Directions (1-5): **Study the information carefully and answer the questions given below.**
Six persons sit in a row and facing to the north direction. All have different ages – 15, 18, 20, 21, 25 and 33. V sits immediate right of the one who is 18 years old. Three persons sit between V and P who sits at one of the extreme ends of the row. M sits 2nd to the right of T who is not 18 years old. V's age is equal to the sum of the ages of T and M. The age of Q is a square value of an odd number and sits to the left of S. P is not younger than S.

Q1. How many persons sit between T and the one who sits 3rd to the right of P?
(a) One
(b) Three
(c) Two
(d) Four
(e) None of these

Q2. What is the position of Q with respect to the one who is 20 years old?
(a) 3rd to the left
(b) Immediate right
(c) 2nd to the right
(d) 3rd to the right
(e) Immediate left

Q3. How many years old is P?
(a) 25
(b) 18
(c) 21
(d) 33
(e) None of these

Q4. Four of the following five are alike in a certain way and so form a group. Find the one who does not belong to that group?
(a) V
(b) The one who is 15 years old
(c) M
(d) The one who is 25 years old
(e) S

Q5. V sits ____ to the right of __?
(a) 2nd, Q
(b) 3rd, M
(c) 4th, S
(d) 2nd, the one who is 25 years old
(e) Both (a) and (d)

Directions (6-8): **Study the information carefully and answer the questions given below.**

Five countries fighter planes do air force exercise. Russia plane is 10km north of China plane. Port O is exactly in the middle of the point of Russia plane and China plane. Germany plane is 8km east of China plane. India plane is 8km east of port O. USA plane is 6km north of India plane.

Q6. What is the shortest distance between USA and Germany plane?
(a) 12km
(b) 11km
(c) 8km
(d) 6km
(e) 14km

Q7. If Germany plane goes 20km in the in the west then, what is the direction of India plane with respect to the Germany plane?
(a) North-east
(b) South-west
(c) North-west
(d) South-east
(e) North

Q8. What is the shortest distance between USA plane and port O?
(a) 12km
(b) 14km
(c) 8km
(d) 6km
(e) None of these

Directions (9-13): **Study the following information carefully and answer the questions given below:**

Six persons were born in different months i.e., March, April, May, June, July and August but not necessarily in same order. No one was born between D and K. K was born just before Q who was born just before S. T was born in the month which has even numbers of days. L was born before D but not born just before.

Q9. Who among the following person was born in June?
(a) K
(b) D
(c) Q
(d) L
(e) None of these

Q10. How many persons were born before Q?
(a) Two
(b) Three
(c) Five
(d) Four
(e) None of these

Q11. In which of the following month L was born?
(a) June
(b) July
(c) August
(d) September
(e) None of these

Q12. Who among the following person was born in August?
(a) T
(b) S
(c) D
(d) K
(e) None of these

Q13. Four of the following five are alike in certain way based from a group, Find the one which does not belong to that group?
(a) L
(b) Q
(c) D
(d) K
(e) S

Q14. If we form a meaningful word by the first, second, fourth and fifth letter of the word 'ENSURE", then which of the following will be the first letter of the word thus formed. If more than one word is formed mark Y as your answer. If no meaningful word is formed, mark X as your answer?
(a) E
(b) X
(c) R
(d) Y
(e) U

Directions (15-19): In each question below some statements are given followed by some conclusions. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements, disregarding commonly known facts.

Q15. Statements:
Some Silent are Mute.
No Good is Silent.
Only a few Mute is Sound.
Conclusions:
I. All Sound being Silent is a possibility.
II. Some Mute is not Good
(a) Only I follows
(b) Both I and II follow
(c) Only II follows
(d) None follows
(e) None of these

Q16. Statements:
Only Purple is Yellow.
Some Olive is Purple.
Only a few Green is Olive.
Conclusions:
I. Some Olive being Yellow is a possibility
II. Some Purple being Green is a possibility
(a) Only I follows
(b) Both I and II follow
(c) Only II follows
(d) Either I or II follows
(e) None follows

Q17. Statements:
Only a few Crowd are People.
No People is Social.
Only a few Crowd is Distance.
Conclusions:
I. Some Distance is not Social
II. All Social is Crowd.
(a) Only II follows
(b) Both I and II follow
(c) Only I follows
(d) Either I or II follows
(e) None follows

Q18. Statements:
Only Worm is Virus.
All Harm is Worm.
few Health is Harm.

Conclusions:
I. Some Harm being Virus is a possibility
II. Some Worm being Health is a possibility
(a) Only I follows
(b) Both I and II follow
(c) Only II follows
(d) Either I or II follows
(e) None follows

Q19. Statements:
Some Day are Night.
No Night is Light.
Only a few Day is Dark.
Conclusions:
I. Some Dark is not Light
II. All Light being Day is a possibility.
(a) Only II follows
(b) Both I and II follow
(c) Only I follows
(d) Either I or II follows
(e) None follows

Directions (20-24): **Study the information carefully and answer the questions given below.**
Eight persons are sitting around a circular table. Some of them are facing towards the center of the table and some of them are facing outside the center of the table.
N sits third to right of T. One person sits between N and Q. Three persons sit between Q and M. R sits second to the right of M. P sits second to the right of S. P does not sit adjacent to N. Immediate neighbours of M faces the opposite direction. Q sits immediate right of P. Immediate neighbours of T faces opposite direction. S sits immediate right of N. S faces T. Q faces the opposite direction as O.

Q20. Who among the following sits third to the right of O?
(a) S
(b) R
(c) Q
(d) P
(e) None of these

Q21. Who among the following faces R?
(a) O
(b) S
(c) N
(d) M
(e) None of these

Q22. How many persons sit between P and M, when counted right of P?

(a) One

(b) Two

(c) Three

(d) Four

(e) None of these

Q23. Which of the following statement is true about N?

(a) N faces the same direction as M

(b) P sits opposite to N

(c) N sits immediate right of O

(d) R sits second to the right of N

(e) None is true

Q24. Who among the following sits immediate right of the one who sits third to the left of Q?

(a) M

(b) T

(c) R

(d) P

(e) None of these

Directions (25-27): **Read the following information carefully and answer the questions given below:**

There are seven members S, T, U, V, W, X and Y in a family among them only 3 females. S is married to V. W is grandson of V who has two children. U is sister-in-law of Y who is unmarried. X is brother-in-law of S who is mother-in-law of U.

Q25. How X is related to Y?

(a) Uncle

(b) Brother

(c) Mother

(d) Sister

(e) Grandson

Q26. Who among the following is the father of W?

(a) U

(b) T

(c) X

(d) Y

(e) None of these

Q27. If Z is the husband of Y, then how T is related to Z?
(a) Father-in-Law
(b) Son
(c) Brother-in-Law
(d) Uncle
(e) None of these

Q28. The position of how many alphabets will remain unchanged if each of the alphabets in the word 'TRANSTROMER' is arranged in alphabetical order from left to right?
(a) None
(b) One
(c) Two
(d) Three
(e) More than Three

Q29. Which of the following symbols should replace the question mark in the given expression to make N ≥ D definitely true?
A= G ≥ B, N ? F ? M = D, B > N
(a) >, >
(b) =, >
(c) ≤, ≤
(d) ≤, <
(e) None of these

Directions (30-34): **Study the following series of five three-digit numbers and answer the questions.**
593 723 437 562 628

Q30. If all the numbers are arranged in ascending order from left to right, then which number will come in the middle of the series?
(a) 628
(b) 593
(c) 723
(d) 562
(e) None of these

Q31. If all the digits are arranged in descending order within the number, then which number will be the lowest number?
(a) 593
(b) 437
(c) 562
(d) 628
(e) None of these

Q32. If in each number first and second digit are added and then subtract third digit from the resultant, after performing the operation how many numbers will be greater than 10?
(a) One
(b) Two
(c) Three
(d) Four
(e) None of these

Q33. If the third digit of the 2ⁿᵈ highest number is divided by the second digit of the highest number, then what will be the resultant?
(a) 4
(b) 3
(c) 2
(d) 5
(e) None of these

Q34. If all the digits are arranged in ascending order within the number, then which number will be the highest number?
(a) 593
(b) 437
(c) 562
(d) 628
(e) None of these

Directions (35-36): In these questions, the relationship between different elements is shown in the statements. The statements are followed by conclusions. Study the conclusions based on the given statements and select the appropriate answer:

Q35.
Statements:
$F > R = T \geq Y > W \leq Q \leq P$
Conclusions:
I. $Q > R$
II. $P > T$
(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.

Q36.
Statements:
$S > F \geq H = U \leq B \leq N = K < L$
Conclusions:
I. $N > H$
II. $K = H$

(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 (37-40): **Study the following information carefully and answer the questions given below:**

There are Ten friends E, F, G, H, I, J, K, L, M and N sitting around a circular table facing towards the center of the table. M sits third to the right of E. G sits fourth to the right of M. There are as many persons sit between M and F as between J and M. I is not an immediate neighbor of F. One person sits between G and H. I sits fourth to the left of H. Neither J nor F is an immediate neighbor of N. Two persons sit between I and L who is not an immediate neighbor of M. K sits second to the left of L.

Q37. Who among the following sits third to the left of F?

(a) K

(b) G

(c) I

(d) E

(e) N

Q38. Who among the following sits exactly between I and H counting from right of I?

(a) J

(b) M

(c) F

(d) K

(e) E

Q39. Who among the following sits immediate right of J?

(a) I

(b) N

(c) L

(d) M

(e) None of these

Q40. Who among the following sits second to the right of G?

(a) N

(b) L

(c) E

(d) K

(e) H
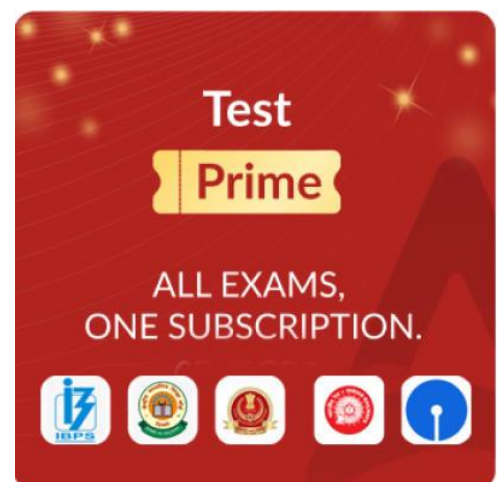
Directions (41-46): Study the table given below and answer the following questions.

Table gives information about total number of smart phone users in 3 different offices (A, B and C) in 1999 & 2000 and also gives information about total number of IOS phone users in these three offices in 1999 & 2000.

Offices	Years			
	1999		2000	
	Total smart phone users	Total IOS phone users	Total smart phone users	Total IOS phone users
A	720	360	900	450
B	360	180	600	180
C	450	270	400	120

Note: Total smart phone users in any office = (Total IOS phone users + Total android phone users) in that office in that year.

Q41. If average number of smart phone users in A in 1999, 2000 & 2001 are 700, then find total number of smart phone users in A in 2001?
(a) 540
(b) 480
(c) 420
(d) 600
(e) 360

Q42. Total number of IOS phone users A & B together in 2000 are what percent more or less than total number of smart phone users B & C together in 2000?
(a) 27%
(b) 42%
(c) 37%
(d) 30%
(e) 45%

Q43. Find total number of android phone users A, B & C together in 1999?
(a) 720
(b) 640
(c) 680
(d) 760
(e) 800

Q44. Average number of smart phone users A, B & C in 1999 are what percent of total smart phone users in B in 2000?
(a) 95%
(b) 85%
(c) 75%
(d) 55%
(e) 65%

Q45. Find ratio of total number of android phone users in B in 2000 to total number of android phone users in C in 2000?
(a) 5:4
(b) 4:5
(c) 2:3
(d) 3:2
(e) None of the above.

Q46. Total number of IOS phone users in A, B & C together in 1999 are how much more or less than total number of IOS phone users in A, B & C together in 2000?
(a) 140
(b) 60
(c) 180
(d) 90
(e) 100

Q47. A vessel contains mixture of milk and water, in which water is 12.5%. When 48 liters mixture is removed from the vessel then the quantity of milk in the remaining mixture is 112 liters, then find quantity of water in the vessel initially?
(a) 22 liters
(b) 32 liters
(c) 30 liters
(d) 18 liters
(e) 16 liters

Q48. A and B invested in the ratio 7 : 8 in a business .They got an annual profit of Rs.34450. If A withdrew her entire amount at the end of 9 months, then find the difference between their share in profit?
(a) Rs 6400
(b) Rs 8180
(c) Rs 7150
(d) Rs 6450
(e) Rs 7560

Q49. A alone takes 60% more time than A & B takes together to finish a piece of work. If B alone can finish the same work in 160 days, then find in how much day's A alone can finish the work?
(a) 45 days
(b) 96 days
(c) 120 days
(d) 84 days
(e) 136 days

Q50. Diameter of a cylindrical jar is increased by 25%. By what percent must the height be decreased so that there is no change in its volume?
(a) 18%
(b) 25%
(c) 32%
(d) 36%
(e) None of these

Q51. A table was sold at Rs 2520 after giving 30% discount on market price. If discount was not given on table, then he would have earned 50% profit. Find cost price of table?
(a) Rs 2400
(b) Rs 2560
(c) Rs 2000
(d) Rs 1600
(e) Rs 1800

Q52. Satish invested Rs. 14,000 partially in scheme A which offer 20% p.a. at C.I. and remaining in scheme B which offer 25% at S.I. Find the amount (in Rs.) invested in scheme B if total interest earns after 2 years is Rs. 6640.
(a) 6000
(b) 7000
(c) 8000
(d) 9000
(e) 10,000

Q53. A train can cross a platform of 100 m length completely in 12 seconds while covers a platform of double of its length in 21 seconds. Find the speed of the train? (in m/s)
(a) 12
(b) 15
(c) 18
(d) 20
(e) 24

Q54. A boat takes $\frac{1}{120}$ D hours more to cover a certain distance in upstream than in downstream. If speed of boat in downstream in 30 km/h. Find speed of boat in upstream?
D = Distance in upstream = Distance in downstream
(a) 24 km/h
(b) 27 km/h
(c) 20 km/h
(d) 25 km/h
(e) 18 km/h

Q55. Ratio of area of rectangle to area of square is 1 : 4. Ratio of perimeter of rectangle to perimeter of square is 1 : 2. If length is 5 cm, then find area of square ?
(a) None of these
(b) 64 cm²
(c) 125 cm²
(d) 25 cm²
(e) 100 cm²

Directions (56-60):- Read the data carefully and answer the question.
On a store there are three items available i.e. (book, bat and calculator). Bat and calculator are available in three sizes i.e., small, medium and large. Shopkeeper sold a book for Rs. 540 after giving 10% discount and earn 20% profit. Cost price of a small size bat or a large calculator is equal to selling price of book and small size of each item is 25% cheaper than its medium size and medium size is 8/9 times of large size of its respective item.

Q56. What is the ratio between cost price of small size calculator to cost price of small size bat?
(a) 3:4
(b) 2:3
(c) 1:3
(d) 1:2
(e) 3:5

Q57. Average cost price of all size of bat is how much percent more than marked price of a book?
(a) 10% less
(b) 25% less
(c) 25% more
(d) 15% more
(e) None of these.

Q58. If a large size calculator is sold at 10% profit, find difference between profit earned on selling such two calculators and 2 books?
(a) Rs. 36
(b) Rs. 108
(c) Rs. 18
(d) Rs. 54
(e) Rs. 72

Q59. Cost price of a book is what percent of 5/4ᵗʰ of cost price of a medium size bat?
(a) 25%
(b) 50%
(c) 20%
(d) 15%
(e) 60%

Q60. If all large items are sold at 25% profit, find average profit earned on selling three large size calculator and 2 large bats?

(a) 162

(b) 172

(c) 180

(d) 200

(e) 210

Directions (61-65): Solve the given quadratic equations and mark the correct option based on your answer.

Q61.

I. $x^2 + 14x + 33 = 0$

II. $y^2 - 7y + 10 = 0$

(a) if x > y

(b) if x ≥ y

(c) if x < y

(d) if x ≤ y

(e) if x = y or no relation can be established between x and y.

Q62.

I. $2x^2 - 16x + 24 = 0$

II. $y^2 - 17y + 72 = 0$

(a) if x > y

(b) if x ≥ y

(c) if x < y

(d) if x ≤ y

(e) if x = y or no relation can be established between x and y.

Q63.

I. $x^2 - 18x + 56 = 0$

II. $y^2 - 11y + 30 = 0$

(a) if x > y

(b) if x ≥ y

(c) if x < y

(d) if x ≤ y

(e) if x = y or no relation can be established between x and y.

Q64.

I. $x^2 = 529$

II. $y = \sqrt{529}$

(a) if x > y

(b) if x ≥ y

(c) if x < y

(d) if x ≤ y

(e) if x = y or no relation can be established between x and y.

Q65.

I. $x^2 - 21x + 38 = 0$

II. $y^2 - 38y + 361 = 0$

(a) if x > y

(b) if x ≥ y

(c) if x < y

(d) if x ≤ y

(e)   if x = y or no relation can be established between x and y.

Directions (66-70): **What approximate value will come in place of question (?) in the following questions?**

Q66. $?^2 = 49.01 + 40.099\% \text{ of } 199.98 - 28.99$

(a) 15

(b) 12

(c) 11

(d) 10

(e) 13

Q67. $24.99\% \text{ of } 119.96 + 20.10\% \text{ of } 499.99 = ?$

(a) 130

(b) 150

(c) 90

(d) 160

(e) 200

Q68. $124.95 \div 25.01 + 49.90 - 19.99\% \text{ of } 120.20 = ?$

(a) 21

(b) 26

(c) 31

(d) 39

(e) 41

Q69. $\sqrt{960.93} \times 11.9 - 172.1 = (?)^2 \div 2$

(a) 15
(b) 20
(c) 18
(d) 12
(e) 17

Q70. $231.001 + 320.001 \div 9.999 = ? - 11.909$
(a) 270
(b) 316
(c) 253
(d) 275
(e) 305

Directions (71-75): **What will come in the place of the question mark (?) in the following number series?**

Q71. 983, 1080, 886, 1177, 789, ?
(a) 1280
(b) 1278
(c) 1276
(d) 1274
(e) 1272

Q72. 0, 6, 24, 60, ?, 210
(a) 80
(b) 90
(c) 120
(d) 150
(e) 180

Q73. 16, 16, 8, 24, 6, ?
(a) 30
(b) 24
(c) 18
(d) 27
(e) 36

Q74. 786, 1810, 2066, 2130, 2146, ?
(a) 2152
(b) 2150
(c) 2156
(d) 2160
(e) 2164

Q75. 9,   5,   6,   14,   ?,   488
(a) 30
(b) 45
(c) 52
(d) 56
(e) 60

Directions (76-80):- Line-graph shows number of people (in hundred) using two different types of bike services over the five different years. Study the given line graph carefully and answer the questions given below:
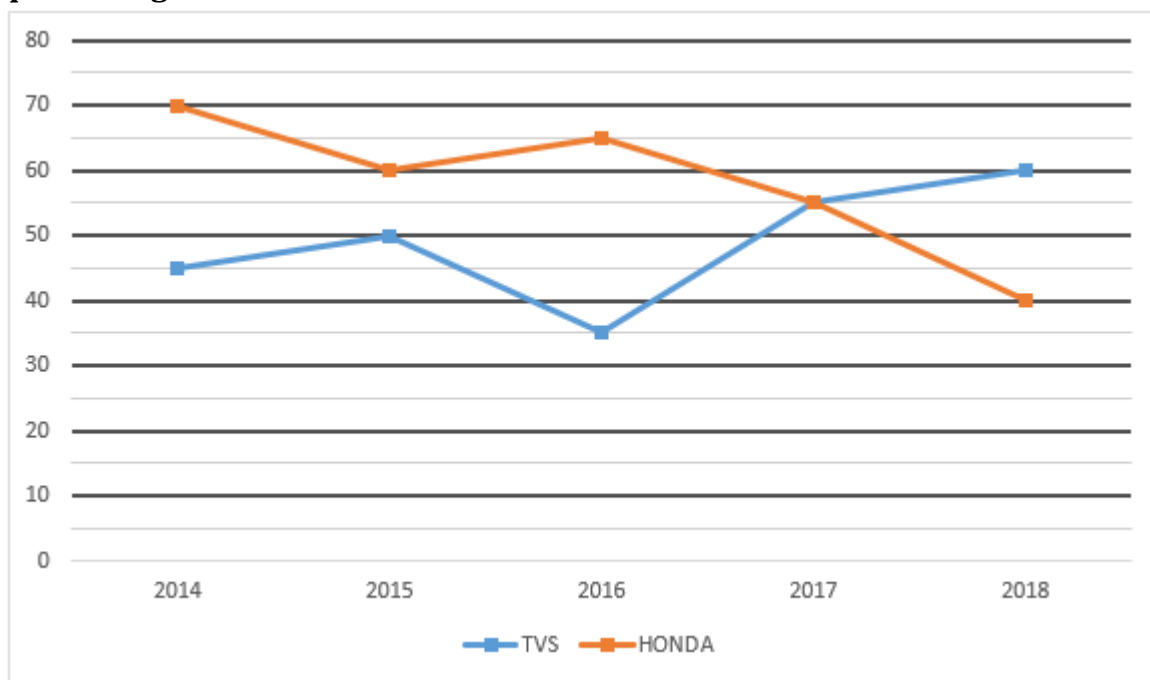
Q76. What is the average number of people using the HONDA bike service in all over the years?
(a) 6400
(b) 4900
(c) 5800
(d) 6125
(e) 6800

Q77. Find the ratio of number of people using the HONDA service in year 2015 and 2016 together to number of people using the TVS service in year 2017 and 2014 together.
(a) 4 : 5
(b) 3 : 4
(c) 5 : 4
(d) 6 : 5
(e) 4 : 3

Q78. What is the difference between number of people using TVS service all over the years (excluding 2016) and number of people using HONDA service all over the years (excluding 2015)?
(a) 2000
(b) 2500
(c) 3500
(d) 1500
(e) none of these

Q79. Total bike service in year 2018 is what percentage more/less than the total bike service in year 2014 and 2015 together?
(a) $45\frac{4}{9}\%$
(b) $55\frac{5}{9}\%$
(c) $54\frac{4}{9}\%$
(d) $65\frac{5}{9}\%$
(e) $64\frac{4}{9}\%$

Q80. If per service cost of TVS is 20% more than HONDA, then total service cost of TVS in year 2015 is what percent of total service cost of HONDA in same year?
(a) 125%
(b) 150%
(c) 200%
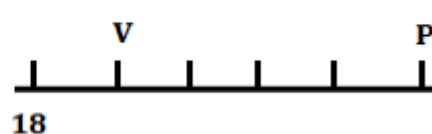(d) 100%
(e) 50%

Solutions

S1. Ans.(a)

Sol. From the given statements, V sits immediate right of the one who is 18 years old. Three persons sit between V and P who sits at one of the extreme ends of the row. Here we get 2 possible cases – Case 1 and Case 2.
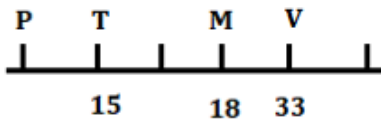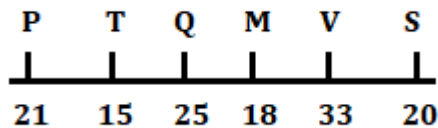
M sits 2nd to the right of T who is not 18 years old. V's age is equal to the sum of the ages of T and M. According to the given condition only 1 option left now; V's age 33 years and T's age 15 years. Now case 2 is ruled out.
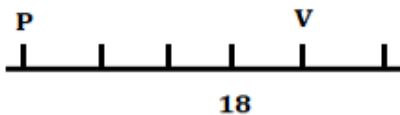
The age of Q is a square value of odd number and sits to the left of S. P is not younger than S. So, the final arrangement is-

**S2. Ans.(a)**

Sol. From the given statements, V sits immediate right of the one who is 18 years old. Three persons sit between V and P who sits at one of the extreme ends of the row. Here we get 2 possible cases – Case 1 and Case 2.

M sits 2nd to the right of T who is not 18 years old. V's age is equal to the sum of the ages of T and M. According to the given condition only 1 option left now; V's age 33 years and T's age 15 years. Now case 2 is ruled out.

The age of Q is a square value of odd number and sits to the left of S. P is not younger than S. So, the final arrangement is-

P	T	Q	M	V	S
21	15	25	18	33	20

S3. Ans.(c)
Sol. From the given statements, V sits immediate right of the one who is 18 years old. Three persons sit between V and P who sits at one of the extreme ends of the row. Here we get 2 possible cases – Case 1 and Case 2.

Case 1

P   V
18

Case 2

V   P
18

M sits 2nd to the right of T who is not 18 years old. V's age is equal to the sum of the ages of T and M. According to the given condition only 1 option left now; V's age 33 years and T's age 15 years. Now case 2 is ruled out.
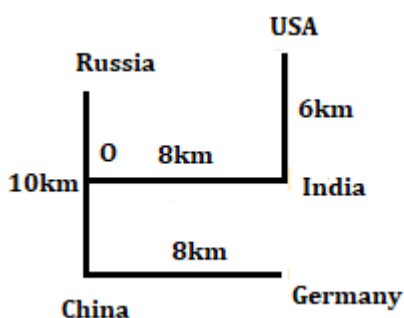
Case 1

P	T	M	V
	15	18	33

The age of Q is a square value of odd number and sits to the left of S. P is not younger than S. So, the final arrangement is-

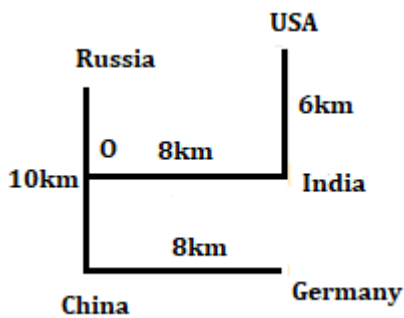| P	T	Q	M	V	S
21	15	25	18	33	20

S4. Ans.(e)
Sol. From the given statements, V sits immediate right of the one who is 18 years old. Three persons sit between V and P who sits at one of the extreme ends of the row. Here we get 2 possible cases – Case 1 and Case 2.

Case 1

P   V
18

Case 2

V   P
18

M sits 2nd to the right of T who is not 18 years old. V's age is equal to the sum of the ages of T and M. According to the given condition only 1 option left now; V's age 33 years and T's age 15 years. Now case 2 is ruled out.

Case 1

P	T		M	V	
15		18	33		

The age of Q is a square value of odd number and sits to the left of S. P is not younger than S. So, the final arrangement is-

P	T	Q	M	V	S
21	15	25	18	33	20

S5. Ans.(e)
Sol. From the given statements, V sits immediate right of the one who is 18 years old. Three persons sit between V and P who sits at one of the extreme ends of the row. Here we get 2 possible cases – Case 1 and Case 2.

Case 1   **Case 2**
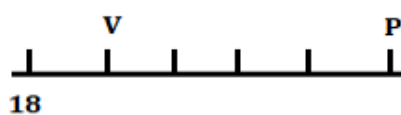
M sits 2nd to the right of T who is not 18 years old. V's age is equal to the sum of the ages of T and M. According to the given condition only 1 option left now; V's age 33 years and T's age 15 years. Now case 2 is ruled out.

Case 1

The age of Q is a square value of odd number and sits to the left of S. P is not younger than S. So, the final arrangement is-

P	T	Q	M	V	S
21	15	25	18	33	20
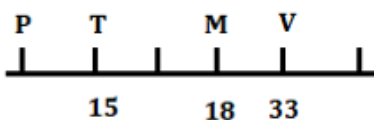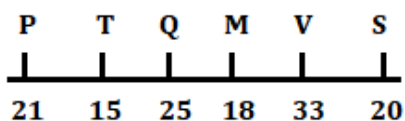
S6. Ans.(b)
Sol.

S7. Ans.(a)
Sol.
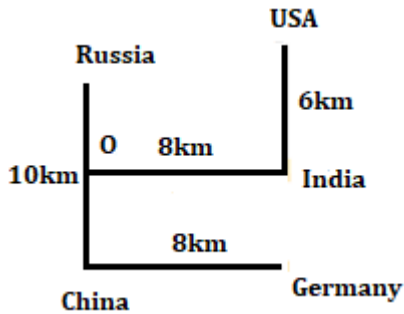
S8. Ans.(e)
Sol.

S9. Ans.(a)
Sol. From the given statements, T was born in the month which has even numbers of days. K was born just before Q who was born just before S. Here we get 3 possible cases- Case 1, Case 2 and Case 3.

Months	Case 1	Case 2	Case 3
March		K	
April	T	Q	T
May	K	S	
June	Q	T	K
July	S		Q
August			S

L was born before D but not born just before. Here Case 2 is ruled out now.

Months	Case 1	Case 3
March	L	L
April	T	T
May	K	D
June	Q	K
July	S	Q
August	D	S

No one was born between D and K. Here Case 1 is ruled out now. So, the final arrangement is-

Months	Persons
March	L
April	T
May	D
June	K
July	Q
August	S

S10. Ans.(d)
Sol. From the given statements, T was born in the month which has even numbers of days. K was born just before Q who was born just before S. Here we get 3 possible cases- Case 1, Case 2 and Case 3.

Months	Case 1	Case 2	Case 3
March		K	
April	T	Q	T
May	K	S	
June	Q	T	K
July	S		Q
August			S

L was born before D but not born just before. Here Case 2 is ruled out now.

Months	Case 1	Case 3
March	L	L
April	T	T
May	K	D
June	Q	K
July	S	Q
August	D	S

No one was born between D and K. Here Case 1 is ruled out now. So, the final arrangement is-

Months	Persons
March	L
April	T
May	D
June	K
July	Q
August	S

S11. Ans.(e)
Sol. From the given statements, T was born in the month which has even numbers of days. K was born just before Q who was born just before S. Here we get 3 possible cases- Case 1, Case 2 and Case 3.

Months	Case 1	Case 2	Case 3
March		K	
April	T	Q	T
May	K	S	
June	Q	T	K
July	S		Q
August			S

L was born before D but not born just before. Here Case 2 is ruled out now.

Months	Case 1	Case 3
March	L	L
April	T	T
May	K	D
June	Q	K
July	S	Q
August	D	S

No one was born between D and K. Here Case 1 is ruled out now. So, the final arrangement is-

Months	Persons
March	L
April	T
May	D
June	K
July	Q
August	S

S12. Ans.(b)
Sol. From the given statements, T was born in the month which has even numbers of days. K was born just before Q who was born just before S. Here we get 3 possible cases- Case 1, Case 2 and Case 3.

Months	Case 1	Case 2	Case 3
March		K	
April	T	Q	T
May	K	S	
June	Q	T	K
July	S		Q
August			S

L was born before D but not born just before. Here Case 2 is ruled out now.

Months	Case 1	Case 3
March	L	L
April	T	T
May	K	D
June	Q	K
July	S	Q
August	D	S

No one was born between D and K. Here Case 1 is ruled out now. So, the final arrangement is-

Months	Persons
March	L
April	T
May	D
June	K
July	Q
August	S

S13. Ans.(d)
Sol. From the given statements, T was born in the month which has even numbers of days. K was born just before Q who was born just before S. Here we get 3 possible cases- Case 1, Case 2 and Case 3.

Months	Case 1	Case 2	Case 3
March		K	
April	T	Q	T
May	K	S	
June	Q	T	K
July	S		Q
August			S

L was born before D but not born just before. Here Case 2 is ruled out now.

Months	Case 1	Case 3
March	L	L
April	T	T
May	K	D
June	Q	K
July	S	Q
August	D	S

No one was born between D and K. Here Case 1 is ruled out now. So, the final arrangement is-

Months	Persons
March	L
April	T
May	D
June	K
July	Q
August	S

S14. Ans.(b)

S15. Ans.(b)
Sol.
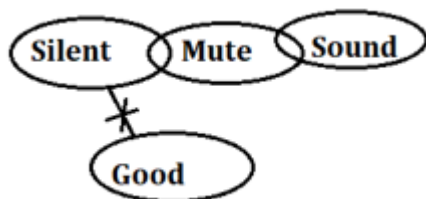
S16. Ans.(c)
Sol.

S17. Ans.(e)
Sol.
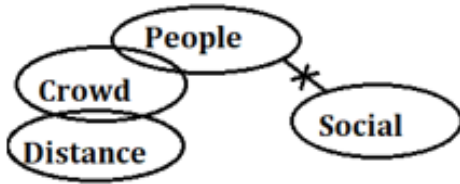
S18. Ans.(e)
Sol.
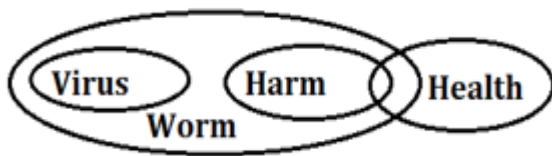
S19. Ans.(a)
Sol.
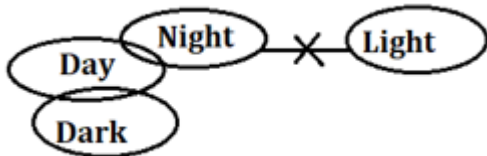
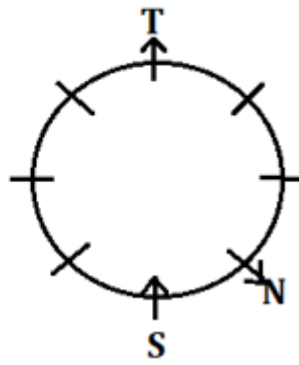## S20. Ans.(b)
Sol. N sits third to the right of T. There are two possibilities. S sits immediate right of N. S faces T.
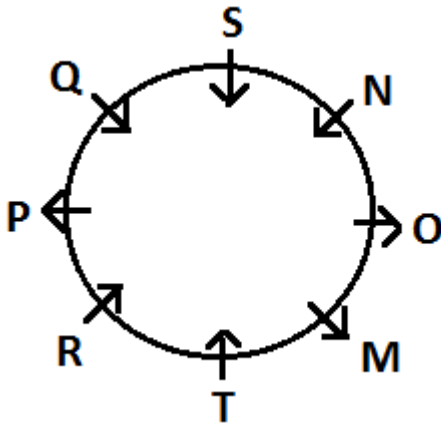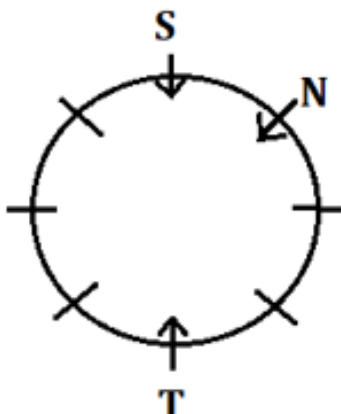

P sits second to the right of S. P does not sit adjacent to N. From this condition case-2 will be eliminated. One person sits between N and Q. Q sits immediate right of P. Three persons sit between Q and M. R sits second to the right of M. Immediate neighbours of M faces the opposite direction. Immediate neighbours of T faces the opposite direction. Q faces the opposite direction as O. The final arrangement is-
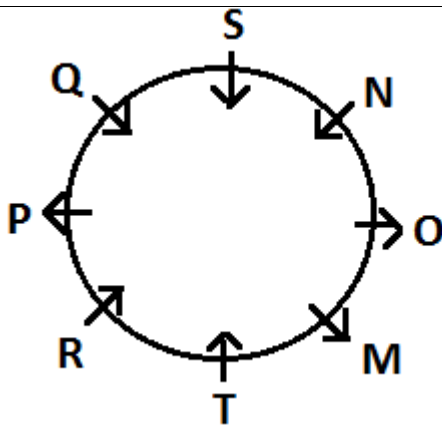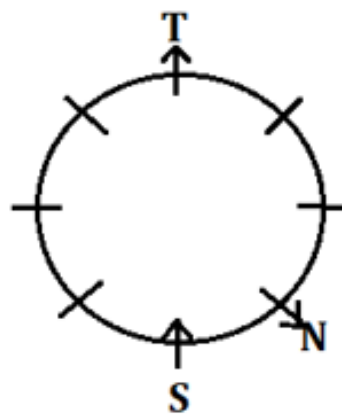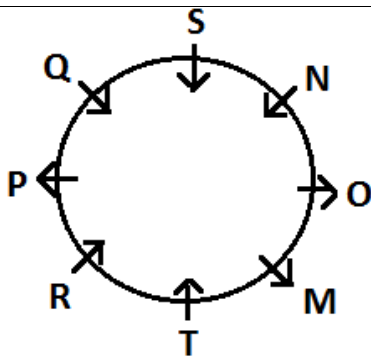
S21. Ans.(c)
Sol. N sits third to the right of T. There are two possibilities. S sits immediate right of N. S faces T.

Case-1   **Case-2**

P sits second to the right of S. P does not sit adjacent to N. From this condition case-2 will be eliminated. One person sits between N and Q. Q sits immediate right of P. Three persons sit between Q and M. R sits second to the right of M. Immediate neighbours of M faces the opposite direction. Immediate neighbours of T faces the opposite direction. Q faces the opposite direction as O. The final arrangement is-
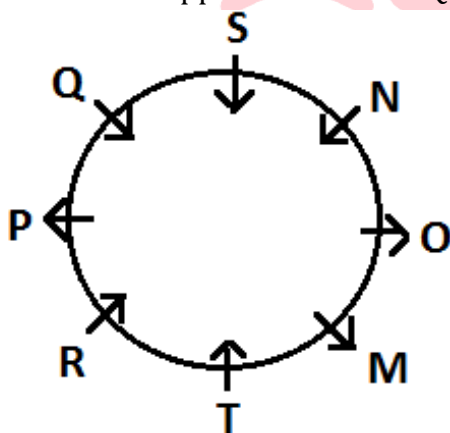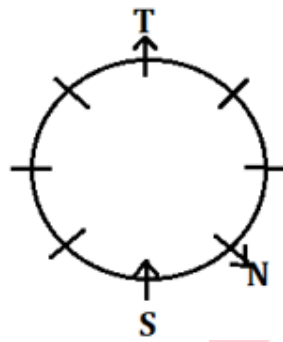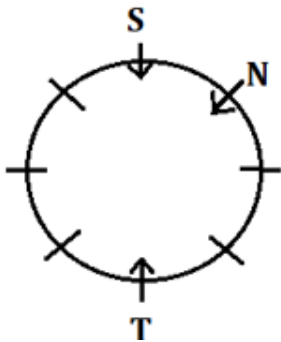

S22. Ans.(d)
Sol. N sits third to the right of T. There are two possibilities. S sits immediate right of N. S faces T.

Case-1   **Case-2**

P sits second to the right of S. P does not sit adjacent to N. From this condition case-2 will be eliminated. One person sits between N and Q. Q sits immediate right of P. Three persons sit between Q and M. R sits second to the right of M. Immediate neighbours of M faces the opposite direction. Immediate neighbours of T faces the opposite direction. Q faces the opposite direction as O. The final arrangement is-

S23. Ans.(e)
Sol. N sits third to the right of T. There are two possibilities. S sits immediate right of N. S faces T.

Case-1   **Case-2**

P sits second to the right of S. P does not sit adjacent to N. From this condition case-2 will be eliminated. One person sits between N and Q. Q sits immediate right of P. Three persons sit between Q and M. R sits second to the right of M. Immediate neighbours of M faces the opposite direction. Immediate neighbours of T faces the opposite direction. Q faces the opposite direction as O. The final arrangement is-

S24. Ans.(a)

Sol. N sits third to the right of T. There are two possibilities. S sits immediate right of N. S faces T.

Case-1   Case-2

P sits second to the right of S. P does not sit adjacent to N. From this condition case-2 will be eliminated. One person sits between N and Q. Q sits immediate right of P. Three persons sit between Q and M. R sits second to the right of M. Immediate neighbours of M faces the opposite direction. Immediate neighbours of T faces the opposite direction. Q faces the opposite direction as O. The final arrangement is-
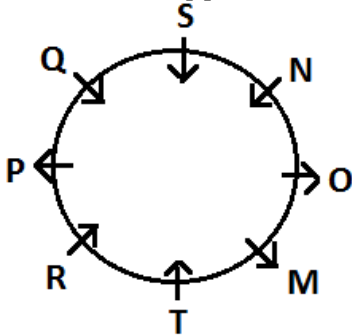
S25. Ans.(a)
Sol.
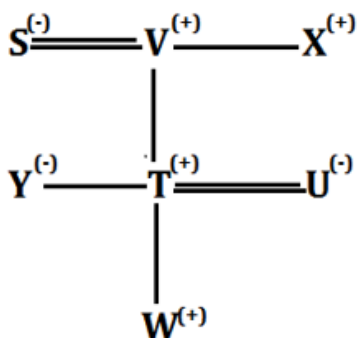
S26. Ans.(b)
Sol.
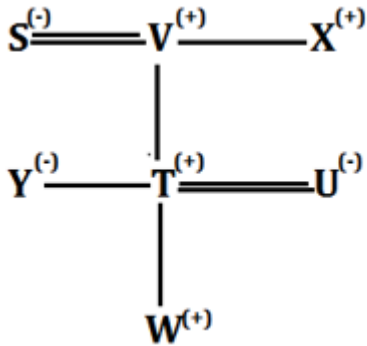
S27. Ans.(c)
Sol.
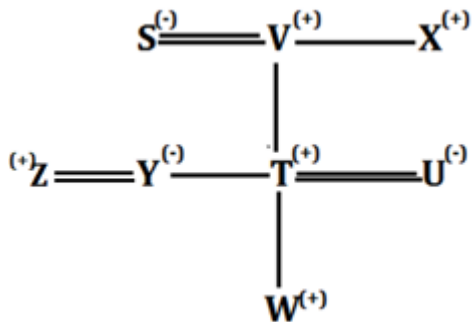
S28. Ans.(c)
Sol. Given Word-TRANSTROMER
Arranged in Alphabetical order-AEMNORRRSTT

S29. Ans(e)

S30. Ans.(b)
Sol. 437 562 593 628 723

S31. Ans.(c)
Sol. 953 732 743 652 862

S32. Ans.(a)
Sol. 11 6 0 9 0

S33. Ans.(a)
Sol. 8/2= 4

S34. Ans.(a)
Sol. 359 237 347 256 268

S35. Ans.(d)
Sol. I. Q > R (False)   **II.** P > T (False)

S36. Ans.(c)
Sol. I. N > H (False) **II.** K = H (False)

S37. Ans.(c)
Sol. From the given statements, M sits third to the right of E. G sits fourth to the right of M. One person sits between G and H.I sits fourth to the left of H. Two persons sit between I and L who is not an immediate neighbor of M. K sits second to the left of L. Here we get two possibilities-
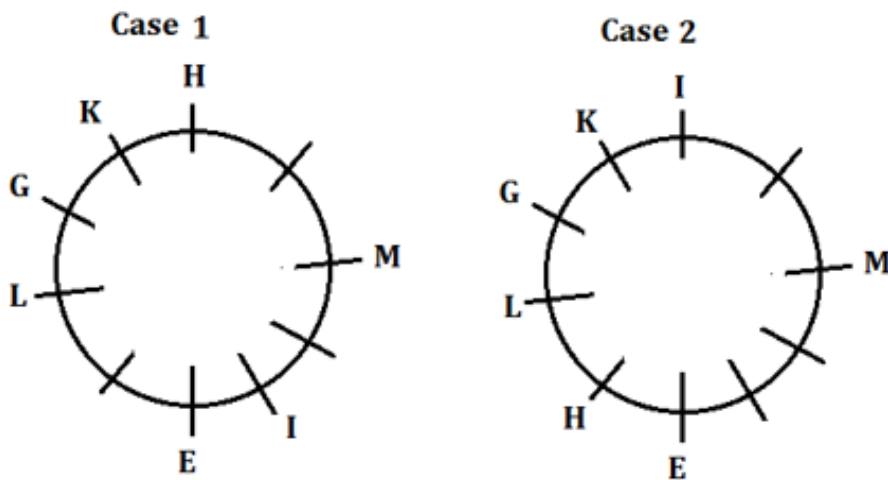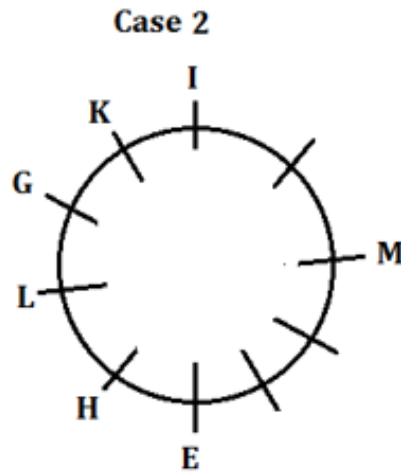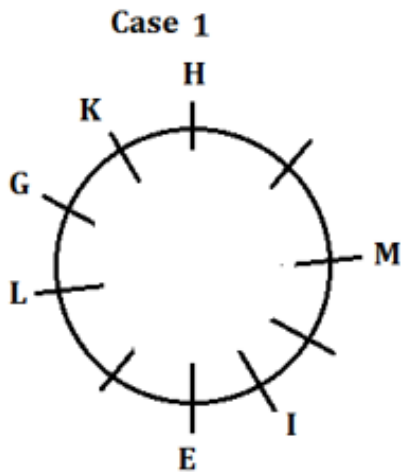

There are as many persons sit between M and F as between J and M. Neither J nor F is an immediate neighbor of N. By this condition case-2 will be cancelled, Also I is not an immediate neighbor of F. So, the final arrangement-
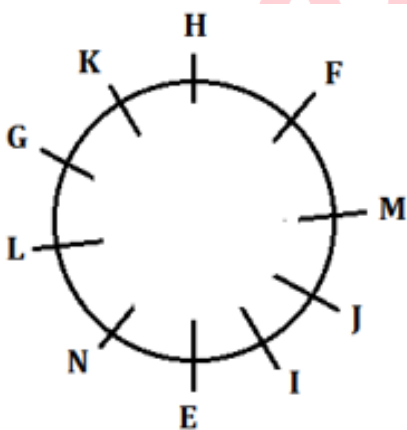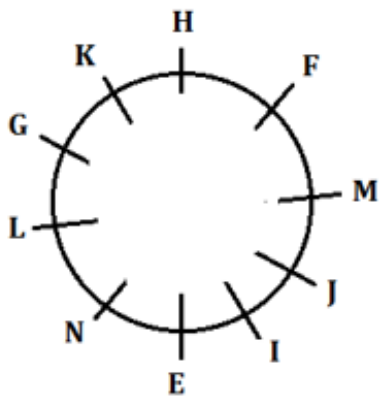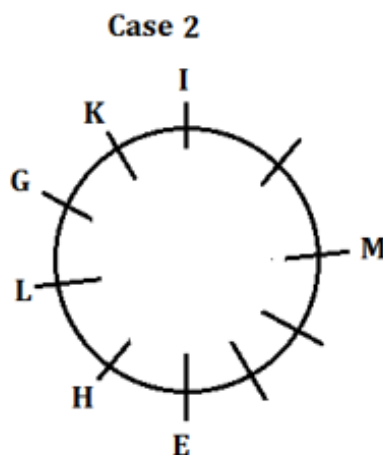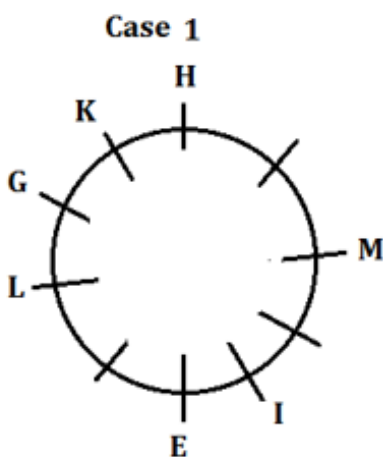

S38. Ans.(b)
Sol. From the given statements, M sits third to the right of E. G sits fourth to the right of M. One person sits between G and H.I sits fourth to the left of H. Two persons sit between I and L who is not an immediate neighbor of M. K sits second to the left of L. Here we get two possibilities-

Case 1

Case 2

There are as many persons sit between M and F as between J and M. Neither J nor F is an immediate neighbor of N. By this condition case-2 will be cancelled, Also I is not an immediate neighbor of F. So, the final arrangement-
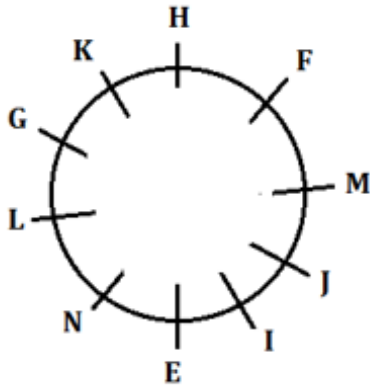

S39. Ans.(d)

Sol. From the given statements, M sits third to the right of E. G sits fourth to the right of M. One person sits between G and H.I sits fourth to the left of H. Two persons sit between I and L who is not an immediate neighbor of M. K sits second to the left of L. Here we get two possibilities-
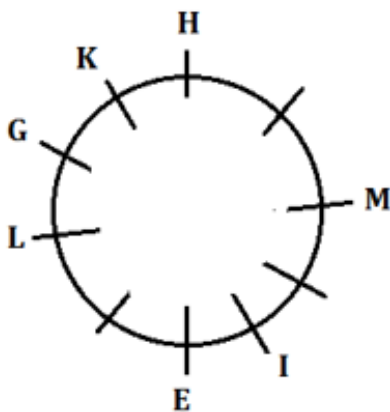
Case 1

Case 2

There are as many persons sit between M and F as between J and M. Neither J nor F is an immediate neighbor of N. By this condition case-2 will be cancelled, Also I is not an immediate neighbor of F. So, the final arrangement-
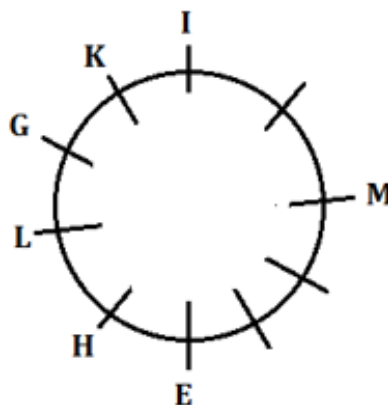

S40. Ans.(a)
Sol. From the given statements, M sits third to the right of E. G sits fourth to the right of M. One person sits between G and H.I sits fourth to the left of H. Two persons sit between I and L who is not an immediate neighbor of M. K sits second to the left of L. Here we get two possibilities-
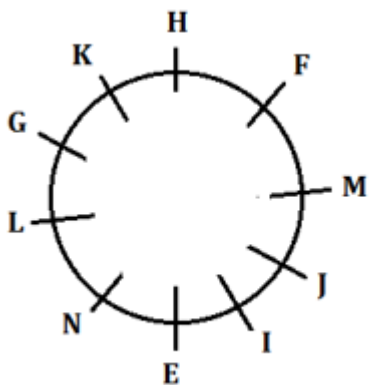
Case 1

Case 2

There are as many persons sit between M and F as between J and M. Neither J nor F is an immediate neighbor of N. By this condition case-2 will be cancelled, Also I is not an immediate neighbor of F. So, the final arrangement-

S41. Ans.(b)
Sol.

Total number of smart phone users in A in 2001= $(700 \times 3) - (720 + 900) = 480$

S42. Ans.(c)
Sol.

Total number of IOS phone users A & B together in 2000 = $450 + 180 = 630$
Total number of smart phone users B & C together in 2000= $600 + 400 = 1000$
Required percentage = $\frac{1000-630}{1000} \times 100 = 37\%$

S43. Ans.(a)
Sol.

Total number of android phone users A, B & C together in 1999= $(720 - 360) + (360 - 180) + (450 - 270)$
= $360 + 180 + 180$
= 720

S44. Ans.(b)
Sol.

Average number of smart phone users A, B & C in 1999 = $\frac{1}{3} \times (720 + 360 + 450)$
= 510
Required percentage = $\frac{510}{600} \times 100 = 85\%$

S45. Ans.(d)
Sol.

Required ratio = $\frac{600-180}{400-120}$
= $\frac{420}{280}$
= $3:2$

S46. Ans.(b)
Sol.

Total number of IOS phone users in A, B & C together in 1999 = $(360 + 180 + 270)$
= 810
Total number of IOS phone users in A, B & C together in 2000= $(450 + 180 + 120)$
= 750
Required difference = $810 - 750= 60$

S47. Ans.(a)
Sol.

ATQ,

Let total quantity of mixture = 8x liters

So, quantity of milk = $8x \times \frac{87.5}{100} = 7x$ liters

So, quantity of water = $8x \times \frac{12.5}{100} = x$ liters

ATQ,

$\left(7x - 48 \times \frac{7x}{8x}\right) = 112$

$x = 22$

S48. Ans.(c)
Sol.

Let A investment be 7x and B investment be 8x

Ratio of their profit = $\frac{7x \times 9}{8x \times 12} = 21 : 32$

Difference between their shares in profit = $\frac{32-21}{32+21} \times 34450$

$= \frac{11}{53} \times 34450 =$ Rs. 7150

S49. Ans.(b)
Sol.

Let time taken by A and B together to complete the work be 10x days.

So, A will take 16x days to complete the work alone.

Let total work = 80x units

So, efficiency of A is 5 and efficiency of A and B together is 8.

Time taken by B alone to finish the work = $\frac{80x}{8-5}$

$160 = \frac{80x}{3}$

$x = 6$

Required days = $16x = 96 \, days$

S50. Ans.(d)
Sol.

Required percentage = $100 - \frac{100}{125} \times \frac{100}{125} \times 100 = 36\%$

S51. Ans.(a)
Sol.

Market price of table = $\frac{2520}{70} \times 100 = Rs \, 3600$

Cost price of table = $\frac{3600}{150} \times 100 =$ Rs. 2400

S52. Ans.(c)
Sol.

Let, amount invested in scheme A = x

Amount invested in scheme B = 14,000 – x

ATQ,

$$x \times \left[\frac{144}{100} - 1\right] + \frac{(14000 - x) \times 25 \times 2}{100} = 6640$$

$$x \times \frac{44}{100} + 7,000 - \frac{x}{2} = 6640$$

$$360 = \frac{6x}{100}$$

$$\Rightarrow x = 6,000$$

Amount invested in scheme B = 8000

S53. Ans.(d)
Sol.

Let the length of train = x

and, the speed of train = s

ATQ,

$$\frac{x+100}{12} = s = \frac{3x}{21}$$

$$\frac{x+100}{12} = \frac{x}{7}$$

$$7x + 700 = 12x$$

$$5x = 700$$

$$x = 140$$

Speed of train = $\frac{3 \times 140}{21}$ = 20 m/s

S54. Ans.(a)
Sol.

Let speed of boat in upstream = x km/h

ATQ

$$\frac{D}{x} - \frac{D}{30} = \frac{D}{120}$$

$$\Rightarrow \frac{1}{x} - \frac{1}{30} = \frac{1}{120}$$

$$\frac{1}{x} = \frac{1}{120} + \frac{1}{30}$$

$$\Rightarrow x = 24 \text{ km/h}$$

S55. Ans.(e)
Sol.

Let length & breadth of rectangle be l cm and b cm respectively.
& Side of square be a cm.

ATQ,

$$\frac{l \times b}{a^2} = \frac{1}{4} \quad ...(i)$$

$$\frac{2(l+b)}{4a} = \frac{1}{2}$$

l + b = a ...(ii)
From (i) and (ii)
4lb = (1 + b)²
(1 – b)² = 0
l = b
∴ area of square = a²
= (2 × 5)² = 100 cm²

S56. Ans.(b)
Sol.
For book

Cost price of book = $\frac{540}{120} \times 100 = Rs.\,450$

Marked price of book = $\frac{540}{90} \times 100 = Rs.\,600$

For calculator

Cost price of large size = Rs. 540

Cost price of medium size = $\frac{540}{9} \times 8 = Rs.\,480$

Cost price of small size = $\frac{480}{100} \times 75 = Rs.\,360$

For Bat

Cost price of small size = Rs. 540

Cost price of medium size = $\frac{540}{75} \times 100 = Rs.\,720$

Cost price of large size = $\frac{720}{8} \times 9 = Rs.\,810$

required ratio = $\frac{360}{540}$

= 2 : 3

S57. Ans.(d)
Sol.
For book

Cost price of book = $\frac{540}{120} \times 100 = Rs.\,450$

Marked price of book = $\frac{540}{90} \times 100 = Rs.\,600$

For calculator

Cost price of large size = Rs. 540

Cost price of medium size = $\frac{540}{9} \times 8 = Rs.\,480$

Cost price of small size = $\frac{480}{100} \times 75 = Rs.\,360$

For Bat

Cost price of small size = Rs. 540

Cost price of medium size = $\frac{540}{75} \times 100 = Rs.\,720$

Cost price of large size = $\frac{720}{8} \times 9 = Rs.\,810$

average cost price of all size of bat = $\frac{540+720+810}{3} = Rs.\,690$

Required percentage = $\frac{690-600}{600} \times 100 = 15\%$ more

S58. Ans.(e)
Sol.

For book

Cost price of book = $\frac{540}{120} \times 100 = Rs.\,450$

Marked price of book = $\frac{540}{90} \times 100 = Rs.\,600$

For calculator

Cost price of large size = Rs. 540

Cost price of medium size = $\frac{540}{9} \times 8 = Rs.\,480$

Cost price of small size = $\frac{480}{100} \times 75 = Rs.\,360$

For Bat

Cost price of small size = Rs. 540

Cost price of medium size = $\frac{540}{75} \times 100 = Rs.\,720$

Cost price of large size = $\frac{720}{8} \times 9 = Rs.\,810$

profit earned on a large size calculator = $540 \times \frac{10}{100} = Rs.\,54$

Profit earned on a book = $540 - 450 = Rs.\,90$

Required difference = $2 \times 90 - 2 \times 54 = Rs.\,72$

S59. Ans.(b)
Sol.

For book

Cost price of book = $\frac{540}{120} \times 100 = Rs.\,450$

Marked price of book = $\frac{540}{90} \times 100 = Rs.\,600$

For calculator

Cost price of large size = Rs. 540

Cost price of medium size = $\frac{540}{9} \times 8 = Rs.\,480$

Cost price of small size = $\frac{480}{100} \times 75 = Rs.\,360$

For Bat

Cost price of small size = Rs. 540

Cost price of medium size = $\frac{540}{75} \times 100 = Rs.\,720$

Cost price of large size = $\frac{720}{8} \times 9 = Rs.\,810$

Required percentage = $\frac{450}{720 \times \frac{5}{4}} \times 100$

$= 50\%$

S60. Ans.(a)
Sol.

For book

Cost price of book = $\frac{540}{120} \times 100 = Rs.\,450$

Marked price of book = $\frac{540}{90} \times 100 = Rs.\,600$

For calculator

Cost price of large size = Rs. 540

Cost price of medium size = $\frac{540}{9} \times 8 = Rs.480$

Cost price of small size = $\frac{480}{100} \times 75 = Rs.360$

For Bat

Cost price of small size = Rs. 540

Cost price of medium size = $\frac{540}{75} \times 100 = Rs.720$

Cost price of large size = $\frac{720}{8} \times 9 = Rs.810$

required average = $\dfrac{540 \times \frac{25}{100} \times 3 + 810 \times \frac{25}{100} \times 2}{3+2}$

$= \dfrac{405+405}{5}$

$= 162$

S61. Ans.(c)
Sol.
I. $x^2 + 14x + 33 = 0$
$x^2 + 11x + 3x + 33 = 0$
$x(x+11) + 3(x+11) = 0$
$x = -3, -11$
II. $y^2 - 7y + 10 = 0$
$y^2 - 5y - 2y + 10 = 0$
$y(y-5) - 2(y-5) = 0$
$y = 2, 5$
So, y>x

S62. Ans.(c)
Sol.
I. $2x^2 - 16x + 24 = 0$
$2x^2 - 12x - 4x + 24 = 0$
$2x(x-6) - 4(x-6) = 0$
$x = 2, 6$
II. $y^2 - 17y + 72 = 0$
$y^2 - 9y - 8y + 72 = 0$
$y(y-9) - 8(y-9) = 0$
$y = 8, 9$
So, y>x

S63. Ans.(e)
Sol.
I. $x^2 - 18x + 56 = 0$
$x^2 - 14x - 4x + 56 = 0$
$x(x-14) - 4(x-14) = 0$
$x = 4, 14$

II. $y^2 - 11y + 30 = 0$

$y^2 - 6y - 5y + 30 = 0$

$y(y-6) - 5(y-6) = 0$

$y = 5, 6$

So, No relation can be established.

S64. Ans.(d)
Sol.

I. $x^2 = 529$

$x = +23, -23$

II. $y = +23$

So, $x \leq y$

S65. Ans.(d)
Sol.

I. $x^2 - 21x + 38 = 0$

$x^2 - 19x - 2x + 38 = 0$

$x(x-19) - 2(x-19) = 0$

$x = 19, 2$

II. $y^2 - 38y + 361 = 0$

$y^2 - 19y - 19y + 361 = 0$

$y(y-19) - 19(y-19) = 0$

$y = 19$

So, $x \leq y$

S66. Ans.(d)
Sol.

$?^2 = 49 + \frac{40}{100} \times 200 - 29$

$?^2 = 100$

$? = 10$

S67. Ans.(a)
Sol.

$? = \frac{25}{100} \times 120 + \frac{20}{100} \times 500$

$? = 30 + 100$

$? = 130$

S68. Ans.(c)
Sol.

$\frac{125}{25} + 50 - \frac{20}{100} \times 120 = ?$

$55 - 24 = ?$

$? = 31$

S69. Ans.(b)
Sol.

$31 \times 12 - 172 = (?)^2 \div 2$
$(372 - 172) \times 2 = (?)^2$
$(?)^2 = 400$
$? = 20$

S70. Ans.(d)
Sol.
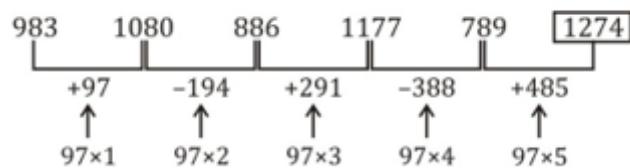
$231 + \frac{320}{10} = ? - 12$
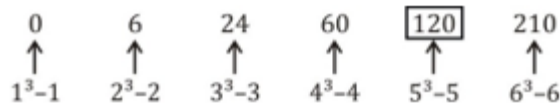$231 + 32 + 12 = ?$
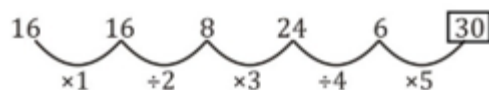$? = 275$

S71. Ans.(d)
Sol.

Pattern of series –


```
983      1080      886      1177      789      1274
    +97       -194      +291      -388      +485
     ↑          ↑         ↑          ↑         ↑
   97×1       97×2      97×3      97×4      97×5
```

S72. Ans.(c)
Sol.

Pattern of series –

```
 0        6        24        60       120       210
 ↑        ↑         ↑         ↑         ↑         ↑
1³-1     2³-2      3³-3      4³-4      5³-5      6³-6
```

S73. Ans.(a)
Sol.

Pattern of series –

```
16      16      8      24      6      30
   ×1      ÷2      ×3     ÷4      ×5
```

S74. Ans.(b)
Sol.

Pattern of series –

```
786      1810      2066      2130      2146      2150
    +1024     +256       +64       +16       +4
       ÷4        ÷4         ÷4        ÷4
```
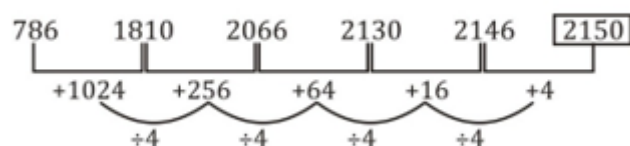
S75. Ans.(e)
Sol.

Pattern of series –
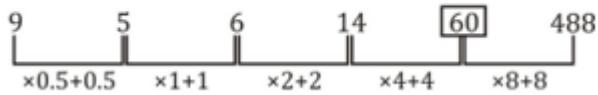
S76. Ans.(c)
Sol.

Required average $= \frac{(70+60+65+55+40)\times100}{5} = 5800$

S77. Ans.(c)
Sol.

Required ratio $= \frac{6000+6500}{5500+4500} = \frac{5}{4}$

S78. Ans.(a)
Sol.

Required difference $= (7000 + 6500 + 5500 + 4000) - (4500 + 5000 + 5500 + 6000)$
$= 2000$

S79. Ans.(b)
Sol.

Required percentage $= \frac{22500-10000}{22500} \times 100$
$= \frac{500}{9}\% = 55\frac{5}{9}\%$

S80. Ans.(d)
Sol.

Let per service cost of HONDA be 'x'
ATQ

Required percentage $= \frac{1.2x(5000)}{6000x} \times 100$
$= 100\%$