATQ

200x-302=98

x=2

Hospital	Male patients	Female patients
P	120	260
Q	400	200
R	220	780
S	302	186

Required percent=$\frac{(302-186)}{(400-200)} \times 100 = 58\%$

S47. Ans.(a)

Sol.

Let number of female patients in Q=100x

Then number of male patients in hospital Q=200x

Number of female patients in P = $100x \times \frac{130}{100} = 130x$

Number of male patients in R =120+100=220

Number of female patients in hospital R=1000-220=780

Total number of female patients in P and that of in S=$2 \times 223 = 446$

Number of female patients in hospital S=(446-130x)

Number of male patients in S =302

ATQ

200x-302=98

x=2

Hospital	Male patients	Female patients
P	120	260
Q	400	200
R	220	780
S	302	186

Required difference=$(302 + 186) - (120 + 260) = 108$

S48. Ans.(a)

Sol.

Let number of female patients in Q=100x

Then number of male patients in hospital Q=200x

Number of female patients in P = $100x \times \frac{130}{100} = 130x$

Number of male patients in R =120+100=220

Number of female patients in hospital R=1000-220=780

Total number of female patients in P and that of in S=$2 \times 223 = 446$

Number of female patients in hospital S=(446-130x)

Number of male patients in S =302

ATQ

200x-302=98

x=2

Hospital	Male patients	Female patients
P	120	260
Q	400	200
R	220	780
S	302	186

Required ratio=$\frac{600}{1000} = \frac{3}{5}$

S49. Ans.(d)

Sol.

Let number of female patients in Q=100x

Then number of male patients in hospital Q=200x

Number of female patients in P = $100x \times \frac{130}{100} = 130x$

Number of male patients in R =120+100=220

Number of female patients in hospital R=1000-220=780

Total number of female patients in P and that of in S=$2 \times 223 = 446$

Number of female patients in hospital S=(446-130x)

Number of male patients in S =302

ATQ

200x-302=98

x=2

Hospital	Male patients	Female patients
P	120	260
Q	400	200
R	220	780
S	302	186

Required average=$\frac{100+380+200+282}{4} = 240.5$

S50. Ans.(b)

Sol.

Let number of female patients in Q=100x

Then number of male patients in hospital Q=200x

Number of female patients in P = $100x \times \frac{130}{100} = 130x$

Number of male patients in R =120+100=220

Number of female patients in hospital R=1000-220=780

Total number of female patients in P and that of in S=$2 \times 223 = 446$

Number of female patients in hospital S=(446-130x)

Number of male patients in S =302

ATQ

200x-302=98

x=2

Hospital	Male patients	Female patients
P	120	260
Q	400	200
R	220	780
S	302	186

Total number of male patients in P and female patients in R together =900

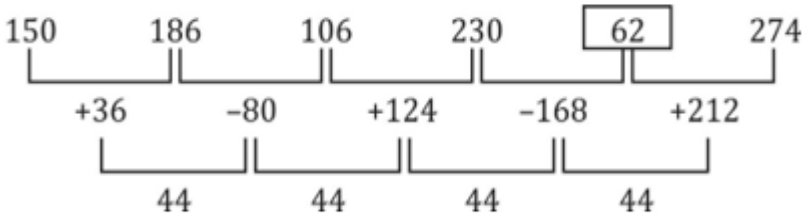
Required percentage =$\frac{900-400}{400} \times 100 = 125\%$

S51. Ans.(c)

Sol.

Missing number = 62

Pattern of series –



S52. Ans.(e)

Sol.

Missing number = 384

Pattern of series –

$6 \times 1 = 6$

$6 \times 2 = 12$

$12 \times 4 = 48$

$? = 48 \times 8 = \mathbf{384}$

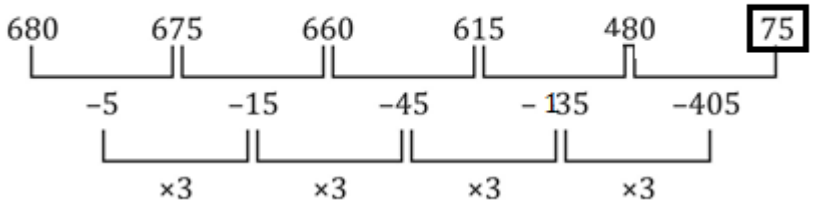
$384 \times 16 = 6144$

S53. Ans.(a)

Sol.

Missing number = 75

Pattern of series –

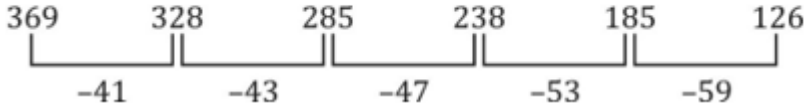


S54. Ans.(a)

Sol.

Missing number = 369

Pattern of series –

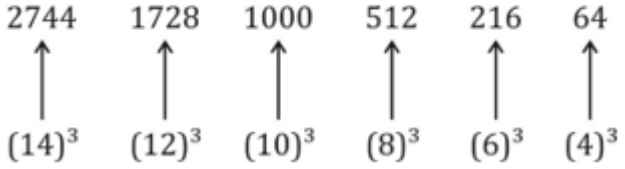


S55. Ans.(d)

Sol.

Missing number = 2744

Pattern of series –



S56. Ans.(c)

Sol.

$\left(\frac{45}{100} \times 600\right) \div \left(\frac{40}{100} \times 500\right) = ? \times \frac{1}{40}$

$270 \div 200 = ? \times \frac{1}{40}$

$? = 270 \times \frac{1}{200} \times 40$

$? = 54$

S57. Ans.(e)

Sol.

$\frac{? - 80}{360} \times 432 \times 25 = 4800$

$(? - 80) \times 30 = 4800$

$? - 80 = 160$

$? = 240$

S58. Ans.(a)

Sol.

$(?)^2 = \frac{210}{100} \times 800 + 1444 + 972$

$(?)^2 = 1680 + 2416$

$(?) = \sqrt{4096}$

$? = 64$

S59. Ans.(a)

Sol.

$? \times 23 = 1080 + 820 - \frac{60}{100} \times 2400$

$? \times 23 = 1900 - 1440$

$? = \frac{460}{23}$

$? = 20$

S60. Ans.(d)

Sol.

$\frac{?}{100} \times 3500 = 1684 - 488 - \frac{31}{100} \times 1600$

$? \times 35 = 1196 - 496$

$? = \frac{700}{35}$

$? = 20$

S61. Ans.(d)

Sol.

Total simple interest received by Ankit = $1080 \times \frac{7.5 \times 2}{100}$ = 162 Rs.

Total compound interest received by Ankit only in second year = $162 \times \frac{10}{9} = 180\ Rs.$

Total compound interest received by Ankit in two years at the rate of 20% p.a.

$= 20 + \frac{20 \times 20}{100} = 24\%$

$P = 180 \times \frac{100}{24} = 750\ Rs$

S62. Ans.(e)

Sol.

Let present age of A be 'x' years.

So, present age of B = 2x years

And let present age of C be 'y' years.

ATQ,

$\frac{x + 2x}{2} = 24$

$3x = 48$

$x = 16$ years

Hence, Present age of B = 2x
= 32 years
Now,
$\frac{32+y}{2} = 38$
y = 44 years.
So, required % = $\frac{(32+16)-44}{(32+16)} \times 100$
= $\frac{4}{48} \times 100$
= $8\frac{1}{3}\%$

S63. Ans.(b)
Sol.
Let time taken by pipe Q alone to fill the tank be $5x$ hours
Then, time taken by pipe Q alone to fill the same tank =4x hours
ATQ
$\frac{8}{4x} + \frac{8}{5x} = \frac{90}{100}$
$\frac{40+32}{20x} = \frac{9}{10}$
$x = 4$
Required difference= 4 hours

S64. Ans.(e)
Sol.
Let radius and height of the cylinder be 7x and 12x cm respectively.
ATQ
$\frac{22}{7} \times 7x \times 7x \times 12x = 6237$
$x = \sqrt[3]{\frac{27}{8}} = \frac{3}{2} = 1.5$
Required difference=$2\pi r^2$=693 cm^2

S65. Ans.(a)
Sol.
Let Investment of P = Rs. 4Y
So, investment of Q = 4Y × $\frac{5}{4}$ = Rs 5Y.
Profit sharing ratio of P, Q & R =

P	:	Q	:	R
4Y× 10		5Y× 6		2X× 8
40Y		30Y		16X

20Y : 15Y : 8X
ATQ
$8X = 2 \times 15Y$
$\Rightarrow X = \frac{15Y}{4}$
Investment of R = 2X = 7.5Y
Required percentage = $\frac{7.5Y-5Y}{7.5Y} \times 100 = 33\frac{1}{3}\%$

S66. Ans.(d)
Sol.

$$\text{Required average} = \frac{2000+2400+1800+2500}{4} = \frac{8700}{4}$$
$$= 2175$$

S67. Ans.(a)
Sol.

$$\text{Required percentage} = \frac{(2000+2250)-(1500+1850)}{(2000+2250)} \times 100$$
$$= \frac{4250-3350}{4250} \times 100 = \frac{900}{4250} \times 100$$
$$= \frac{360}{17} = 21.176 \simeq 21\%$$

S68. Ans.(c)
Sol.

$$\text{Required ratio} = \frac{1750+2000+2250+2400}{1200+1350+800+1250} = \frac{8400}{4600}$$
$$= 42:23$$

S69. Ans.(e)
Sol.

$$\text{Difference in revenue} = (1850 - 1350) \times 120 = 500 \times 120$$
$$= Rs\ 60{,}000$$

S70. Ans.(b)
Sol.

$$\text{Required percentage} = \frac{1800}{2000} \times 100$$
$$= 90\%$$

S71. Ans.(d)
Sol.

Average number of students in Class A & D $= \frac{1}{2}(80 + 60) = 70$

Average number of students in Class C & E $= \frac{1}{2}(40 + 50) = 45$

Required difference = 70 – 45 = 25

S72. Ans.(e)
Sol.

Total number of passed students in class A & F $= 80 \times \frac{60}{100} + 70 \times \frac{40}{100} = 76$

Total number of students in Class E = 50

Required % $= \frac{76}{50} \times 100$

= 152%

S73. Ans.(d)

Sol.

Total number of passed students in class A & B = $\left(80 \times \frac{60}{100} + 70 \times \frac{80}{100}\right) = 48 + 56 = 104$

Total number of failed students in class C & E together = $\left(40 \times \frac{100-50}{100} + 50 \times \frac{100-30}{100}\right)$

$= 20 + 35 = 55$

Required ratio = 104 : 55

S74. Ans.(c)

Sol.

Average number of students in class A, B & D = $\frac{1}{3}(80 + 70 + 60)$

= 70

S75. Ans.(a)

Sol.

Required number = $\frac{1}{2}\left(60 \times \frac{70}{100} + 70 \times \frac{40}{100}\right) = 35$

S76. Ans.(a)

Sol.

Let speed of stream be x km/hr.

So, speed of boat in still water = $x \times \frac{300}{100}$

= 3x km/hr.

ATQ,

$\frac{192}{3x-x} = 6$

$x = 16$

Required time = $\frac{240}{3x+x}$

= $\frac{60}{x}$

= 3 hours 45 minutes

S77. Ans.(e)

Sol.

Length of rectangle = $\sqrt{225} + 5$

= 20m

Breadth of rectangle = $20 \times \frac{4}{5}$

= 16m

Required perimeter = $2 \times (20 + 16)$

= 72m

S78. Ans.(b)

Sol.

Let CP be Rs. 100x

ATQ,

$85x + 1500 = 105x \Rightarrow x = 75.$

Required SP = 7500×1.1 = Rs. 8250.

S79. Ans.(e)

Sol.

Let his speed be x km/hr

$\frac{48}{x} - \frac{48}{x+8} = \frac{60}{60}$

$\Rightarrow x^2 + 8x - 384 = 0.$

$\Rightarrow (x + 24)(x - 16) = 0 \Rightarrow x = 16.$

$a = \frac{48}{16} = 3$ hours.

S80. Ans.(a)

Sol.

Let the first number = 4x

So, second number = $4x \times \frac{125}{100} = 5x$

And third number = $5x \times \frac{120}{100} = 6x$

Let the fourth and fifth number be y and z respectively.

ATQ,

$y + z = 126 \times 5 - (4x + 5x + 6x)$

$y + z = 630 - 15x$ ...(i)

and, $4x + y + z = 300$

$\Rightarrow 630 - 15x + 4x = 300$ (from (i))

$x = 30$

Sum of last two numbers = $630 - 15x$

= 180