RRB PO Pre 2022 (20th August) Shift-Wise Previous Year Paper Mock 04

Directions (1-5): Study the following information carefully and answer the questions given below:

@ K 9 0 B C * B 2 C ^ 8 D # 2 F G K & 0 X 3 $ R @ E

Q1. How many numbers are there which are immediately preceded by a symbol and immediately followed by a letter?

(a) One
(b) Two
(c) Three
(d) Four
(e) None

Q2. How many letters are there which are immediately preceded by a symbol and immediately followed by a number?

(a) One
(b) Two
(c) Three
(d) Four
(e) None

Q3. How many symbols are there which are immediately preceded by a letter and immediately followed by a number?

(a) One
(b) Two
(c) Three
(d) More than three
(e) None

Q4. If all the symbols are eliminated from the given series, then which element is exactly between 'E' and '8'?

(a) G
(b) B
(c) K
(d) 9
(e) F

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Q5. Which element is second to the right of the one which is the tenth element from the right end?
(a) 0
(b) X
(c) 3
(d) $
(e) &

Directions (6-8): Study the following information and answer the given questions.
Point G is 18m to the north of Point F. Point J is 12m to the east of Point K. Point B is 8m to the north of Point J. Point C is 6m to the west of Point B. Point E is 9m to the south of Point C. Point K lies exactly between Point G and Point F.

Q6. In which direction is Point K with respect to Point E?
(a) West
(b) Northwest
(c) South
(d) Southeast
(e) Cannot be determined

Q7. In which direction is Point B with respect to Point G?
(a) West
(b) East
(c) Southwest
(d) Southeast
(e) None of these

Q8. What is the shortest distance between Point J and Point F?
(a) 9m
(b) 12m
(c) 15m
(d) 21m
(e) Cannot be determined

Directions (9-12): Study the following information carefully and answer the questions given below:
In a certain code language:
"Online demo English class" is coded as "df gh jk es"
"Offline extra class maths" is coded as "qw df rt yu"
"Maths and English batch" is coded as "rt zx bv gh"

Q9. What is the code of "English" as per the given code language?
(a) rt
(b) gh
(c) df
(d) qw
(e) Can't be determined

Q10. What may be the code of "offline" as per the given code language?
(a) rt
(b) gh
(c) df
(d) qw
(e) jk

Q11. If "fresh batch" is coded as "zx cv", then what will be the code of "and class" as per the given code language?
(a) rt df
(b) jk gh
(c) df bv
(d) qw df
(e) Can't be determined

Q12. In the given code language, "rt" is stand for?
(a) maths
(b) english
(c) demo
(d) extra
(e) None of these

Q13. In the given word 'GOOSEBUMP', how many pairs of the letters have the same number of letters between them (both forward and backward direction) as in the alphabetical series?
(a) Four
(b) One
(c) Three
(d) Two
(e) More than Four

Directions (14-17): In each of the questions below some statements are given followed by two 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.

Q14. Statements:
Only a few Day are Night.
All Night are Noon.
Conclusion
I: All Day can be Noon.
II: Some noon is day.
(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.

Q15. Statements:
Only a few Door are Lock.
Only a few Key are Lock.
Conclusion
I: All door can be lock.
II: Some Door can be Key.
(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.

Q16. Statements:
Only Grey are Pink.
No Purple is Grey.
Conclusion
I: Some Purple are Pink
II: Some Pink can be Purple
(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.

Q17. Statements:
100% Tape are Record.
No Tape are Wire.
Conclusion
I: Some Record are Wire.
II: All Record can be wire.

(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 (18-21): Study the following information carefully and answer the questions given below:

Eight persons E, F, G, H, I, J, K and L sit in a row adjacent having equal distance between each other. Some of them are facing south while some of them are facing north direction but not necessarily in the same order.

Three persons sit between K and H both of them face the opposite direction. There are as many persons sitting between F and K as between K and J who faces south. H is not an immediate neighbor of J and F. E sits third to the right of H. The one who sits immediate right of H faces north. E and G face opposite directions. I and G are not immediate neighbors of J. E sits second to the left of I. Immediate neighbors of I faces the same direction as L. F sits at one of the extreme ends. J does not sit immediate right of E.

Q18. Which among the following pair sits at extreme ends?
(a) F, H
(b) E, F
(c) L, F
(d) F, G
(e) None of these

Q19. Who among the following sits third to the right of J?
(a) K
(b) G
(c) I
(d) F
(e) L

Q20. How many persons face the south direction?
(a) Three
(b) Four
(c) Five
(d) More than Five
(e) Cannot be determined

Q21. Four among the following five are alike in a certain way and hence belongs to a group. Who does not belong to that group?
(a) I-G
(b) F-L
(c) L-E
(d) K-J
(e) F-E

Directions (22-23): In these questions, relationship between different elements is shown in the statements. These statements are followed by two conclusions.
Mark answer as

Q22.

Statements:
$L > M \geq N \geq R < G = T$
Conclusion
I. $M \geq R$
II. $N \geq T$

(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.

Q23.

Statements:
$P < Q \geq R > F < G \geq H$
Conclusion
I. $F < P$
II. $Q > G$

(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 (24-28): Study the information carefully and answer the questions given below.
Eight persons A, B, C, D, L, Q, R and S are living in a four-story building (but not necessarily in the same order) such as ground floor is numbered as 1, just above it is numbered as 2 and so on till the topmost floor is numbered as 4. Each of the floors has 2 flats in it viz. flat-1 and flat-2. Flat-1 of floor-2 is immediately above flat-1 of floor-1 and immediately below flat-1 of floor-3 and so on. In the same way, flat-2 of floor-2 is immediately above flat-2 of floor-1 and immediately below flat-2 of floor-3 and so on. Flat-1 is in the west of flat-2.
Two floors gap between L and D but they do not live in the same flat. S lives on an odd-numbered floor and to the west of B's flat. One floor gap between the floors of L and C and they live in the same flat. A is living above Q's floor in the same flat. L lives on an even-numbered floor. R is living in an even-numbered flat.

Q24. Who among the following lives in flat-1 on the 3rd floor?
(a) A
(b) S
(c) D
(d) Q
(e) None of these

Q25. Who among the following is/are living with C in the same numbered flat?
(a) L
(b) S
(c) Both L and B
(d) B
(e) None of these

Q26. Which of the following combination is/are true?
(a) A- Flat1
(b) S- Floor 3
(c) All are true
(d) R- Floor 1
(e) B-Flat 2

Q27. How many floors are there between R and S?
(a) Both are living on the same floor
(b) None
(c) Two
(d) One
(e) None of these

Q28. The number of floors gap between S and Q is same as the number of floors gap between __ and ___.
(a) Q-A
(b) L-R
(c) B-C
(d) S-R
(e) None of these

Directions (29-32): Study the following information carefully and answer the questions given below.
Nine teachers i.e. A, B, C, D, L, M, N, O and P take lectures on different dates- 1st, 4th and 5th of the month- March, June and December but not necessarily in the same order.

N takes lecture on an even date in the month which has 30 days. Two persons take lectures in between N and O. B takes lecture just before P but not in the same month. P does not take lecture before N. More than two persons take lectures between O and P. Both D and M take lectures in the same month. One person takes the lecture in between A and C. Not more than four persons take lectures in between C and D.

Q29. How many teachers take lectures between L and D?
(a) Two
(b) One
(c) Three
(d) Five
(e) None of these

Q30. Who among the following person takes lecture just before O?
(a) L
(b) A
(c) D
(d) M
(e) None of these

Q31. How many persons take lectures in between N and C?
(a) None
(b) One
(c) Two
(d) Three
(e) None of these

Q32. Who among the following person definitely does not take lecture in March?
(a) O
(b) P
(c) A
(d) L
(e) Both P and L

Directions (33-34): In this question, relationship between different elements is shown in the statements. The statements are followed by conclusions. Study the conclusions based on the given statement and select the appropriate answer.

Q33.
Statements:
$M > U > L \leq N; L \geq Y > A$
Conclusions:
I. $Y < N$
II. $Y = N$

(a) Only conclusion I is true
(b) Only conclusion II is true
(c) Either conclusion I or II is true
(d) Both conclusions I and II are true
(e) Neither conclusion I nor II is true

Q34.
Statements:
$J \geq A > D = E; L < D < M$
Conclusions:
I. $M < J$
II. $J > L$

(a) Only conclusion I is true
(b) Only conclusion II is true
(c) Either conclusion I or II is true
(d) Both conclusions I and II are true
(e) Neither conclusion I nor II is true

Q35. Which of the following words cannot be formed with the help of the letters of 'WEDNESDAY'?
(a) Sadden
(b) Owns
(c) Days
(d) Weedy
(e) Ends

Directions (36-39): Study the following information carefully and answer the questions given below.
Eight persons i.e., J, K, L, M, N, O, P and Q are seated around a circular table but not necessarily in the same order. Equal number of persons are facing inside and outside from the table.

J sits third to the right of M. There are two persons sit between M and P. K and N faces each other. L sits second to the right of N who sits immediate right of J. O is not an immediate neighbour of N. None of the immediate neighbours are facing the same directions.

Q36. How many persons sit between M and L?
(a) One
(b) Two
(c) Three
(d) Four
(e) None

Q37. Who among the following sits third to the left of J?
(a) Q
(b) K
(c) L
(d) N
(e) None of these

Q38. Who among the following are immediate neighbour of both O and Q?
(a) M
(b) None of these
(c) J
(d) P
(e) K

Q39. Who among the following faces outside?
(a) M
(b) N
(c) L
(d) K
(e) J

Q40. Five batsmen score different runs in cricket match. R scores less than V but not score the least. D scores twice runs than J. P scores more than V but not score the maximum. Who among the following score the 2nd lowest runs?
(a) R
(b) J
(c) D
(d) V
(e) Can't be determined

Q41. Present age of Deepa is 50% more than that of Shiva and age of Deepa 5 years ago was 50% of the age of Shiva 10 years hence. Find sum of their age 5 years later?
(a) 30 years
(b) 25 years
(c) 45 years
(d) 35 years
(e) 20 years

Q42. Two types of rice which cost Rs. 40/kg and Rs. 60/kg are mixed and marked at Rs. $\frac{200}{3}$ Kg. If shopkeeper earns 25% profit after allow a discount of 10% on mixture, then find in what respective ratio these two types of rice are mixed?

(a) 3 : 2
(b) 6 : 5
(c) 6 : 1
(d) 4 : 3
(e) 4 : 5

Q43. Q invested 25% more than P in a partnership business. After six-months, P & Q increased their amount by Rs. 3000 and Rs. 1000 respectively. If at the end of a year, ratio of profit share of P to Q is 27 : 31 then find initial investment of P?

(a) Rs. 8000
(b) Rs. 16000
(c) Rs. 12000
(d) Rs. 24000
(e) Rs. 20000

Q44. The difference between interest received when a sum is invested at 15% p.a. at. CI compounded annually for two years & that of when that sum is invested at 15% p.a. at SI for two years is 270. Find the SI when the same sum is invested for 1.5 years at 18% p.a?

(a) Rs. 2880
(b) Rs. 2970
(c) Rs. 3240
(d) Rs. 3180
(e) Rs. 3360

Q45. To complete a work, A works for 15 days & B works for 8 days. It can also be completed when they together work for 12 days. Find the difference between wages received by them if A works for 9 days & B works for 16 days on the same work and total wages received for the work is Rs. 4200.

(a) Rs. 600
(b) Rs.800
(c) Rs.500
(d) Rs.900
(e) Rs.1000

Directions (46-50): Find the wrong number in the following number series.

Q46. 97, 108, 205, 313, 518, 831, 1347
(a) 97
(b) 1347
(c) 518
(d) 205
(e) 108

Q47. 120, 83, 113, 93, 105, 99, 101
(a) 120
(b) 101
(c) 99
(d) 83
(e) 93

Q48. 15, 1015, 1096, 1608, 1657, 1870, 1898
(a) 1898
(b) 1096
(c) 1608
(d) 1870
(e) 15

Q49. 1, 2, 4, 16, 128, 2048, 65536
(a) 1
(b) 65536
(c) 128
(d) 16
(e) 4

Q50. 12, 17, 32, 77, 212, 615, 1832
(a) 77
(b) 1832
(c) 12
(d) 17
(e) 615

Directions (51-55):- In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and give answer

Q51.
I. $2x^2 - 9x + 9 = 0$
II. $6y^2 - 11y + 4 = 0$

(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

Q52.
I. $x^2 - 9x - 10 = 0$
II. $y^2 - 4y - 5 = 0$
(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

Q53.
I. $x^2 + 7x + 10 = 0$
II. $y^2 - 3y - 4 = 0$
(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

Q54.
I. $x^3 = 1728$
II. $y^2 + 256 = 400$
(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

Q55.
I. $4x + 5y = 3$
II. $(y - 4)^2 = 0$
(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 (56-61): What approximate value should come in the place of (?) mark :

Q56. 72.01% of $(? + 224.98) = (14.01)^2 + 199.99$

(a) 325
(b) 375
(c) 225
(d) 405
(e) 625

Q57. $16.01\ \%$ of $? + 64.01\ \%$ of $350.01 = 64.99\ \%$ of 400

(a) 125
(b) 225
(c) 275
(d) 350
(e) 625

Q58. $\frac{128.05}{?} + (17.01)^2 = 19.99\%$ of 1525.01

(a) 6
(b) 12
(c) 4
(d) 16
(e) 8

Q59. $?^3 + (24.01)^2 = (25.01)^2 + 29.99\%$ of 49.99

(a) 2
(b) 6
(c) 3
(d) 8
(e) 4

Q60. $?\ \%$ of $420.01 + (12.01)^2 = 24.01\ \%$ of 1649.99

(a) 54
(b) 60
(c) 64
(d) 50
(e) 55

Q61. $\sqrt{39.99\%\ of\ 899.98 - 421.03 + 350.01} + 271.99 = (?)^2$

(a) 17
(b) 19
(c) 18
(d) 16
(e) 15

Q62. If ratio between total surface area of cylinder to its curved surface area is 4 : 3 then radius of cylinder is what percent less then height of cylinder?

(a) $33\frac{1}{3}\%$
(b) 50%
(c) $66\frac{2}{3}\%$
(d) 75%
(e) $83\frac{1}{3}\%$

Q63. The average age of Satish, Sandy & Abhi is 32 years and the ratio of their ages 10 years ago was 2 : 4 : 5 respectively . Find the present age of Satish?

(a) 16 years
(b) 12 years
(c) 10 years
(d) 22 years
(e) 18 years

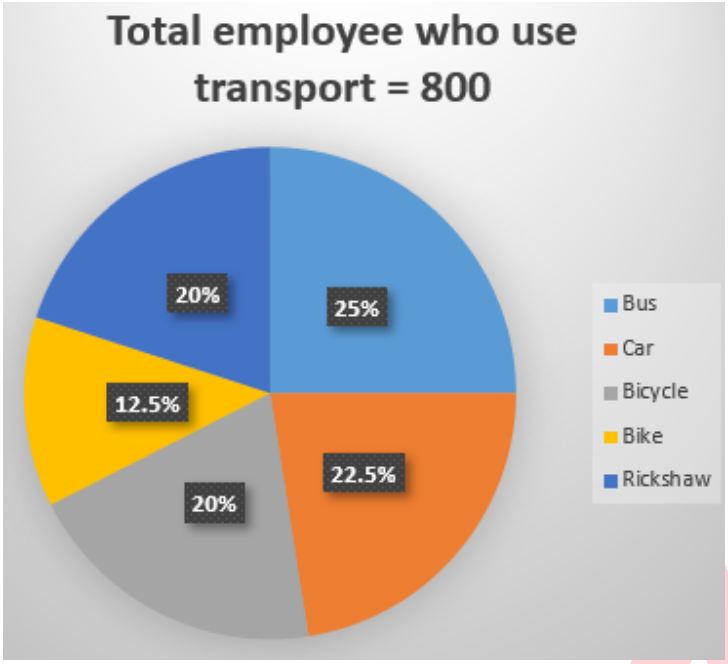
Q64. Ten men or 8 women can complete a piece of work in 4 days and 5 days respectively. Find in how many days 2 men and 3 women together can complete the same piece of work.

(a) 10 days
(b) 4 days
(c) 6 days
(d) 7 days
(e) 8 days

Q65. Ratio of two numbers is 5 : 7. If 30 is added in each number, the ratio becomes 3 : 4. Find the ratio of the number if 10 is subtracted from each number.

(a) 5 : 8
(b) 8 : 11
(c) 7 : 10
(d) 6 : 11
(e) 7 : 9

Directions (66-70): The pie chart given below shows the percentage distribution of employees of a company using different transport for daily commute.



Q66. No. of employee who use bike as daily commute is what percentage more/less than that use Bicycle as daily commute?

(a) 75%
(b) 25%
(c) 37.5%
(d) 62.5%
(e) 80%

Q67. What is the central angle made by the no. of employee who use Car as daily commute?

(a) 72°
(b) 84°
(c) 65°
(d) 81°
(e) 90°

Q68. If 40% of the employee who use Car are females and 75% of employee who use Rickshaw are males, then find the difference between the no. of males who use Car and no. of females who use Rickshaw for daily commute.

(a) 68
(b) 78
(c) 62
(d) 48
(e) 84

Q69. What is the difference between average no. of employee use Car, Bus and Bike and no. of employee who use Rickshaw and Bicycle together?
(a) 120
(b) 160
(c) 90
(d) 150
(e) 0

Q70. New employee join the company and they don't use any transport (they walk), and they consist of 20% of the total employee of the company, then find the ratio of no. of employee who don't use any transport to that of who use Bus.
(a) 2 : 3
(b) 5 : 4
(c) 3 : 4
(d) 1 : 1
(e) 4 : 3

Q71. The population of city A is 20% more than that of city B and the population of city C is 40% more than that of city B. Find 30% of population of city A is what percent less than $28\frac{4}{7}\%$ of population of city C?
(a) 7.5%
(b) 10%
(c) 12%
(d) 15%
(e) 20%

Q72. A train running at the speed of 144 km/hr crosses a man who is running at the speed of 18 km/hr in opposite direction of train in 8 sec. Find time taken by train to cross a platform, whose length is $66\frac{2}{3}\%$ more than length of train?
(a) 36 sec
(b) 24 sec
(c) 12 sec
(d) 28 sec
(e) 15 sec

Q73. Speed of boat in still water is twice the speed of stream and difference between upstream and downstream speed of boat is 8 km/hours. Find total time taken by boat to cover 48 km distance in downstream and 32 km distance in upstream?
(a) 10 hours
(b) 12 hours
(c) 16 hours
(d) 18 hours
(e) 20 hours

Q74. In a vessel quantity of water is 40% of quantity of milk. If 42 liter of mixture is taken out from the vessel and 32 liter of water is added, then new ratio of milk to water in vessel becomes 7 : 6. Find initial quantity of mixture in vessel?

(a) 84 liters
(b) 98 liters
(c) 126 liters
(d) 154 liters
(e) 140 liters

Q75. The mark price of a jeans is Rs 700 and shopkeeper allows a discount of Rs. x and makes a profit of 12.5% on it. If manufacturing cost of jeans is Rs 560, then find the discount percent allowed by shopkeeper on jeans?

(a) 10%
(b) 6%
(c) 4%
(d) 3%
(e) 5%

Directions (76-80): Table shows the total (sold + unsold) number of units manufactured (in '000) of five different products (A, B, C, D & E) and percentage of unsold units of these products. Study the table given below carefully and answer the following questions.

Products	Total (sold + unsold) number of units manufactured (in '000)	Percentage of unsold units of these products
A	30	15%
B	40	5%
C	10	30%
D	25	10%
E	50	25%

Note – Percentage of unsold units of any product = $\frac{\text{Total unsold units of that product}}{\text{Total manufactured units of that product}} \times 100$

Q76. Sold units of B & C together are what percent of total units manufactured of E?

(a) 70%
(b) 50%
(c) 90%
(d) 80%
(e) 60%

Q77. Find ratio of sold units of D & E together to unsold units of A & B together.
(a) 13 : 120
(b) 132 : 17
(c) 109 : 11
(d) 120 : 13
(e) 17 : 132

Q78. Find the average of unsold units of C, D and E.
(a) 6000 units
(b) 8000 units
(c) 5500 units
(d) 4000 units
(e) 3500 units

Q79. Total units manufactured of B & C together are what percent more or less than total units manufactured of A & E together?
(a) 75%
(b) 50%
(c) 62.5%
(d) 87.5%
(e) 37.5%

Q80. Find total units sold of A, B, C, D and E together.
(a) 128500 units
(b) 134500 units
(c) 116500 units
(d) 124500 units
(e) 130500 units

Solutions

S1. Ans.(c)
Sol. ^ **8** D, # **2** F, & **0** X

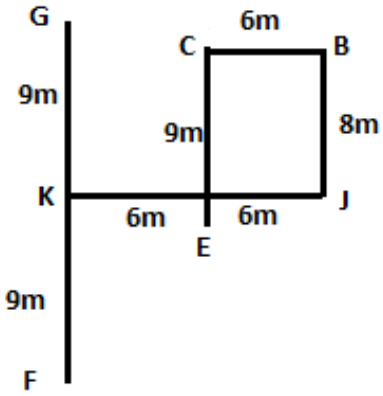
S2. Ans.(b)
Sol. @ **K** 9, * **B** 2

S3. Ans.(c)
Sol. C **^** 8, D **#** 2, K **&** 0

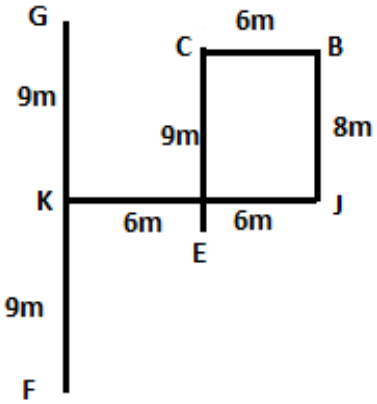
S4. Ans.(c)

S5. Ans.(e)

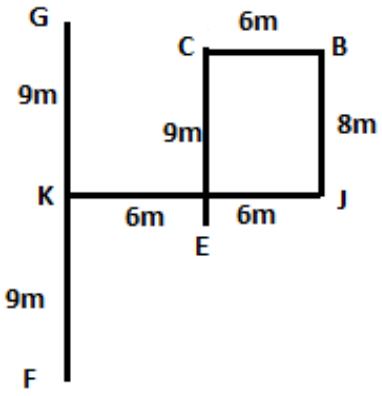
S6. Ans.(b)
Sol.



S7. Ans.(d)
Sol.



S8. Ans.(c)
Sol.



S9. Ans.(b)
Sol.

Words	Code
online/demo	jk/es
english	gh
class	df
maths	rt
offline/extra	qw/yu
and/batch	zx/bv

S10. Ans.(d)
Sol.

Words	Code
online/demo	jk/es
english	gh
class	df
maths	rt
offline/extra	qw/yu
and/batch	zx/bv

S11. Ans.(c)
Sol.

Words	Code
online/demo	jk/es
english	gh
class	df
maths	rt
offline/extra	qw/yu
and/batch	zx/bv

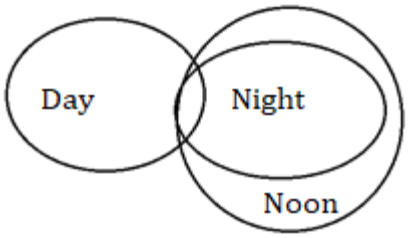
S12. Ans.(a)
Sol.

Words	Code
online/demo	jk/es
english	gh
class	df
maths	rt
offline/extra	qw/yu
and/batch	zx/bv

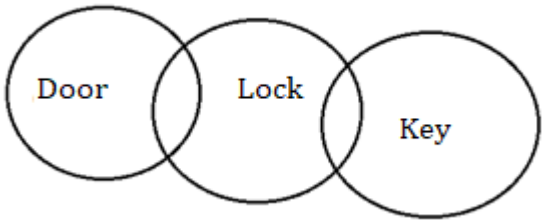
S13. Ans.(b)
Sol.

GOOSEBUMP

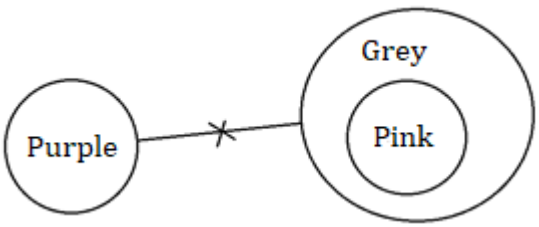
S14. Ans.(e)
Sol.



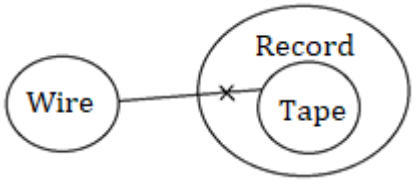
S15. Ans.(b)
Sol.



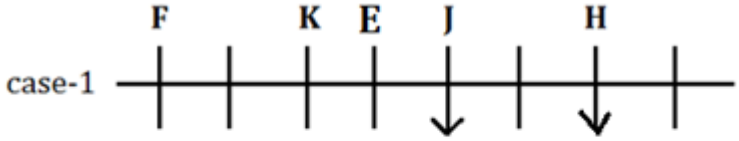
S16. Ans.(d)
Sol.

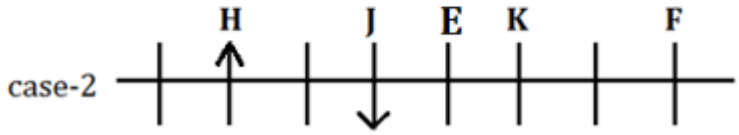


S17. Ans.(d)
Sol.

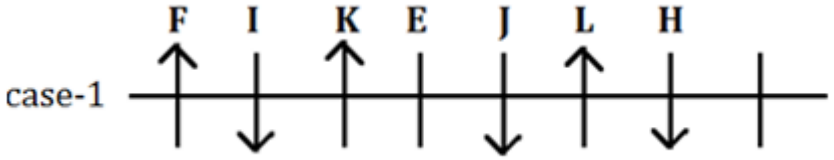


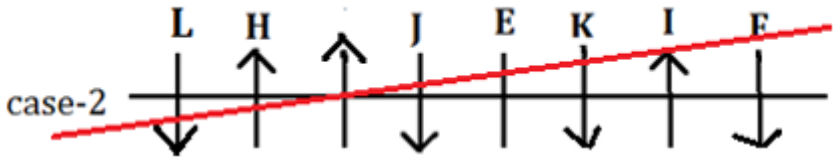
S18. Ans.(d)
Sol. From the given statements, three persons sit between K and H both of them face opposite direction. There are as many persons sitting between F and K as between K and J who faces South. F sits at one of the extreme ends. H is not an immediate neighbor of J and F. E sits third to the right of H. So, there will be two possibilities-



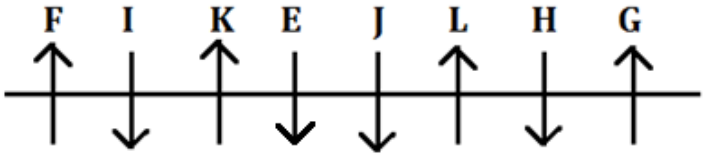


The one who sits immediate right of H faces north. I and G are not immediate neighbors of J. E sits second to the left of I. Immediate neighbors of I faces same direction as L. Three persons sit between K and H both of them face the opposite direction. By this Case 2 will be eliminated because there is no place for G as per the conditions.



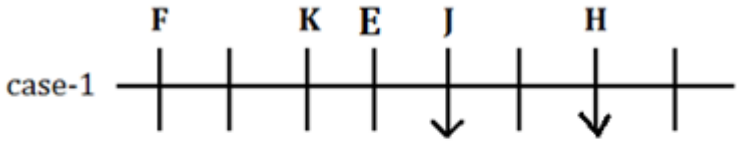


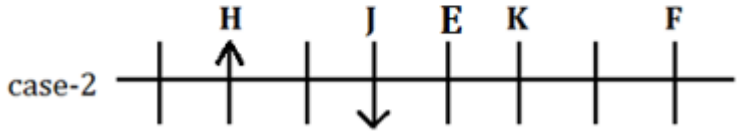
E and G faces opposite directions. J does not sit immediate right of E. Therefore, E faces south. Final arrangement will be -



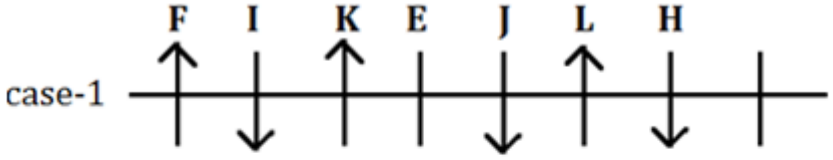
S19. Ans.(c)

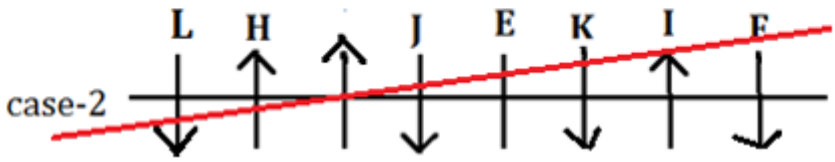
Sol. From the given statements, three persons sit between K and H both of them face opposite direction. There are as many persons sitting between F and K as between K and J who faces South. F sits at one of the extreme ends. H is not an immediate neighbor of J and F. E sits third to the right of H. So, there will be two possibilities-



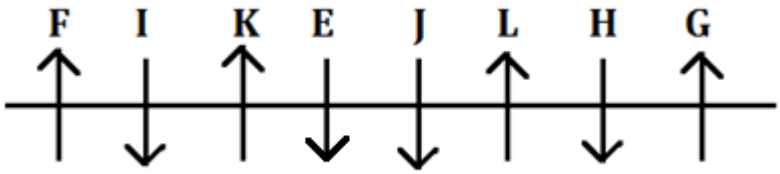


The one who sits immediate right of H faces north. I and G are not immediate neighbors of J. E sits second to the left of I. Immediate neighbors of I faces same direction as L. Three persons sit between K and H both of them face the opposite direction. By this Case 2 will be eliminated because there is no place for G as per the conditions.



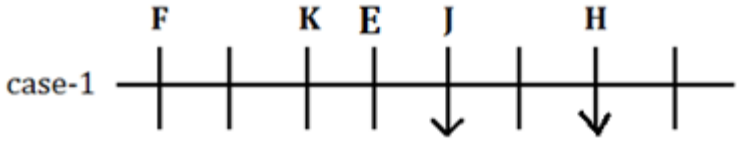


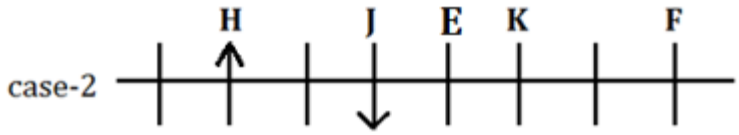
E and G faces opposite directions. J does not sit immediate right of E. Therefore, E faces south. Final arrangement will be -



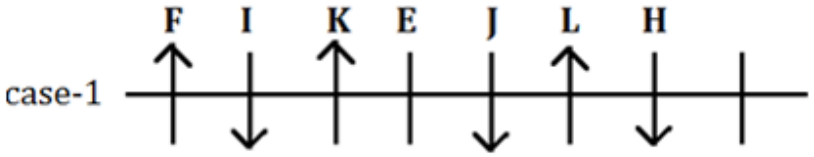
S20. Ans.(b)

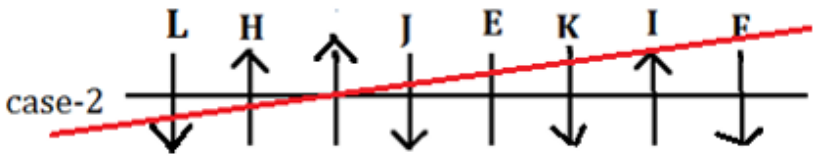
Sol. From the given statements, three persons sit between K and H both of them face opposite direction. There are as many persons sitting between F and K as between K and J who faces South. F sits at one of the extreme ends. H is not an immediate neighbor of J and F. E sits third to the right of H. So, there will be two possibilities-



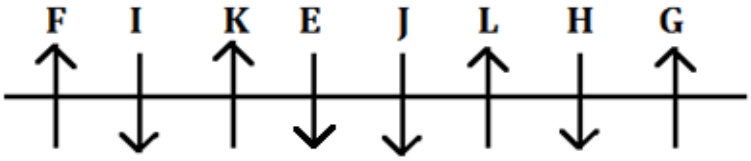


The one who sits immediate right of H faces north. I and G are not immediate neighbors of J. E sits second to the left of I. Immediate neighbors of I faces same direction as L. Three persons sit between K and H both of them face the opposite direction. By this Case 2 will be eliminated because there is no place for G as per the conditions.



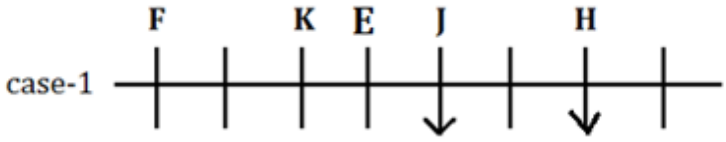


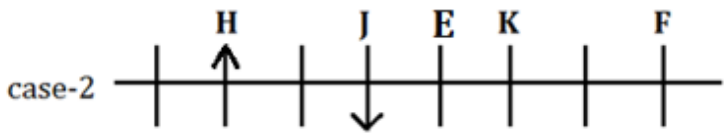
E and G faces opposite directions. J does not sit immediate right of E. Therefore, E faces south. Final arrangement will be -



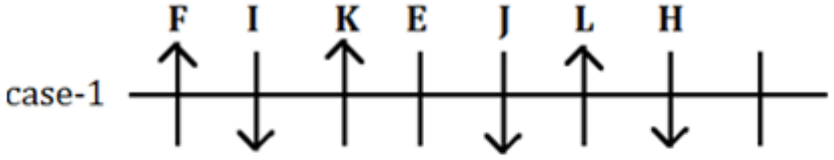
S21. Ans.(b)

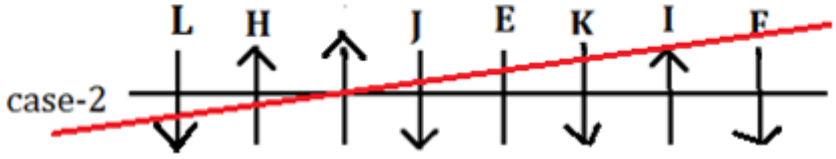
Sol. From the given statements, three persons sit between K and H both of them face opposite direction. There are as many persons sitting between F and K as between K and J who faces South. F sits at one of the extreme ends. H is not an immediate neighbor of J and F. E sits third to the right of H. So, there will be two possibilities-



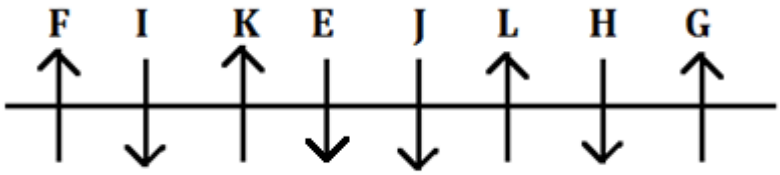


The one who sits immediate right of H faces north. I and G are not immediate neighbors of J. E sits second to the left of I. Immediate neighbors of I faces same direction as L. Three persons sit between K and H both of them face the opposite direction. By this Case 2 will be eliminated because there is no place for G as per the conditions.





E and G faces opposite directions. J does not sit immediate right of E. Therefore, E faces south. Final arrangement will be -



S22. Ans.(a)
Sol.
I. M ≥ R (True)
II. N ≥ T (False)

S23. Ans.(d)
Sol.
I. F < P (False)
II. Q > G (False)

S24. Ans.(b)
Sol. From the given statements, two floors gap between L and D but they do not live in the same flat. L lives on an even-numbered floor. S lives on an odd numbered floor to the west of B's flat. Here, we have two possible cases i.e., case1 and case2.

Floors	Case 1		Case 2	
	Flat 1	Flat 2	Flat 1	Flat 2
4	L			L
3	S	B	S	B
2				
1		D	D	

One floor gap between the floors of L and C and they live in the same flat. A is living above Q's floor in the same flat. R is living in an even numbered flat. So, case1 gets eliminated here and the final arrangement is:

Floors	Flat 1	Flat 2
4	A	L
3	S	B
2	Q	C
1	D	R

S25. Ans.(c)

Sol. From the given statements, two floors gap between L and D but they do not live in the same flat. L lives on an even-numbered floor. S lives on an odd numbered floor to the west of B's flat. Here, we have two possible cases i.e., case1 and case2.

Floors	Case 1		Case 2	
	Flat 1	Flat 2	Flat 1	Flat 2
4	L			L
3	S	B	S	B
2				
1		D	D	

One floor gap between the floors of L and C and they live in the same flat. A is living above Q's floor in the same flat. R is living in an even numbered flat. So, case1 gets eliminated here and the final arrangement is:

Floors	Flat 1	Flat 2
4	A	L
3	S	B
2	Q	C
1	D	R

S26. Ans.(c)

Sol. From the given statements, two floors gap between L and D but they do not live in the same flat. L lives on an even-numbered floor. S lives on an odd numbered floor to the west of B's flat. Here, we have two possible cases i.e., case1 and case2.

Floors	Case 1		Case 2	
	Flat 1	Flat 2	Flat 1	Flat 2
4	L			L
3	S	B	S	B
2				
1		D	D	

One floor gap between the floors of L and C and they live in the same flat. A is living above Q's floor in the same flat. R is living in an even numbered flat. So, case1 gets eliminated here and the final arrangement is:

Floors	Flat 1	Flat 2
4	A	L
3	S	B
2	Q	C
1	D	R

S27. Ans.(d)

Sol. From the given statements, two floors gap between L and D but they do not live in the same flat. L lives on an even-numbered floor. S lives on an odd numbered floor to the west of B's flat. Here, we have two possible cases i.e., case1 and case2.

Floors	Case 1		Case 2	
	Flat 1	Flat 2	Flat 1	Flat 2
4	L			L
3	S	B	S	B
2				
1		D	D	

One floor gap between the floors of L and C and they live in the same flat. A is living above Q's floor in the same flat. R is living in an even numbered flat. So, case1 gets eliminated here and the final arrangement is:

Floors	Flat 1	Flat 2
4	A	L
3	S	B
2	Q	C
1	D	R

S28. Ans.(c)

Sol. From the given statements, two floors gap between L and D but they do not live in the same flat. L lives on an even-numbered floor. S lives on an odd numbered floor to the west of B's flat. Here, we have two possible cases i.e., case1 and case2.

Floors	Case 1		Case 2	
	Flat 1	Flat 2	Flat 1	Flat 2
4	L			L
3	S	B	S	B
2				
1		D	D	

One floor gap between the floors of L and C and they live in the same flat. A is living above Q's floor in the same flat. R is living in an even numbered flat. So, case1 gets eliminated here and the final arrangement is:

Floors	Flat 1	Flat 2
4	A	L
3	S	B
2	Q	C
1	D	R

S29. Ans.(c)

Sol. From the given statements, N take lecture on an even date in the month which has 30 days. Two persons take lectures in between N and O. Here we have 2 possibilities i.e., Case 1 and Case 2. P does not take lecture before N. B takes lecture just before P but not in the same month.

Months	Dates	Case 1	Case 2
		Persons	Persons
March	1		
	4		O
	5		
June	1		
	4	N	N
	5	B	B
December	1	P	P
	4	O	
	5		

More than two persons take lectures between O and P. Now case 1 is ruled out. Both D and M take lectures in the same month. One person takes the lecture in between A and C. Not more than four persons take lectures in between C and D. So, the final arrangement-

Months	Dates	Persons
March	1	A
	4	O
	5	C
June	1	L
	4	N
	5	B
December	1	P
	4	D
	5	M

S30. Ans.(b)

Sol. From the given statements, N take lecture on an even date in the month which has 30 days. Two persons take lectures in between N and O. Here we have 2 possibilities i.e., Case 1 and Case 2. P does not take lecture before N. B takes lecture just before P but not in the same month.

Months	Dates	Case 1	Case 2
		Persons	Persons
March	1		
	4		O
	5		
June	1		
	4	N	N
	5	B	B
December	1	P	P
	4	O	
	5		

More than two persons take lectures between O and P. Now case 1 is ruled out. Both D and M take lectures in the same month. One person takes the lecture in between A and C. Not more than four persons take lectures in between C and D. So, the final arrangement-

Months	Dates	Persons
March	1	A
	4	O
	5	C
June	1	L
	4	N
	5	B
December	1	P
	4	D
	5	M

S31. Ans.(b)

Sol. From the given statements, N take lecture on an even date in the month which has 30 days. Two persons take lectures in between N and O. Here we have 2 possibilities i.e., Case 1 and Case 2. P does not take lecture before N. B takes lecture just before P but not in the same month.

Months	Dates	Case 1	Case 2
		Persons	Persons
March	1		
	4		O
	5		
June	1		
	4	N	N
	5	B	B
December	1	P	P
	4	O	
	5		

More than two persons take lectures between O and P. Now case 1 is ruled out. Both D and M take lectures in the same month. One person takes the lecture in between A and C. Not more than four persons take lectures in between C and D. So, the final arrangement-

Months	Dates	Persons
March	1	A
	4	O
	5	C
June	1	L
	4	N
	5	B
December	1	P
	4	D
	5	M

S32. Ans.(e)

Sol. From the given statements, N take lecture on an even date in the month which has 30 days. Two persons take lectures in between N and O. Here we have 2 possibilities i.e., Case 1 and Case 2. P does not take lecture before N. B takes lecture just before P but not in the same month.

Months	Dates	Case 1	Case 2
		Persons	Persons
March	1		
	4		O
	5		
June	1		
	4	N	N
	5	B	B
December	1	P	P
	4	O	
	5		

More than two persons take lectures between O and P. Now case 1 is ruled out. Both D and M take lectures in the same month. One person takes the lecture in between A and C. Not more than four persons take lectures in between C and D. So, the final arrangement-

Months	Dates	Persons
March	1	A
	4	O
	5	C
June	1	L
	4	N
	5	B
December	1	P
	4	D
	5	M

S33. Ans.(c)

Sol.

I. Y < N (False)

II. Y = N (False)

S34. Ans.(b)

Sol.

I. M < J (False)

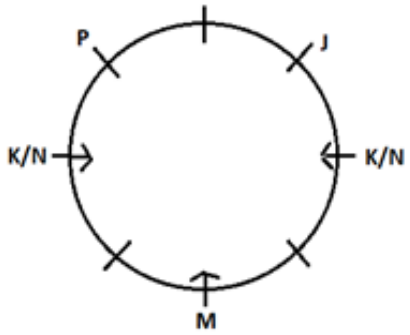
II. J > L (True)

S35. Ans.(b)

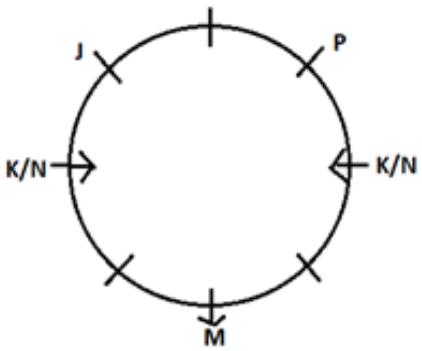
S36. Ans.(c)

Sol. From the given statements, J sits third to the right of M. There are two persons sitting between M and P. K and N faces each other. Here we get 2 possible cases – Case 1 and Case 2.

Case 1

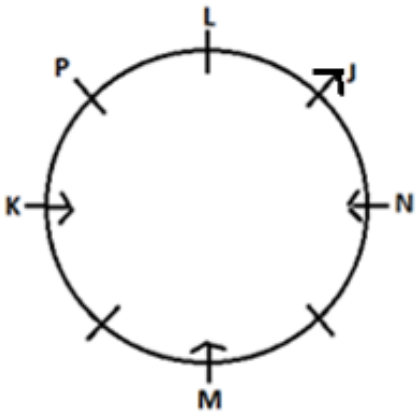


Case 2

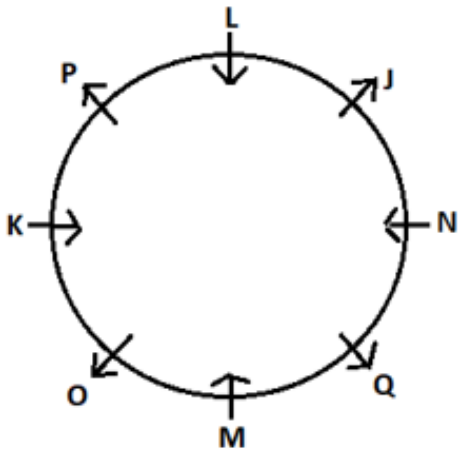


L is second to the right of N who sits immediate right of J. Hence Case 2 gets cancelled.

Case 1



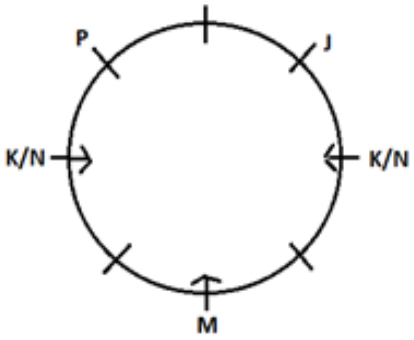
O is not an immediate neighbour of N. None of the immediate neighbours are facing the same directions. We know Q is one of the persons. So, final arrangement will be,



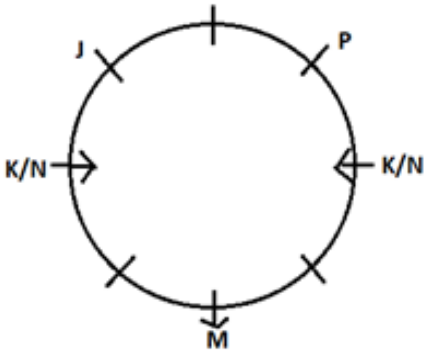
S37. Ans.(b)

Sol. From the given statements, J sits third to the right of M. There are two persons sitting between M and P. K and N faces each other. Here we get 2 possible cases – Case 1 and Case 2.

Case 1

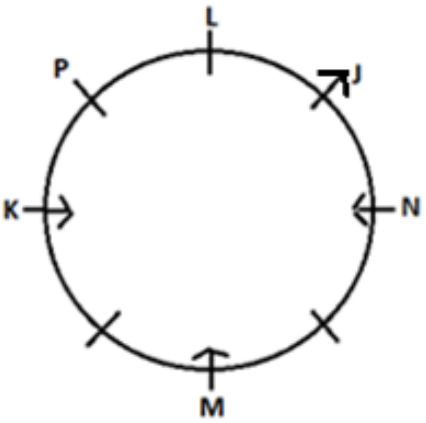


Case 2

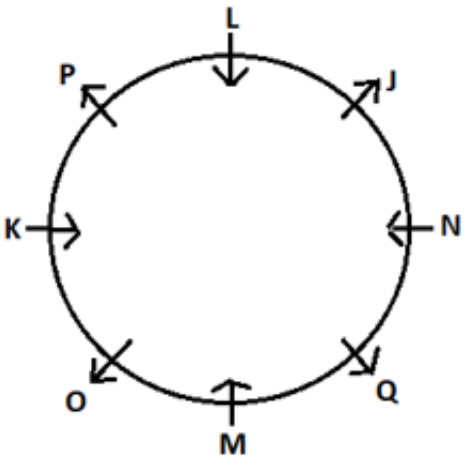


L is second to the right of N who sits immediate right of J. Hence Case 2 gets cancelled.

Case 1



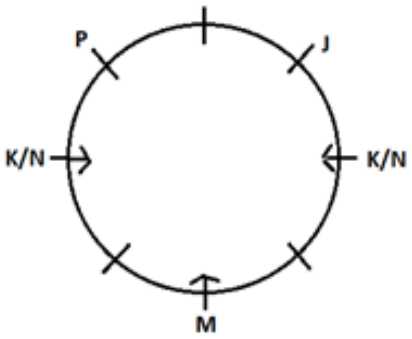
O is not an immediate neighbour of N. None of the immediate neighbours are facing the same directions. We know Q is one of the persons. So, final arrangement will be,



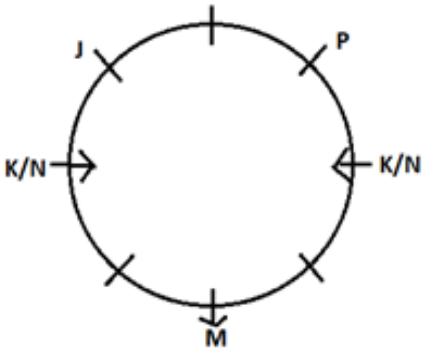
S38. Ans.(a)

Sol. From the given statements, J sits third to the right of M. There are two persons sitting between M and P. K and N faces each other. Here we get 2 possible cases – Case 1 and Case 2.

Case 1

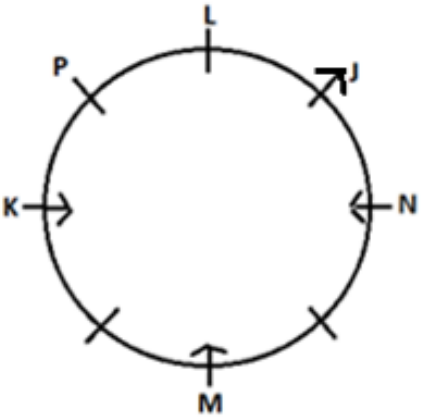


Case 2

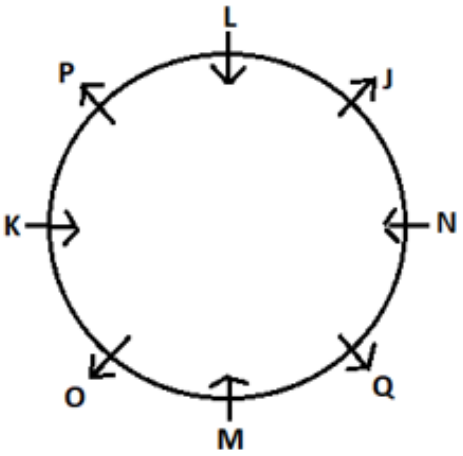


L is second to the right of N who sits immediate right of J. Hence Case 2 gets cancelled.

Case 1



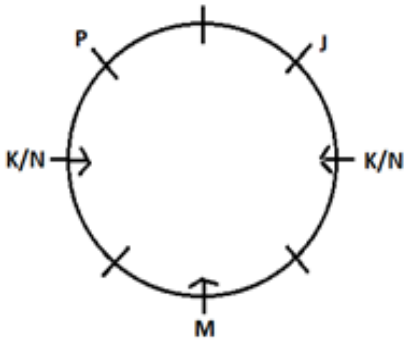
O is not an immediate neighbour of N. None of the immediate neighbours are facing the same directions. We know Q is one of the persons. So, final arrangement will be,



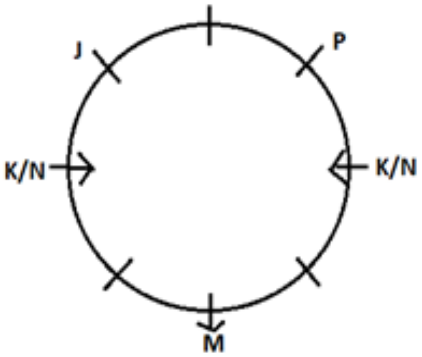
S39. Ans.(e)

Sol. From the given statements, J sits third to the right of M. There are two persons sitting between M and P. K and N faces each other. Here we get 2 possible cases – Case 1 and Case 2.

Case 1



Case 2



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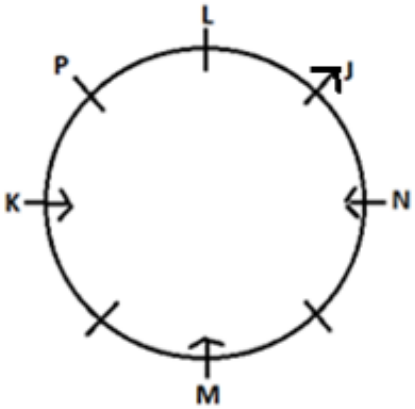
Case 1



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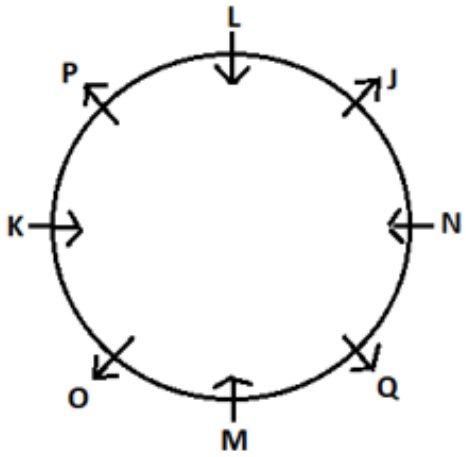


S40. Ans.(a)

Sol. D > P > V > R > J

S41. Ans.(d)

Sol.

Let present age of Shiva be '2x' years.

Then present age of Deepa= 3x years

ATQ,

$$\frac{3x-5}{2x+10}=\frac{1}{2}$$

$6x - 10 = 2x + 10$

$4x = 20$

$x = 5$

Required age = (3x + 2x) +10

= 35 years

S42. Ans.(a)

Sol.

Selling price of the mixture $= \frac{200}{3} \times \frac{(100-10)}{100}$ = Rs. 60/kg

Cost price of the mixture $= 60 \times \frac{100}{125}$ = Rs. 48/kg

By allegation –

40		60
	48	
12		08

Required ratio = 3 : 2

S43. Ans.(c)

Sol.

Let the initial investment of P = 4x

So, initial investment of Q $= 4x \times \frac{125}{100} = 5x$

Ratio of profit sharing of P to Q

$= [(4x \times 6) + (4x + 3000) \times 6] : [(5x \times 6) + (5x + 1000) \times 6)]$

$= (48x + 18000) : (60x + 6000)$

ATQ,

$$\frac{48x+18000}{60x+6000}=\frac{27}{31}$$

$\Rightarrow x = 3000$

Initial investment of P = Rs. 12000

S44. Ans.(c)

Sol.

Let the sum be Rs. x

equivalent rate of interest at 15% p. a. CI when compounded annually for two years

$= 15 + 15 + \frac{15\times15}{100} = 32.25\%$

ATQ,

$x \times \frac{32.25}{100} - x \times \frac{30}{100} = 270$

x = Rs. 12000

required interest $= \frac{12000 \times 18 \times 1.5}{100} = Rs.3240$

S45. Ans.(a)

Sol.

Let the efficiency of A & B be a units /day & b units /day respectively.

ATQ,

15a + 8b = 12 (a + b)

$\Rightarrow \frac{a}{b} = \frac{4}{3}$

Total work = 12×(4+3) = 84 units.

Required difference $= \frac{(16\times3-9\times4)}{84} \times 4200$

= Rs.600

S46. Ans.(b)

Sol.

Wrong number = 1347

Pattern of series –

97 + 108 = 205

108 + 205 = 313

205 + 313 = 518

313 + 518 = 831

518 + 831 = **1349**

So, there should be 1349 in place of 1347.

S47. Ans.(a)

Sol.

Wrong number = 120

Pattern of series –

125 $- 6 \times 7 = 83$

$83 + 5 \times 6 = 113$

$113 - 4 \times 5 = 93$

$93 + 3 \times 4 = 105$

$105 - 2 \times 3 = 99$

$99 + 1 \times 2 = 101$

So, there should be 125 in place of 120.

S48. Ans.(d)

Sol.

Wrong number = 1870

Pattern of series –

$15 + (10)^3 = 1015$

$1015 + (9)^2 = 1096$

$1096 + (8)^3 = 1608$

$1608 + (7)^2 = 1657$

$1657 + (6)^3 = \mathbf{1873}$

$1873 + (5)^2 = 1898$

So, there should be 1873 in place of 1870.

S49. Ans.(a)

Sol.

Wrong number = 1

Pattern of series –

$\mathbf{2} \times (2)^0 = 2$

$2 \times (2)^1 = 4$

$4 \times (2)^2 = 16$

$16 \times (2)^3 = 128$

$128 \times (2)^4 = 2048$

$2048 \times (2)^5 = 65536$

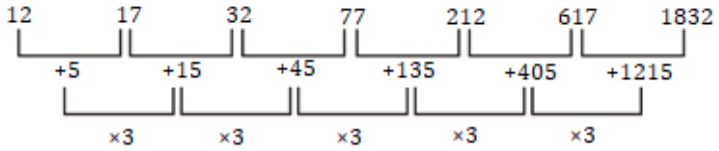
So, there should be 2 in place of 1.

S50. Ans.(e)

Sol.

Wrong number = 615

Pattern of series –



So, there should be 617 in place of 615.

S51. Ans.(a)

Sol.

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

$2x^2 - 6x - 3x + 9 = 0$

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

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

II. $6y^2 - 11y + 4 = 0$

$6y^2 - 8y - 3y + 4 = 0$

$(2y - 1)(3y - 4) = 0$

$y = \frac{1}{2}, \frac{4}{3}$

Clearly, x>y

S52. Ans.(e)
Sol.
I. $x^2 - 9x - 10 = 0$
$x^2 - 10x + x - 10 = 0$
$(x + 1)(x - 10) = 0$
$x = -1, 10$
II. $y^2 - 4y - 5 = 0$
$y^2 - 5y + y - 5 = 0$
$(y + 1)(y - 5) = 0$
$y = -1,5$
Clearly, no relation can be established

S53. Ans.(c)
Sol.
I. $x^2 + 7x + 10 = 0$
$x^2 + 5x + 2x + 10 = 0$
$(x + 5)(x + 2) = 0$
$x = -2, -5$
II. $y^2 - 3y - 4 = 0$
$y^2 - 4y + y - 4 = 0$
$(y + 1)(y - 4) = 0$
$y = -1,4$
Clearly, x<y

S54. Ans.(b)
Sol.
I. $x^3 = 1728$
$x = 12$
II. $y^2 + 256 = 400$
$y^2 = 400 - 256 = 144$
$y = \pm 12$
Clearly, x≥y

S55. Ans.(c)
Sol.
From II
$y - 4 = 0$
$y = 4$
∴ putting value of y in I
$4x + 20 = 3$
$x = -\frac{17}{4}$
Clearly, x<y

S56. Ans.(a)

Sol.

$\frac{72}{100} \times (? + 225) = 196 + 200$

$? + 225 = \frac{396 \times 100}{72}$

$? = 550 - 225$

$? = 325$

S57. Ans.(b)

Sol.

$\frac{16}{100} \times ? + \frac{64}{100} \times 350 = \frac{65}{100} \times 400$

$\frac{16}{100} \times ? + 224 = 260$

$\frac{16}{100} \times ? = 36$

$? = 36 \times \frac{100}{16}$

$? = 225$

S58. Ans.(e)

Sol.

$\frac{128}{?} + 289 = \frac{20}{100} \times 1525$

$\frac{128}{?} = 305 - 289$

$\frac{128}{?} = 16$

$? = 8$

S59. Ans.(e)

Sol.

$?^3 + 576 = 625 + \frac{30}{100} \times 50$

$?^3 = 640 - 576$

$?^3 = 64$

$? = 4$

S60. Ans.(b)

Sol.

$\frac{?}{100} \times 420 + 144 = \frac{24}{100} \times 1650$

$\frac{?}{100} \times 420 = 396 - 144$

$? = 252 \times \frac{100}{420}$

$? = 60$

S61. Ans.(a)

Sol.

$\sqrt{360-421+350}+272=(?)^2$

$? = \sqrt{289} = 17$

S62. Ans.(c)

Sol.

Let radius of cylinder = r

And height of cylinder = h

Total surface area of cylinder = $2\pi r(r+h)$

Curved surface area of cylinder = $2\pi rh$

ATQ,

$\frac{2\pi r(r+h)}{2\pi rh} = \frac{4}{3}$

$\Rightarrow 3r+3h = 4h$

$\Rightarrow 3r = h$

Required % = $\frac{h-r}{h} \times 100 = \frac{3r-r}{3r} \times 100$

$= \frac{200}{3}\% = 66\frac{2}{3}\%$

S63. Ans.(d)

Sol.

Total age of Satish, Sandy & Abhi

= 32 × 3 = 96 years

Total age 10 years ago = 96 – 30 = 66 years

Present age of Satish = $\frac{66}{11} \times 2 + 10 = 22\ yrs$

S64. Ans.(e)

Sol.

Let the efficiency of man and woman be m unit/day and w unit/day and required number of days be 'd' days.

$10m \times 4 = 8w \times 5$

$m:w = 1:1$

$(2 \times 1 + 3 \times 1)d = 10 \times 1 \times 4$

$5d = 40$

$d = 8\ days$

S65. Ans.(c)

Sol.

Let two numbers are 5x and 7x respectively.

ATQ

$\frac{5x+30}{7x+30} = \frac{3}{4}$

$20x + 120 = 21x + 90$

$x = 30$

So, two numbers are 150 and 210 respectively.

Now, required ratio $= \frac{150-10}{210-10} = \frac{140}{200} = \frac{7}{10}$

S66. Ans.(c)

Sol.

Required percentage $= \frac{20-12.5}{20} \times 100$

$= \frac{7.5}{20} \times 100 = 37.5\%$

S67. Ans.(d)

Sol.

Required angle $= \frac{22.5}{100} \times 360 = 81°$

S68. Ans.(a)

Sol.

No. of male employee who use car $= \frac{60}{100} \times \frac{22.5}{100} \times 800 = 108$

No. of female employee who use Rickshaw $= \frac{25}{100} \times \frac{20}{100} \times 800 = 40$

So, required difference $= 108 - 40 = 68$

S69. Ans.(b)

Sol.

Average no. of employee who use Car, Bus and Bike $= \frac{1}{3} \times \left[\frac{(22.5+12.5+25)}{100} \times 800\right]$

$= 160$

Total no. of employee who use Rickshaw and Bicycle together $= \frac{20+20}{100} \times 800 = 320$

So, required difference $= 320 - 160 = 160$

S70. Ans.(d)
Sol.
Percentage of employee who use transport $= 100 - 20 = 80\%$
So, no. of employee who do not use any transport $= \frac{800}{80} \times 20 = 200$
No. of employee who use Bus $= \frac{25}{100} \times 800 = 200$
So, required ratio $= 200 : 200$
$= 1 : 1$

S71. Ans.(b)
Sol.
Let population of city B = 100x
So, population of city A= $120x$
And, population of city C = $140x$
30% of population of city A = $36x$
$28\frac{4}{7}\%$ of population of city C = $140x \times \frac{2}{7}$ =40x
Required percentage $= \frac{40x-36x}{40x} \times 100 = 10\%$

S72. Ans.(b)
Sol.
Let length of train be 'L' meters
ATQ –
$(144 + 18) \times \frac{5}{18} = \frac{L}{8}$
L = 360 meters
Length of platform = $360 + 360 \times \frac{2}{3} = 600\ meters$
Let train takes 't' sec to cross the platform
$144 \times \frac{5}{18} = \frac{360+600}{t}$
40 t = 960
t = 24 sec

S73. Ans.(b)
Sol.
Let speed of stream = s km/hr
So, speed of boat in still water = 2s km/hr
ATQ –
$(2s + s) - (2s - s) = 8$
2s = 8
s = 4 km/hr
Downstream speed = $(2 \times 4 + 4) = 12\ km/hr$
Upstream speed = $(2 \times 4 - 4) = 4\ km/hr$
Required time = $\frac{48}{12} + \frac{32}{4} = 12\ hours$

S74. Ans.(e)

Sol.

Let total quantity of mixture in vessel = x liters

Ratio of milk to water in vessel = 100% : 40% = 5 : 2

ATQ –

$$\frac{\frac{5x}{7}-42\times\frac{5}{7}}{\frac{2x}{7}-42\times\frac{2}{7}+32}=\frac{7}{6}$$

$$\frac{5x-210}{2x+140}=\frac{7}{6}$$

$30x - 1260 = 14x + 980$

$16x = 2240$

$x = 140$ liter

S75. Ans.(a)

Sol.

Given,

Mark price of jeans = 700 Rs

Discount = x Rs

Cost price of jeans= 560 Rs

ATQ,

$(700 - x) = 560 \times \frac{112.5}{100}$

$x = 70$ Rs

Required discount percentage $= \frac{70}{700} \times 100 = 10\%$

S76. Ans.(c)

Sol.

Sold units of B & C together $= \left(40000 \times \frac{100-5}{100}\right) + \left(10000 \times \frac{100-30}{100}\right)$

$= 38000 + 7000$

$= 45000$ units

Required % $= \frac{45000}{50000} \times 100$

$= 90\%$

S77. Ans.(d)

Sol.

Sold units of D & E together $= \left(25000 \times \frac{100-10}{100}\right) + \left(50000 \times \frac{100-25}{100}\right)$

$= 22500 + 37500$

$= 60000$ units

Unsold units of A & B together = $\left(30000 \times \frac{15}{100}\right) + \left(40000 \times \frac{5}{100}\right)$

= 4500 + 2000

= 6500 units

Required ratio = $\frac{60000}{6500}$

= 120 : 13

S78. Ans.(a)

Sol.

Required average = $\frac{1}{3} \times \left(\left(10000 \times \frac{30}{100}\right) + \left(25000 \times \frac{10}{100}\right) + \left(50000 \times \frac{25}{100}\right)\right)$

= $\frac{1}{3} \times (3000 + 2500 + 12500)$

= 6000 units

S79. Ans.(e)

Sol.

Total units manufactured of B & C together = 40000 + 10000

= 50000

Total units manufactured of A & E together = 30000 + 50000

= 80000

Required % = $\frac{80000-50000}{80000} \times 100$

= 37.5%

S80. Ans.(e)

Sol.

Required units = $\left(30000 \times \frac{100-15}{100}\right) + \left(40000 \times \frac{100-5}{100}\right) + \left(10000 \times \frac{100-30}{100}\right) +$

$\left(25000 \times \frac{100-10}{100}\right) + \left(50000 \times \frac{100-25}{100}\right)$

= 25500 + 38000 + 7000 + 22500 + 37500

=130500 units