IBPS PO Pre 2022 (15th October) Shift-Wise Previous Year Papers Mock 04

Directions (1-10) : Read the following passage and answer the questions given below. Some words are highlighted to help you answer some of the questions.

The recent crisis in the healthcare and economic sectors has tested the resilience of all public institutions. Despite its efforts, bureaucracy has emerged as a major concern for the ineffective response to the crisis. This inadequacy is the reflection of the outdated nature of public bureaucracy. In the 21st century, democratic countries are still relying on traditional bureaucracies to perform public policy formulation and implementation roles. Weberian bureaucracy still prefers a generalist over a specialist. A generalist officer is deemed an expert and as a result, **superior**, even if the officer works in one department or ministry today and in another tomorrow. Specialists in every government department have to remain subordinate to the generalist officers. Healthcare professionals who are specialists have been made to work under generalist officers and the policy options have been left to the generalists when they should be in the hands of the specialists. The justification is that the generalist provides a broader perspective compared to the specialist.

Traditional bureaucracy is still stuck with the leadership of position over leadership of function. The leadership of function is when a person has expert knowledge of a particular responsibility in a particular situation. The role of the leader is to explain the situation instead of issuing orders. Every official involved in a particular role responds to the situation rather than relying on some dictation from someone occupying a particular position. Weberian bureaucracy prefers leadership based on position. Bureaucracy has become an end in itself rather than a means to an end. Further, the rigid adherence to rules has resulted in the rejection of innovation. It isn't surprising to see pandemic aid getting stuck in **cumbersome** clearance processes even during the pandemic.

The reform often suggested in India is new public management. This as a reform movement promotes privatization and managerial techniques of the private sector as an effective tool to seek improvements in public service delivery and governance. But this isn't a viable solution, not the least in India where there is social inequality and regional variations in development. The most appropriate administrative reform is the model of new public governance. This model is based on collaborative governance in which the public sector, private players and civil society, especially public service organizations (NGOs) , work together for effective public service delivery. There is no **domination** of public bureaucracy as the sole agency in policy formulation and implementation. As part of new public governance, a network of social actors and private players would take responsibility for various aspects of governance with public bureaucracy steering the ship rather than rowing it.

Q1. Why does the author argue that the new public management is not a realistic alternative?
(a) It is unable to foster deregulation and private-sector management approaches.
(b) It is inefficient to act as a valuable technique to seek efficiency in public service.
(c) It is impractical due to social disparity and regional differences in advancement.
(d) Only (a) and (c)
(e) Both (b) and (c)

Q2. How has bureaucracy emerged as a prominent source of concern despite its best efforts?
(a) The obsolete nature of bureaucracy has reflected its inadequacies in dealing with the crisis.
(b) The bureaucratic response to the recent healthcare concerns has been insufficient.
(c) Traditional bureaucratic approaches are used in the implementation of public policy.
(d) A lack of progress in worldwide bureaucracy due to adherence to traditional approaches.
(e) All of these

Q3. Which of the following statements is/are correct about Weberian bureaucracy?
(a) A specialist officer has more knowledge of different situations than a generalist officer.
(b) Officers who are specialists must report to generalist officers.
(c) In comparison to the generalist, the specialist offers a broader insight.
(d) Generalists and specialists have equal rights when it comes to decision-making.
(e) Both (a) and (d)

Q4. How does the author define leadership of function?
(a) It prefers leadership that is based on position rather than competence.
(b) It restricts the powers of a leader to issue directives in extreme situations.
(c) It is the consequence of the prevalent conventional administration.
(d) It describes someone who has special insight and is aware of his duty in a certain situation.
(e) It portrays someone who can't take important decisions efficiently.

Q5. Based on the information provided, which one of the following statements is not true?
(a) Competence and expertise are the foundations of leadership.
(b) A generalist is preferred by Weberian bureaucracy over a specialist.
(c) In public service delivery, new public management can be an effective tool.
(d) Collaboration is at the heart of the new public government approach.
(e) None of these

Q6. Why is there no public bureaucratic dominance in the new public governance model?
(a) Different stakeholders are actively involved in the new public governance concept.
(b) The public and private sectors collaborate in the new public governance model.
(c) The public bureaucracy is the single entity responsible for policy implementation.
(d) Both (a) and (b)
(e) Only (b) and (c)

Q7. Which of the following factors has/have caused the repudiation of innovation?
(a) The dominance of positional leadership has resulted in the repudiation of innovation.
(b) The leader's part in explaining the circumstances resulted in the denial of innovation.
(c) The dismissal of innovation has occurred due to stringent conformity to regulations.
(d) The recent economic downturn has culminated in the repudiation of innovation.
(e) The exclusion of innovation has resulted from relying on someone for a certain task.

Q8. Choose the most appropriate synonym of the word **'SUPERIOR'**, as highlighted in the passage.
(a) debris
(b) elite
(c) menial
(d) nasty
(e) entail

Q9. Choose the most appropriate antonym of the word **'CUMBERSOME'**, as highlighted in the given passage.
(a) convenient
(b) awkward
(c) complex
(d) cumbrous
(e) prejudicial

Q10. Choose the most appropriate synonym of the word **'DOMINATION'**, as highlighted in the passage.
(a) longing
(b) submission
(c) ascendancy
(d) mediocrity
(e) servitude

Directions (11-15) : In each of the questions given below four words are given in bold. These four words may or may not be in their correct position. The sentence is then followed by options with the correct combination of words that should interchange with each other in order to make the sentence grammatically and contextually correct. Find the correct combination of the words that replace each other. If the sentence is correct as it is then select 'No interchange required' as your choice.

Q11. The launch was **monitored (A)** by **labs (B)** scientists from various **senior (C)** involved in the design and **development (D)** of the system.
(a) Only (A) -(D)
(b) Only (B) -(C)
(c) Both (A) -(B) and (C) -(D)
(d) Both (A) -(C) and (B) -(D)
(e) No interchange needed

Q12. Our **decades (A)** is based on a solid **continue (B)** and it will **foundation (C)** to grow over the coming **cooperation (D)** .
(a) Only (A) -(D)
(b) Only (B) -(D)
(c) Both (A) -(B) and (C) -(D)
(d) Both (A) -(D) and (B) -(C)
(e) No interchange needed.

Q13. When the first **plan (A)** for Chabahar was **signed (B)** by then Prime Minister, the **agreement (C)** had a three-fold **objective (D)** .
(a) Only (A) -(C)
(b) Only (B) -(D)
(c) Both (A) -(B) and (C) -(D)
(d) Both (A) -(C) and (B) -(D)
(e) No interchange needed

Q14. China has been **accused (A)** of cyberattacks **infrastructure (B)** at collecting **information (C)** of a sovereign's critical **aimed (D)** .
(a) Only (A) -(D)
(b) Only (B) -(D)
(c) Both (A) -(B) and (C) -(D)
(d) Both (A) -(C) and (B) -(D)
(e) No interchange needed

Q15. **improvements (A)** has led to major **science (B)** in **welfare (C)** and public health and **technology (D)** .
(a) Only (A) -(D)
(b) Only (B) -(D)
(c) Both (A) -(B) and (C) -(D)
(d) Both (A) -(C) and (B) -(D)
(e) No interchange needed

Directions (16-18) : In the given question a sentence is divided in four parts. Three out of four parts have errors. Find out which part of the sentence is error-free. If all parts have errors, then choose 'All are incorrect' as your answer. (Ignore errors of punctuation, if any.)

Q16. Last week, the Union government introduce the GST regime through (A) / the 101st constitution Amendment; it did so (B) / based on an underlying believe that tax (C) / administration across India needed unification (D)
(a) A
(b) B
(c) C
(d) D
(e) All are incorrect

Q17. The suddenly turnaround in the (A) /export policy appear to be (B) / on account of fears that low public procurement (C) / would affected domestic food security (D)
(a) A
(b) B
(c) C
(d) D
(e) All are incorrect

Q18. As children grow and its bodies (A) / change, the length of the eyeball and (B) / its power to refract light does not (C) / always align, leading to vision who is blurry (D) .
(a) A
(b) B
(c) C
(d) D
(e) All are incorrect

Directions (19-23) : Rearrange the following statements in the proper sequence to form a meaningful paragraph and then answer the questions given below.
(A) The advisory further stated that all students and teachers at the schools must obey the guidelines to contain the spread.
(B) Meanwhile, parents have demanded that schools return to the hybrid model of classes with an option to attend classes online.
(C) Among other things, it sought separate entry and exit to the school premises and staggered timings and entries in the events of fairs.
(D) The spurt in viral cases over the past few days has prompted the district health department to issue an advisory to schools.
(E) It has triggered demands for thermal scanning, physical separation, and the wearing of masks on school premises.

Q19. Which of the following will be the **SECOND** sentence after Rearrangement?
(a) B
(b) A
(c) D
(d) C
(e) E

Q20. Which of the following will be the **THIRD** sentence after Rearrangement?
(a) A
(b) C
(c) B
(d) E
(e) D

Q21. Which of the following will be the **FIFTH** sentence after Rearrangement?
(a) B
(b) D
(c) E
(d) A
(e) C

Q22. Which of the following will be the **FIRST** sentence after Rearrangement?
(a) E
(b) B
(c) D
(d) C
(e) A

Q23. Which of the following will be the correct sequence of the given statements to form a coherent paragraph?
(a) DAEBC
(b) EDCBA
(c) DEACB
(d) EACDB
(e) ACBDE

Directions (24-26) : In each question, three sentences are given corresponding to a single word. Choose the sentence(s) that has/have the correct usage.

Q24. Commute
(A) Inflation has struck a **commute** to the plans of shifting to a bigger house.
(B) The daily **commute** from home to the office has become a costly affair nowadays.
(C) He said universities need to be **commute** for discussion and the exchange of ideas.
(a) Only (A)
(b) Only (B)
(c) Only (C)
(d) Only (A) and (B)
(e) Only (B) and (C)

Q25. Linger
(A) Despite the fact that Nalanda University's library burned for months, its thoughts **linger** on even now.
(B) Every region of India shares a common cultural heritage, and it is this **linger** that connects us.
(C) Fruits, which were regular food items a few months ago, are now being cut down to **linger** the monthly budget.
(a) Only (A)
(b) Only (B) and (C)
(c) Only (C)
(d) Only (A) and (B)
(e) Only (B)

Q26. Soaring
(A) For the past several months, the price of LPG cylinders in India has been **soaring** exponentially.
(B) The bird flew across the sky, **soaring** higher and higher until we couldn't see it anymore.
(C) Delhi University should work towards **soaring** courses on emerging areas like blockchain.

(a) Only (A)
(b) Only (B)
(c) Only (C)
(d) Only (A) and (B)
(e) Only (B) and (C)

Directions (27-28) : In each of the questions given below, a statement has been given with a word omitted. Following the statement, five words have been given and one of the given words will fit in the blank. Choose the most appropriate word to make the statement contextually correct and grammatically meaningful.

Q27. The government is planning to _____billions of dollars for new military equipment and capabilities.
(a) assemble
(b) coordinate
(c) allocate
(d) bastion
(e) mitigates

Q28. During the examination, the students are _____to remain in their allotted rooms.
(a) directed
(b) timid
(c) replicated
(d) threatened
(e) tied

Directions (29-30) : In the questions given below two sentences are given which are grammatically correct and meaningful. Connect them with the word given below the statements in the best possible way without changing the intended meaning. Choose your answer accordingly from the options which form a correct and coherent sentence.

Q29.
(I) She was not satisfied with her board marks
(II) getting the first rank in her state
(a) through
(b) in spite
(c) although
(d) likewise
(e) even after

Q30.
(I) China has imposed a Covid-19 lockdown
(II) only a few cases having been reported in the last month

(a) but
(b) because
(c) despite
(d) however
(e) since

Directions (31-35) : Table Given below shows total number of boys in four different (P, Q, R and S) academies and it also shows percentage of girls in these four academies. Read the data carefully and answer the questions.

Note: Total students in an academy = Number of boys + Number of girls

Academy	Total boys	Percentage of girls
P	240	76%
Q	560	30%
R	1000	37.5%
S	840	40%

Q31.Total number of girls in academy P & Q together is how much more or less than total number of girls in academy R & S together.
(a) 320
(b) 280
(c) 240
(d) 200
(e) 160

Q32. Total number of students in S are what percent more than total number of students in P?
(a) 60%
(b) 20%
(c) 40%
(d) 80%
(e) 50%

Q33.Total number of boys in academy T are 25% more than total number of boys in Q, while total number of girls in T are 40% more than total number of students in R. Find total number of students in T.
(a) 2940
(b) 2100
(c) 3240
(d) 2400
(e) 2340

Q34.Total number of students in S is how much more than total number of girls in P and Q together.
(a) 600
(b) 400
(c) 500
(d) 700
(e) 300

Q35. If there is one coach for per 100 students in each academy, then find total no. of coaches required for all students in these four academies.
(a) 24
(b) 48
(c) 22
(d) 44
(e) 46

Directions (36-40) : In each of these questions, two equation (I) and (II) are given. You have to solve both the equations and give answer

Q36.
I. $121x^2 - 110 + 21 = 0$
II. $169y^2 - 208y + 63 = 0$

(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

Q37.
I. $x^2 - 6x + 12 = 4$
II. $y^2 + 4y - 10 = -13$

(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

Q38.
I. $12x^2 - 7x + 1 = 0$
II. $20y^2 - 9y + 1 = 0$

(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

Q39.
I. $x^2 + 26x + 165 = 0$
II. $y^2 + 23y + 132 = 0$

(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

Q40.
I. $1 + \frac{33}{x} + \frac{270}{x^2} = 0$
II. $y^2 + 27y + 180 = 0$
(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

Q41. A boat travels in upstream. If the speed of boat in upstream is decreased by 25% then it is equal to the speed of current and speed of boat in still water is given as 70 km/hr., then find downstream speed of boat? (In km/hr) .
(a) 75
(b) 100
(c) 120
(d) 140
(e) 90

Q42. A man invested Rs.2P and Rs. P at 8% compound interest (compounding annually) and 15% simple interest for two years respectively. Difference between compound interest and simple interest received after two years is Rs.410. Find the value of P.
(a) Rs.12500
(b) Rs.17500
(c) Rs.25000
(d) Rs.18400
(e) Rs.19600

Q43. Length of train X is 200 meters and length of train Y is 'a' meter more than train X. If speed of both train X & Y is equal and they cross a signal in 8 sec and 20 secs respectively, then in what time train 'Y' will cross 400 m long platform.
(a) 28 sec
(b) 24 sec
(c) 36 sec
(d) 30 sec
(e) 27 sec

Q44. Amit is $66\frac{2}{3}\%$ more efficient than Vivek who can do the same work in 25% more time than Sameer. If Amit and Sameer together can complete 70% of work in 15 days, then in how many days 90% of work can be completed by Vivek and Sameer together.
(a) 20 days
(b) 25 days
(c) 18 days
(d) 21 days
(e) 30 days

Q45. Area of square is 576 cm^2 and perimeter of square is equal to perimeter of a rectangle. If length of rectangle is 37.5% more than the side of the square, then find the area of rectangle.
(a) 720 cm^2
(b) 676 cm^2
(c) 450 cm^2
(d) 495 cm^2
(e) 630 cm^2

Q46. A shopkeeper has two types of watches (Analog and Digital) . Cost price of an analog watch is 32.5% more than cost price of a digital watch. If cost price of analog watch is increased by 30% and sold in Rs.2067 at the profit of 25%. If digital watch marked up 15% above cost price, then find the marked price of digital watch (in Rs.) .
(a) 1208
(b) 1104
(c) 1076
(d) 1152
(e) 988

Q47. In a vessel P, quantity of spirit was 12 liters more than that of water. After adding 80 liter of mixture having ratio of water and spirit 3: 5 in the vessel P, ratio of water and spirit in the final mixture becomes 9: 13. Find the total quantity of water in the final mixture.
(a) 84 ltr
(b) 64 ltr
(c) 72 ltr
(d) 90 ltr
(e) None of these

Q48. P and Q started a business together with capital of Rs.1600 and Rs.2000 respectively. P left the business after 5 months. P gets 20% of total profit for managing business and remaining is distributed in ratio of their profit sharing. If after a year, P gets total profit of Rs.500 then, find the total profit earned by them.
(a) Rs.1250
(b) Rs.750
(c) Rs.1500
(d) Rs.1750
(e) Rs.1000

Q49. The monthly income of a person is Rs.25000 from which he spends 20% on rent, 10% of remaining on food and 20% of remaining on clothing. The remaining amount, he shares between his son and daughter in the ratio of 5: 4. Find the difference between amount spent on rent and share of his daughter.
(a) Rs.1600
(b) Rs.1400
(c) Rs.1500
(d) Rs.1800
(e) Rs.1200

Q50. A bag has 7 pink, 4 black and 3 yellow balls while another bag has 5 pink, 6 yellow and 3 blue balls. A bag is selected at random and a ball drawn out of it, then find the probability that the ball drawn is pink.
(a) 1/7
(b) 3/7
(c) 2/7
(d) 1
(e) 6/7

Directions (51-55) : What approximate value should come in the place of question (?) mark:

Q51. $?^3 \times 17.98 + 12.03 \% \text{ of } 450.03 = (14.02)^2 + \sqrt[4]{15.99}$
(a) 9
(b) 2
(c) 5
(d) 8
(e) 11

Q52. $\frac{?}{14.08} + (22.03)^2 = (23.98)^2 + \sqrt[3]{63.98}$
(a) 1344
(b) 1300
(c) 1296
(d) 1248
(e) 1440

Q53. $? \% \text{ of } 1355.02 + 19.98\% \text{ of } 1210.01 = (27.99)^2$
(a) 75
(b) 80
(c) 60
(d) 40
(e) 24

**Q54.** $? + 35.09 \% \text{ of } 1279.98 = (24.03)^2 + \sqrt{195.98}$

(a) 142
(b) 148
(c) 156
(d) 164
(e) 176

Q55. $56.03 \% \text{ of } ? + 125.02\% \text{ of } 96.03 = (13.98)^2 - \sqrt[4]{1295.98}$

(a) 120
(b) 115
(c) 105
(d) 125
(e) 135

Directions (56-60) : Given bar graph shows percentage distribution of total Printers ordered by four shopkeeper (P, Q, R & S) and percentage of Printers sold by these four shopkeepers out of total Printers ordered by each. Read the data carefully and answer the questions.
Note - Total Printers ordered by all four shopkeeprs together **= 2400**
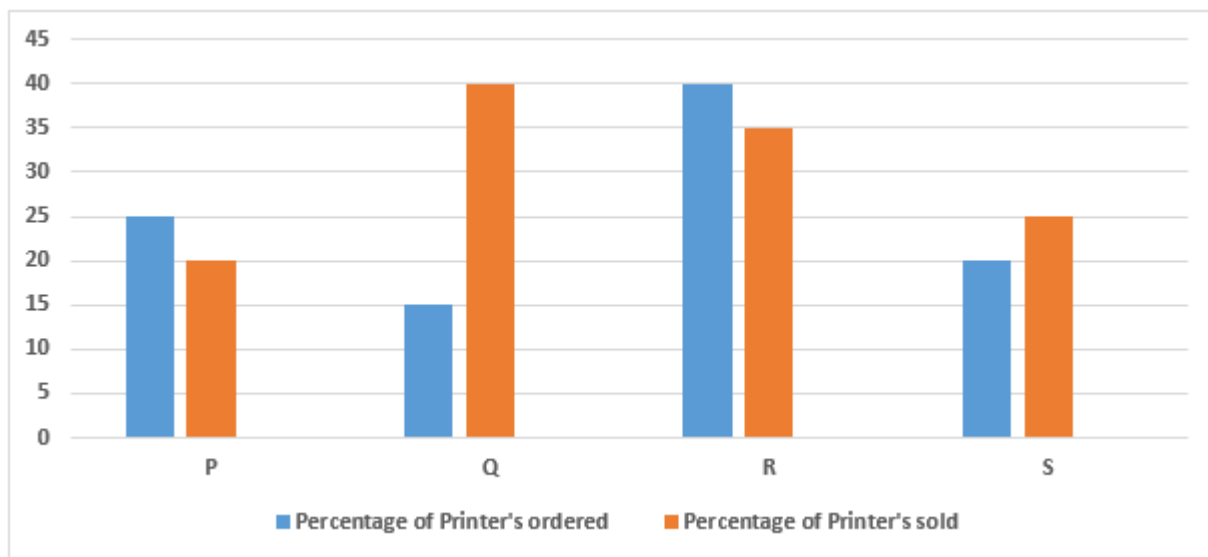
Q56. Total unsold Printers by P & S together are how much more than total sold Printers by R?
(a) 504
(b) 528
(c) 512
(d) 464
(e) 452

Q57. If total Printers sold by shopkeeper T are 125% more than total Printers sold by Q and shopkeeper T sold 27% of total ordered Printers, then find total Printers ordered by T are what percent more than total Printers ordered by R?

(a) 36%

(b) 15%

(c) 30%

(d) 20%

(e) 25%

Q58. Find average number of unsold Printers by Q, R & S?

(a) 480

(b) 400

(c) 320

(d) 440

(e) 288

Q59. Find ratio of total Printers sold by P & S together to total Printers sold by Q?

(a) 5 : 3

(b) 3 : 5

(c) 5 : 4

(d) 5 : 6

(e) 4 : 5

Q60. If total Printers ordered by shopkeeper A is 100% more than total unsold Printers by S and A sold 30% of total ordered Printers, then find unsold Printers by A are what percent of unsold Printers by P?

(a) 105%

(b) 110%

(c) 100%

(d) 96%

(e) 90%

Directions (61-65) : Read the data carefully and answer the questions.

There are 900 employees in a company and there are two buildings P & Q in the company. There are three departments in each building i.e., HR, Production & Management. $\frac{75}{4}$% of total employee in P are in Management and $\frac{200}{7}$% of total employee in Q are in Production. Sum of total employee in Management in P & total employee in Production in Q is 210. $\frac{400}{21}$% of total employee in Q are in Management and 50% of total employee in P are in HR.

Q61. Total HR employees in P is what percent more than that in Production in Q.

(a) 75%

(b) 70%

(c) 90%

(d) 100%

(e) 110%

Q62. Find the ratio of total employee in Management in Q to total employee in Production in P.
(a) 8 : 15
(b) 8 : 17
(c) 8 : 13
(d) 8 : 11
(e) 8 : 9

Q63. If in other building R, total employee are 360 and total employee in Production in R are 25% more than total employee in Management in Q, then find total employee in HR & Management in R is how much less than total employee in HR & Management in P.
(a) 110
(b) 120
(c) 130
(d) 90
(e) 70

Q64. Find the average number of employees in Production in P & Q?
(a) 125
(b) 135
(c) 240
(d) 260
(e) 290

Q65. If out of total employee in HR in P & Q, ratio of male to female is 5 : 3 and 7 : 4 respectively, then find total male in HR from both buildings?
(a) 250
(b) 270
(c) 290
(d) 230
(e) 210

Directions (66-70) : Study the following information carefully and answer the questions given below:
A certain number of boxes are placed one above the other in a stack. Four boxes are placed between G and J. One box is placed between J and W. T is placed two places below W. Three boxes are placed between T and R. R is placed five places below Z which is at sixth position from bottom of the stack. More than one box is placed between Z and G which is at second position from the top of the stack.

Q66. How many boxes are placed in the stack?
(a) 13
(b) 15
(c) 17
(d) Can't be determined
(e) None of these

Q67. What is the position of Z with respect to T?

(a) Fourth above

(b) Either (A) or (D)

(c) Second above

(d) Immediate above

(e) None of these

Q68. How many boxes are placed between J and R?

(a) Five

(b) Six

(c) Seven

(d) Eight

(e) None of these

Q69. What is the position of T from bottom of the stack?

(a) Fifth

(b) Fourth

(c) Sixth

(d) Seventh

(e) None of these

Q70. If J is placed exactly between T and L, then what is the position of L from the top of the stack?

(a) First

(b) Third

(c) Fourth

(d) Fifth

(e) Can't be determined

Directions (71-74) : Study the given information carefully and answer the following questions given below:

In a certain code language

'Premium Indian festival' is coded as 'ko co ao'

'Gold season festival duration' is coded as 'jo ko ro xo'

'Premium water season' is coded as 'ao jo wo'

Q71. Which among the following is the code for 'gold'?

(a) ro

(b) ko

(c) jo

(d) xo

(e) Either (a) or (d)

Q72. 'wo' is the code for which among the following?
(a) Season
(b) Can't be determined
(c) Premium
(d) Water
(e) None of these

Q73. What will be the code for 'Indian season' in the given code language?
(a) ro jo
(b) co jo
(c) ko co
(d) ko ro
(e) None of these

Q74. The code 'xo ao jo' will be the code for which among the following?
(a) Gold premium season
(b) Gold duration season
(c) Indian water duration
(d) Gold duration premium
(e) Indian festival water

Q75. If the given statement 'F≤G=B<N≤H=T≥L>S<K' is definitely true, then which among the following conclusions will be definitely false according to the given statement?
I. T>G
II. H≥K
III. B>H
IV. K>N

(a) Both II and IV
(b) Only III
(c) Only II
(d) Both III and IV
(e) None of these

Directions (76-80) : Study the given information carefully and answer the questions given below:
Nine persons B, T, Y, H, J, D, K, L and R give the exam on three different months viz. October, November and December in three different dates i.e., 20, 21 and 27 of the same year but not necessarily in the same order.
T gives exam on 21 December. Same number of persons give the exam before T and after K respectively. K gives exam exactly between L and H. Three persons give the exam between L and Y. D gives exam just before B. R is not the last person to give the exam. Less than one person gives the exam between R and B.

Q76. Who among the following gives the exam on 20 November?
(a) D
(b) B
(c) R
(d) Y
(e) None of these

Q77. R gives the exam on which among the following date?
(a) 20 November
(b) 21 November
(c) 27 November
(d) 27 December
(e) None of these

Q78. How many persons give the exam before L?
(a) None
(b) Two
(c) Either (a) or (b)
(d) Three
(e) None of these

Q79. How many persons give the exam between H and B?
(a) Two
(b) Three
(c) Four
(d) Five
(e) None of these

Q80. Who among the following gives the exam just after H?
(a) R
(b) D
(c) B
(d) T
(e) None of these

Q81. In the given number '3628179452', if first digit is interchanged with the tenth digit, second digit is interchanged with the ninth digit and so on till the fifth digit is interchanged with the sixth digit. Then, find the difference between the third and seventh digit from left end in the new number?
(a) 6
(b) 7
(c) 1
(d) 4
(e) None of these

Directions (82-83) : Study the given information carefully and answer the questions given below:
There are seven persons W, S, P, D, E, I and N in a family of three generations. N is the mother of three children. S is the paternal aunt of P. E is the mother of P who is the grandson of N. E has no sibling. N has one brother. D is the only brother of W. P is the nephew of W who is the niece of I.

Q82. What is the relation of E with respect to W?
(a) Daughter
(b) Sister-in-law
(c) Sister
(d) Can't be determined
(e) None of these

Q83. Who among the following is the nephew of I?
(a) S
(b) Either (C) or (D)
(c) D
(d) P
(e) None of these

Directions (84-88) : Study the following information carefully and answer the questions given below:
Twelve persons A, S, D, F, G, H, J, K, L, M, N and B sit in two parallel rows (but not necessarily in the same order) in such a way that six persons sit in each row. F, J, S, B, N and L sit in row 2 and all face north. A, G, D, H, M and K sit in row 1 and all face south.
B is the only neighbour of F. D sits diagonally opposite to L. Two persons sit between D and K. The person sits exactly between K and A faces the one who sits immediate right of J. N faces the one who sits third to the left of M. N does not sit opposite to G who does not sit to the left of H. No one sits between B and S.

Q84. Who among the following sits immediate left of H?
(a) M
(b) Either (C) or (D)
(c) K
(d) A
(e) None of these

Q85. Who among the following sits opposite to A?
(a) B
(b) L
(c) N
(d) S
(e) None of these

Q86. Who among the following sits third to the right of the one who faces L?
(a) M
(b) G
(c) K
(d) Either (a) or (c)
(e) None of these

Q87. Four among the following five are same in a certain way and relate to a group, which among the following does not belong to the group?
(a) M-B
(b) H-N
(c) A-L
(d) G-S
(e) K-F

Q88. How many persons sit between G and M?
(a) Two
(b) One
(c) None
(d) Three
(e) None of these

Q89. How many pair of letters are there in the given word 'COMPARTMENT', each of which have as many letters between them (both forward and backward direction) in the word as they have between them according to English alphabetical order?
(a) None
(b) One
(c) Two
(d) Three
(e) More than three

Directions (90-94) : Study the following information carefully to answer the questions given below:
Eight persons P, Q, R, S, T, U, V and W live on different floors (but not necessarily in the same order) of an eight-floor building where ground floor is numbered as 1 and the topmost floor is numbered as 8.
P lives on an even numbered floor. Same number of persons live above and below P and V respectively. T lives two floors above V. Q lives on an odd numbered floor but below P. Q does not live just below P. R lives exactly between Q and V. R lives adjacent to S. W does not live on the topmost floor.

Q90. Who among the following lives adjacent to U?
(a) R
(b) P
(c) V
(d) T
(e) None of these

Q91. S lives on which among the following floors?
(a) Floor 6
(b) Floor 3
(c) Floor 2
(d) Floor 1
(e) None of these

Q92. How many persons live below P?
(a) Seven
(b) Five
(c) One
(d) Three
(e) None of these

Q93. Four among the following five pair are same in a certain manner and belong to a group, which among the following does not belong to the group?
(a) W-V
(b) V-T
(c) S-Q
(d) U-T
(e) P-R

Q94. How many persons live between R and T?
(a) Three
(b) More than three
(c) None
(d) Two
(e) One

Directions (95-96) : In these questions, a relationship between different elements is shown in the statements. The statements are followed by two conclusions. Give answer

Q95.
Statement:
$D < C \geq V \geq F; G < D \leq A$
Conclusion:
I. $C > G$
II. $A \geq V$

(a) if only conclusion I is true.
(b) if only conclusion II is true.
(c) if either conclusion I or II is true.
(d) if neither conclusion I nor II is true.
(e) if both conclusions I and II are true.

Q96.
Statement:
P > Y ≥ R ≥ E = K ≤ M ≤ L < O
Conclusion:
I. L ≥ E
II. P > K

(a) if only conclusion I is true.
(b) if only conclusion II is true.
(c) if either conclusion I or II is true.
(d) if neither conclusion I nor II is true.
(e) if both conclusions I and II are true.

Directions (97-100) : Study the following information carefully and answer the questions given below:
A certain number of persons sit in a row facing to the north. B sits 5th to the right of G. Three persons sit between B and C. A sits 2nd to the left of C and 3rd from one of the extreme ends of the row. The number of persons sit between A and B is same as the number of persons sit to the right of B. T sits immediate right of P. Three persons sit between P and R. S sits 2nd to the right of R. One person sits between S and Y.

Q97. How many persons sit between G and the one who sits immediate right of R?
(a) Five
(b) More than five
(c) One
(d) Two
(e) Three

Q98. 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) S
(b) G
(c) R
(d) P
(e) Y

Q99. The number of persons sit between G and T is same as the number of persons sit between __ and __.
(a) S, Y
(b) B, S
(c) A, T
(d) R, T
(e) Both (b) and (d)

Q100. Who among the following sits 3ʳᵈ to the left of the one who sits 3ʳᵈ to the left of R?
(a) P
(b) T
(c) C
(d) G
(e) Y

Solutions

S1. Ans.(c)
Sol. Among the given options, only statement (c) is correct with reference to the context of the given question. While the rest of the statements are incoherent as per the information provided, thus, they can't be the cause for the impracticality of the new public management. Refer to the starting line of the third paragraph, "The reform often suggested in India is new public management. This as a reform movement promotes privatization and managerial techniques of the private sector as an effective tool to seek improvements in public service delivery and governance. But this isn't a viable solution, not the least in India where there is social inequality and regional variations in development."

S2. Ans.(e)
Sol. All of the given statements are correct with reference to the context of the given question. Refer to the starting lines of the first paragraph, "The recent crisis in the healthcare and economic sectors has tested the resilience of all public institutions. Despite its efforts, bureaucracy has emerged as a major concern for the ineffective response to the crisis. This inadequacy is the reflection of the outdated nature of public bureaucracy. In the 21st century, democratic countries are still relying on traditional bureaucracies to perform public policy formulation and implementation roles."

S3. Ans.(b)
Sol. By referring to the mid-lines of the first paragraph thoroughly, we can infer that only statement (b) is correct with reference to the context of Weberian bureaucracy. While the rest of the statements are incoherent.

S4. Ans.(d)
Sol. Among the given options, only statement (d) is correct with reference to the context of the given question. While the rest of the statements are incorrect based on the information provided. Refer to the starting lines of the second paragraph, "Traditional bureaucracy is still stuck with the leadership of position over leadership of function. The leadership of function is when a person has expert knowledge of a particular responsibility in a particular situation."

S5. Ans.(e)
Sol. All of the given statements are correct based on the information provided in the given passage. Thus, there is no incorrect statement.

S6. Ans.(d)

Sol. Among the given options, both statements (a) and (b) are correct with reference to the new public governance model. While statement (c) is completely incoherent based on the information provided. Refer to the fourth line of the third paragraph, " The most appropriate administrative reform is the model of new public governance. This model is based on collaborative governance in which the public sector, private players and civil society, especially public service organizations (NGOs) , work together for effective public service delivery. There is no domination of public bureaucracy as the sole agency in policy formulation and implementation."

S7. Ans.(c)

Sol. Among the given options, only statement (c) is correct with reference to the context of the given question. While the rest of the statements are incoherent. Refer to the last lines of the second paragraph, "Bureaucracy has become an end in itself rather than a means to an end. Further, the rigid adherence to rules has resulted in the rejection of innovation. It isn't surprising to see pandemic aid getting stuck in cumbersome clearance processes even during the pandemic."

S8. Ans.(b)

Sol. Here, "superior" means higher in rank, status, or quality.
(a) debris- scattered pieces of rubbish or remains.
(b) elite- a select group that is superior in terms of ability or qualities.
(c) menial- (of work) not requiring much skill and lacking prestige.
(d) nasty- very bad or unpleasant.
(e) entail- involve (something) as a necessary or inevitable part or consequence.

S9. Ans.(a)

Sol. Here, "cumbersome" means slow or complicated and therefore inefficient.
(a) convenient- situated so as to allow easy access to
(b) awkward- causing difficulty; hard to do or deal with.
(c) complex- a strong or disproportionate concern or anxiety about something.
(d) cumbrous- difficult to get through.
(e) prejudicial- harmful to someone or something; detrimental.

S10. Ans.(c)

Sol. Here, "domination" means the exercise of power or influence over someone or something or the state of being so controlled.
(a) longing- to have a strong wish or desire.
(b) submission- an act of surrendering to hold by one's opponent.
(c) ascendancy- occupation of a position of dominant power or influence.
(d) mediocrity- the quality of being average or ordinary.
(e) servitude- the state of being a slave or completely subject to someone more powerful.

S11. Ans.(b)

Sol. In order to make to sentence meaningful, we need to interchange 'labs' and 'senior'. After interchange the sentence will be, "The launch was monitored by senior scientists from various labs involved in the design and development of the system."

S12. Ans.(d)

Sol. In order to make to sentence meaningful, we need to interchange 'decades' with 'cooperation' and 'continue' with 'foundation'. After interchanges the sentence will be, "Our cooperation is based on a solid foundation and it will continue to grow over the coming decades.

S13. Ans.(a)

Sol. In order to make to sentence meaningful, we need to interchange 'plan' with 'agreement'. After interchange the sentence will be, "When the first agreement for Chabahar was signed by then Prime Minister, the plan had a three-fold objective"

S14. Ans.(b)

Sol. In order to make to sentence meaningful, we need to interchange 'infrastructure' with 'aimed'. After interchange the sentence will be, "China has been accused of cyberattacks aimed at collecting information of a sovereign's critical infrastructure."

S15. Ans.(c)

Sol. In order to make to sentence meaningful, we need to interchange 'science' with 'improvement' and 'welfare' with 'technology'. After interchanges the sentence will be, "Science has led to major improvements in technology and public health and welfare"

S16. Ans.(d)

Sol. The error-free part is (D) . In part (A) , 'introduce' should be 'introduced' as the given sentence is in past tense. In part (B) , 'constitution' should be 'constitutional' as we need adjective here. In part (C) , 'believe' should be 'belief' as we need noun here.

S17. Ans.(c)

Sol. The error-free part is (C) . In part (A) , 'suddenly' (adverb) should be 'sudden' to modify noun. In part (B) , verb 'appear' should be 'appears' because noun 'turnaround' is singular here. In part (D) , 'affected' should be 'affect' because 'would' (modal auxiliary verb) is followed by base form of main verb.

S18. Ans.(b)

Sol. The error-free part is (B) . In part (A) , 'its' should be 'their' because 'children' is plural here. In part (C) , 'does' should be replaced with 'do' because it has been used here for two nouns which are 'length of eye ball' and 'power'. In part (D) , 'who' should be replaced with 'that' because the word "who" refers to people, while the word "that" refers to things

S19. Ans.(e)

Sol. Statement (D) will be the introductory statement among the options since it best describes the theme of the paragraph. Statement (D) will now be followed by statement (E) , which emphasizes the essential precautions specified in the district health department's advisory. Statement (E) will now be followed by statement (A) , which further stresses the guidelines for students and teachers. Statement (A) will now be followed by statement (C) , which specifies another precaution that schools must take in terms of timings and entries. Finally, statement (B) will be the concluding sentence of the paragraph because it differs from the others in line and expresses the demands of the parents. The sequence formed is DEACB. Thus, the second sentence after rearrangement of the given statements would be "E".

S20. Ans.(a)
Sol. Statement (D) will be the introductory statement among the options since it best describes the theme of the paragraph. Statement (D) will now be followed by statement (E) , which emphasizes the essential precautions specified in the district health department's advisory. Statement (E) will now be followed by statement (A) , which further stresses the guidelines for students and teachers. Statement (A) will now be followed by statement (C) , which specifies another precaution that schools must take in terms of timings and entries. Finally, statement (B) will be the concluding sentence of the paragraph because it differs from the others in line and expresses the demands of the parents. The sequence formed is DEACB. Thus, the third sentence after rearrangement of the given statements would be "A".

S21. Ans.(a)
Sol. Statement (D) will be the introductory statement among the options since it best describes the theme of the paragraph. Statement (D) will now be followed by statement (E) , which emphasizes the essential precautions specified in the district health department's advisory. Statement (E) will now be followed by statement (A) , which further stresses the guidelines for students and teachers. Statement (A) will now be followed by statement (C) , which specifies another precaution that schools must take in terms of timings and entries. Finally, statement (B) will be the concluding sentence of the paragraph because it differs from the others in line and expresses the demands of the parents. The sequence formed is DEACB. Thus, the fifth sentence after rearrangement of the given statements would be "B".

S22. Ans.(c)
Sol. Statement (D) will be the introductory statement among the options since it best describes the theme of the paragraph. Statement (D) will now be followed by statement (E) , which emphasizes the essential precautions specified in the district health department's advisory. Statement (E) will now be followed by statement (A) , which further stresses the guidelines for students and teachers. Statement (A) will now be followed by statement (C) , which specifies another precaution that schools must take in terms of timings and entries. Finally, statement (B) will be the concluding sentence of the paragraph because it differs from the others in line and expresses the demands of the parents. The sequence formed is DEACB. Thus, the first sentence after rearrangement of the given statements would be "D".

S23. Ans.(c)
Sol. Statement (D) will be the introductory statement among the options since it best describes the theme of the paragraph. Statement (D) will now be followed by statement (E) , which emphasizes the essential precautions specified in the district health department's advisory. Statement (E) will now be followed by statement (A) , which further stresses the guidelines for students and teachers. Statement (A) will now be followed by statement (C) , which specifies another precaution that schools must take in terms of timings and entries. Finally, statement (B) will be the concluding sentence of the paragraph because it differs from the others in line and expresses the demands of the parents. The sequence formed is DEACB. Thus, the correct rearrangement of the given statements would be DEACB.

S24. Ans.(b)
Sol. The word "commute" has been used correctly in statement (B) only. In statement (A) , it should be replaced with "blow". While in statement (C) , it should be replaced with "fora".

Commute means travel some distance between one's home and place of work on a regular basis.

Blow means being extremely bad or unwelcome.

Fora mean a meeting or medium where ideas and views on a particular issue can be exchanged.

S25. Ans.(a)

Sol. The word "linger" has been used correctly in statement (A) only. In statement (B) , it should be replaced with "legacy". While in statement (C) , it should be replaced with "balance".

Linger means to spend a long time over (something) .

Legacy means something handed down from an ancestor or a predecessor or from the past.

Balance means a situation in which different elements are equal or in the correct proportions.

S26. Ans.(d)

Sol. The word "soaring" has been used correctly in statement (A) and (B) only. While in statement (C) , it should be replaced with "developing".

Soaring means increasing rapidly above the usual level; flying or rising high in the air.

Developing means inventing something or bringing something such as a product.

S27. Ans.(c)

Sol. The correct word for the given blank is 'allocate'

(a) assemble means gather together in one place for a common purpose.

(b) coordinate means bring the different elements of (a complex activity or organization) into a harmonious or efficient relationship.

(c) allocate means distribute (resources or duties) for a particular purpose.

(d) bastion means an institution, place, or person strongly maintaining particular principles, attitudes, or activities.

(e) mitigate means make (something bad) less severe, serious, or painful.

S28. Ans.(a)

Sol. The correct word for the given blank is 'directed'

(a) directed means guide or advise in a course or decision.

(b) timid means showing a lack of courage or confidence; easily frightened.

(c) replicated means make an exact copy of; reproduce.

(d) threatened means state one's intention to do (something undesirable) in retribution.

(e) tied means fastened or attached with string or similar cord.

S29. Ans.(e)

Sol. The correct word to connect both sentences is 'even after'. Therefore, the sentence will be, "She was not satisfied with her board marks even after getting the first rank in her state"

S30. Ans.(c)

Sol. The correct word to connect both sentences is 'despite'. Therefore, the sentence will be, "China has imposed a Covid-19 lockdown despite only a few cases having been reported in the last month"

S31. Ans.(e)
Sol.

Total number of girls in P = $240 \times \frac{76}{24} = 760$

Total number of girls in Q = $560 \times \frac{30}{70} = 240$

Total number of girls in R = $1000 \times \frac{37.5}{62.5} = 1000 \times \frac{3}{5} = 600$

Total number of girls in S = $840 \times \frac{40}{60} = 560$

Required difference = $600 + 560 - 760 - 240 = 1160 - 1000 = 160$

S32. Ans.(c)
Sol.

Total number of students in S = $840 \times \frac{100}{60} = 1400$

Total number of students in P = $240 \times \frac{100}{24} = 1000$

Required percentage = $\frac{1400-1000}{1000} \times 100 = 40\%$

S33. Ans.(a)
Sol.

Total number of boys in T = $\frac{125}{100} \times 560 = 700$

Total number of girls in T = $\frac{140}{100} \times 1000 \times \frac{100}{62.5} = 2240$

Total number of students in T = $2240 + 700 = 2940$

S34. Ans.(b)
Sol.

Total number of students in S = $840 \times \frac{100}{60} = 1400$

Total number of girls in P and Q = $240 \times \frac{76}{24} + 560 \times \frac{30}{70}$

$= 760 + 240 = 1000$

Required difference = $1400 - 1000 = 400$

S35. Ans.(b)
Sol.

Total number of students in all four academies

$= 240 \times \frac{100}{24} + 560 \times \frac{100}{70} + 1000 \times \frac{100}{62.5} + 840 \times \frac{100}{60}$

$= 1000 + 800 + 1600 + 1400 = 4800$

Total number of coaches required = $\frac{4800}{100} = 48$

S36. Ans.(e)
Sol.

I. $121x^2 - 110 + 21 = 0$

$121x^2 - 33x - 77x + 21 = 0$

$11x(11x - 3) - 7(11x - 3) = 0$

$(11x - 7)(11x - 3) = 0$

$x = \frac{3}{11}, \frac{7}{11}$

II. $169y^2 - 208y + 63 = 0$

$169y^2 - 91y - 117y + 63 = 0$

$13y(13y - 7) - 9(13y - 7) = 0$

$(13y - 7)(13y - 9) = 0$

$y = \dfrac{7}{13}, \dfrac{9}{13}$

So, no relation can be stablished.

S37. Ans.(a)
Sol.

I. $x^2 - 6x + 8 = 0$

$x^2 - 2x - 4x + 8 = 0$

$x(x - 2) - 4(x - 2) = 0$

$(x - 2)(x - 4) = 0$

$x = 2, 4$

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

$y^2 + y + 3y + 3 = 0$

$y(y + 1) + 3(y + 1) = 0$

$(y + 1)(y + 3) = 0$

$y = -1, -3$

So, $x > y$

S38. Ans.(b)
Sol.

I. $12x^2 - 7x + 1 = 0$

$12x^2 - 4x - 3x + 1 = 0$

$4x(3x - 1) - 1(3x - 1) = 0$

$(3x - 1)(4x - 1) = 0$

$x = \dfrac{1}{3}, \dfrac{1}{4}$

II. $20y^2 - 9y + 1 = 0$

$20y^2 - 5y - 4y + 1 = 0$

$5y(4y - 1) - 1(4y - 1) = 0$

$(4y - 1)(5y - 1) = 0$

$y = \dfrac{1}{4}, \dfrac{1}{5}$

So, $x \geq y$

S39. Ans.(e)
Sol.

I. $x^2 + 26x + 165 = 0$

$x^2 + 11x + 15x + 165 = 0$

$x(x + 11) + 15(x + 11) = 0$

$(x + 11)(x + 15) = 0$

$x = -11, -15$

II. $y^2 + 23y + 132 = 0$

$y^2 + 11y + 12y + 132 = 0$

$y(y + 11) + 12(y + 11) = 0$

$(y + 11)(y + 12) = 0$

$y = -11, -12$

So, no relation can be stablished

S40. Ans.(d)
Sol.

I. $1 + \frac{33}{x} + \frac{270}{x^2} = 0$

$x^2 + 33x + 270 = 0$

$x^2 + 15x + 18x + 270 = 0$

$x(x + 15) + 18(x + 15) = 0$

$(x + 15)(x + 18) = 0$

$x = -15, -18$

II. $y^2 + 27y + 180 = 0$

$y^2 + 12y + 15y + 180 = 0$

$y(y + 12) + 15(y + 12) = 0$

$(y + 12)(y + 15) = 0$

$y = -12, -15$

So, $y \geq x$

S41. Ans.(b)
Sol.

Let speed of current be x km/hr.

ATQ,

$(70-x) \times \frac{75}{100} = x$

52.5-0.75x = x

1.75x = 52.5

x = 30

speed in downstream=70 + 30 = 100 km/hr.

S42. Ans.(a)
Sol.

ATQ,

$[2P(1.08)^2 - 2P] - \frac{P \times 15 \times 2}{100} = 410$

$[2.3328P - 2P] - \frac{3P}{10} = 410$

$\Rightarrow \frac{3328P}{10000} - \frac{3P}{10} = 410$

$\Rightarrow \frac{328P}{10000} = 410$

$P = Rs.\,12500$

S43. Ans.(c)
Sol.

Speed of train X = $\frac{200}{8}$ = 25 m/sec

So, speed of train Y = 25 m/sec

ATQ,

$\frac{200+a}{25} = 20$

$a = 300$ m

Now time required to cross platform by train Y

$= \frac{500+400}{25} = 36$ sec

S44. Ans.(b)
Sol.

Ratio of efficiency of Amit and Vivek = 5 : 3

Ratio of time taken by Vivek and Sameer alone to complete the work = 5 : 4

Ratio of efficiency of Vivek and Sameer = 4:5

⇒ Ratio of efficiency of Amit, Vivek and Sameer = 20: 12: 15

Total unit of work = $\frac{15}{70} \times 100 \times 35(20 + 15) = 750$ *units*

Req. time = $\frac{750}{27} \times \frac{90}{100} = 25$ *days*

S45. Ans.(d)
Sol.

Let side of square be a cm.

∴ $a^2 = 576$ cm^2

a = 24 cm

let length and breadth of rectangle be l cm and b cm respectively.

Length of rectangle = $24 \times \frac{11}{8} = 33$ *cm*

ATQ,

4 × 24 = 2 (l + b)

96 = 2 (33 + b)

b = 15 cm

∴ Area of rectangle = 33 × 15 = 495 cm^2

S46. Ans.(b)
Sol.

Let cost price of digital watch = 100x

So, cost price of analog watch = 132.5x

New cost price of analog watch = 132.5x × 1.3 = 172.25x

Selling price of analog watch = 172.25x × 1.25 = 215.3125x

Cost price of analog watch = 2067 $\times \frac{132.5x}{215.3125x}$

= Rs.1272

Cost price of digital watch = 1272 $\times \frac{100x}{132.5x}$ = Rs.960

Marked price of digital watch = 960 $\times \frac{115}{100} = Rs.1104$

S47. Ans.(c)
Sol.

Let quantity of water in vessel P be x liters

Then quantity of spirit in the vessel P = (x+12) lit

Quantity of water added = 30 lit

And quantity of spirit added = 50 lit

ATQ

$\frac{x+30}{x+12+50} = \frac{9}{13}$

⇒ x = 42

Total quantity of water in final mixture = 72 ltrs.

S48. Ans.(a)
Sol.

Let total profit = 100x
P get 20% of total profit for managing business= 20x
Remaining profit is shared in the ratio of their profit sharing
= 1600 × 5 : 2000 × 12
= 1 : 3
Remaining profit is divided between P and Q in the ratio 1 : 3.
$\Rightarrow$ P's total profit = 20x + 80x $\times\frac{1}{4}$
= 20x + 20x
= 40x
ATQ,
40x = 500
$\Rightarrow$ Total profit = 100x = $\frac{500}{40} \times 100$
= Rs.1250

S49. Ans.(b)
Sol.

Let monthly income be 100x
Spent on rent = $100x \times \frac{20}{100} = 20x$
$spent\ on\ food\ (100x - 20x) \times \frac{10}{100} = 8x$
$spent\ on\ cloth = (100x - 20x - 8x) \times \frac{20}{100} = 14.4x$
Remaining amount = $100x - 20x - 8x - 14.4x = 57.6x$
Share of son = $57.6x \times \frac{5}{9} = 32x$
Share of daughter = $57.6x - 32x = 25.6x$
Required difference = $25.6x - 20x = 5.6x$
$5.6x \times \frac{25000}{100x} = Rs.\ 1400$

S50. Ans.(b)
Sol.

The probability of choosing bag = $\frac{1}{2}$
So, the Required probability = $\frac{1}{2}$ (Pink ball from bag 1 + Pink ball from bag 2)
$= \frac{1}{2}\left(\frac{7}{14} + \frac{5}{14}\right)$
$= \frac{12}{28} = \frac{3}{7}$

S51. Ans.(b)
Sol.

$?^3 \times 18 + \frac{12}{100} \times 450 = (14)^2 + \sqrt[4]{16}$
$?^3 \times 18 + 54 = 196 + 2$
$?^3 \times 18 = 198 - 54$
$?^3 \times 18 = 144$
$?^3 = 8$
$? = 2$

S52. Ans.(a)
Sol.

$\frac{?}{14} + (22)^2 = (24)^2 + \sqrt[8]{64}$

$\frac{?}{14} + 484 = 576 + 4$

$\frac{?}{14} = 580 - 484$

$? = 96 \times 14$

$? = 1344$

S53. Ans.(d)
Sol.

$\frac{?}{100} \times 1355 + \frac{20}{100} \times 1210 = (28)^2$

$\frac{?}{100} \times 1355 + 242 = 784$

$\frac{?}{100} \times 1355 = 784 - 242$

$\frac{?}{100} \times 1355 = 542$

$? = \frac{542 \times 100}{1355}$

$? = 40$

S54. Ans.(a)
Sol.

$? + \frac{35}{100} \times 1280 = (24)^2 + \sqrt{196}$

$? + 448 = 576 + 14$

$? = 590 - 448$

$? = 142$

S55. Ans.(d)
Sol.

$\frac{56}{100} \times ? + \frac{125}{100} \times 96 = (14)^2 - \sqrt[4]{1296}$

$\frac{56}{100} \times ? + 120 = 196 - 6$

$\frac{56}{100} \times ? = 190 - 120$

$\frac{56}{100} \times ? = 70$

$? = \frac{70 \times 100}{56}$

$? = 125$

S56. Ans.(a)
Sol.

Total unsold Printers by P & S = $2400 \times \frac{25}{100} \times \frac{80}{100} + 2400 \times \frac{20}{100} \times \frac{75}{100}$

$= 480 + 360$

$= 840$

Total sold Printers by R = $2400 \times \frac{40}{100} \times \frac{35}{100} = 336$

Required difference = $840 - 336 = 504$

S57. Ans.(e)
Sol.

Total Printers sold by T $= 2400 \times \frac{15}{100} \times \frac{40}{100} \times \frac{225}{100} = 324$

Total Printers ordered by T $= 324 \times \frac{100}{27} = 1200$

Total Printers ordered by R $= 2400 \times \frac{40}{100} = 960$

Required percentage $= \frac{1200-960}{960} \times 100 = 25\%$

S58. Ans.(b)
Sol.

Total unsold Printers by Q, R & S
$= 2400 \times \frac{15}{100} \times \frac{60}{100} + 2400 \times \frac{40}{100} \times \frac{65}{100} + 2400 \times \frac{20}{100} \times \frac{75}{100}$
$= 216 + 624 + 360 = 1200$

Required average $= \frac{1200}{3} = 400$

S59. Ans.(a)
Sol.

Total Printers sold by P & S $= 2400 \times \frac{25}{100} \times \frac{20}{100} + 2400 \times \frac{20}{100} \times \frac{25}{100}$
$= 120 + 120 = 240$

Total Printers sold by Q $= 2400 \times \frac{15}{100} \times \frac{40}{100} = 144$

Required ratio $= 240 : 144 = 5 : 3$

S60. Ans.(a)
Sol.

Total Printers ordered by shopkeeper A $= 2400 \times \frac{20}{100} \times \frac{75}{100} \times \frac{200}{100} = 720$

Unsold Printers by A $= 720 \times \frac{70}{100} = 504$

Unsold Printers by P $= 2400 \times \frac{25}{100} \times \frac{80}{100} = 480$

Required parentage $= \frac{504}{480} \times 100 = 105\%$

S61. Ans.(d)
Sol.

Let total employee in P = a
And, total employee in Q = b

Total employee in Management in P $= a \times \frac{75}{4} \times \frac{1}{100} = \frac{3a}{16}$

Total employee in Production in Q $= b \times \frac{200}{7} \times \frac{1}{100} = \frac{2b}{7}$

Given, $\frac{3a}{16} + \frac{2b}{7} = 210$ ------------------- (i)

And $a + b = 900$ ----------------------(ii)

So, from (i) and (ii),

Total employee in P = a = 480

Total employee in Q = b = 420

Total employee in Management in Q = $\frac{400}{21} \times \frac{1}{100} \times 420 = 80$

Total employee in HR in P = $\frac{1}{2} \times 480 = 240$

Total employee in Management in P = $\frac{3 \times 480}{16} = 90$

Total employee in Production in Q = $= \frac{2 \times 420}{7} = 120$

Now, total employee in Production in P = $480 - 240 - 90 = 150$
And total employee in HR in Q = $420 - 120 - 80 = 220$

Department	P	Q
HR	240	220
Production	150	120
Management	90	80
Total	480	420

Required percentage = $\frac{240 - 120}{120} \times 100 = 100\%$

S62. Ans.(a)
Sol.

Let total employee in P = a
And, total employee in Q = b

Total employee in Management in P = $a \times \frac{75}{4} \times \frac{1}{100} = \frac{3a}{16}$

Total employee in Production in Q = $b \times \frac{200}{7} \times \frac{1}{100} = \frac{2b}{7}$

Given, $\frac{3a}{16} + \frac{2b}{7} = 210$ -------------------- (i)
And $a + b = 900$ -----------------------(ii)
So, from (i) and (ii),
Total employee in P = a = 480
Total employee in Q = b = 420

Total employee in Management in Q = $\frac{400}{21} \times \frac{1}{100} \times 420 = 80$

Total employee in HR in P = $\frac{1}{2} \times 480 = 240$

Total employee in Management in P = $\frac{3 \times 480}{16} = 90$

Total employee in Production in Q = $= \frac{2 \times 420}{7} = 120$

Now, total employee in Production in P = $480 - 240 - 90 = 150$
And total employee in HR in Q = $420 - 120 - 80 = 220$

Department	P	Q
HR	240	220
Production	150	120
Management	90	80
Total	480	420

Required ratio = $\frac{80}{150} = 8 : 15$

S63. Ans.(e)
Sol.

Let total employee in P = a

And, total employee in Q = b

Total employee in Management in P = $a \times \frac{75}{4} \times \frac{1}{100} = \frac{3a}{16}$

Total employee in Production in Q = $b \times \frac{200}{7} \times \frac{1}{100} = \frac{2b}{7}$

Given, $\frac{3a}{16} + \frac{2b}{7} = 210$ -------------------- (i)

And $a + b = 900$ ----------------------(ii)

So, from (i) and (ii),

Total employee in P = a = 480

Total employee in Q = b = 420

Total employee in Management in Q = $\frac{400}{21} \times \frac{1}{100} \times 420 = 80$

Total employee in HR in P = $\frac{1}{2} \times 480 = 240$

Total employee in Management in P = $\frac{3 \times 480}{16} = 90$

Total employee in Production in Q = $= \frac{2 \times 420}{7} = 120$

Now, total employee in Production in P = $480 - 240 - 90 = 150$

And total employee in HR in Q = $420 - 120 - 80 = 220$

Department	P	Q
HR	240	220
Production	150	120
Management	90	80
Total	480	420

Total employee in Production in R = $80 \times \frac{125}{100} = 100$

Total employee in HR & Management in R = $360 - 100 = 260$

Required difference = $(240 + 90) - 260 = 70$

S64. Ans.(b)
Sol.

Let total employee in P = a

And, total employee in Q = b

Total employee in Management in P = $a \times \frac{75}{4} \times \frac{1}{100} = \frac{3a}{16}$

Total employee in Production in Q = $b \times \frac{200}{7} \times \frac{1}{100} = \frac{2b}{7}$

Given, $\frac{3a}{16} + \frac{2b}{7} = 210$ -------------------- (i)

And $a + b = 900$ ----------------------(ii)

So, from (i) and (ii),

Total employee in P = a = 480

Total employee in Q = b = 420

Total employee in Management in Q = $\frac{400}{21} \times \frac{1}{100} \times 420 = 80$

Total employee in HR in P = $\frac{1}{2} \times 480 = 240$

Total employee in Management in P = $\frac{3 \times 480}{16} = 90$

Total employee in Production in Q = $= \frac{2 \times 420}{7} = 120$

Now, total employee in Production in P = $480 - 240 - 90 = 150$

And total employee in HR in Q = $420 - 120 - 80 = 220$

Department	P	Q
HR	240	220
Production	150	120
Management	90	80
Total	480	420

Required average = $\frac{150 + 120}{2} = 135$

S65. Ans.(c)
Sol.

Let total employee in P = a

And, total employee in Q = b

Total employee in Management in P = $a \times \frac{75}{4} \times \frac{1}{100} = \frac{3a}{16}$

Total employee in Production in Q = $b \times \frac{200}{7} \times \frac{1}{100} = \frac{2b}{7}$

Given, $\frac{3a}{16} + \frac{2b}{7} = 210$ ------------------ (i)

And $a + b = 900$ -----------------------(ii)

So, from (i) and (ii),

Total employee in P = a = 480

Total employee in Q = b = 420

Total employee in Management in Q = $\frac{400}{21} \times \frac{1}{100} \times 420 = 80$

Total employee in HR in P = $\frac{1}{2} \times 480 = 240$

Total employee in Management in P = $\frac{3 \times 480}{16} = 90$

Total employee in Production in Q = $= \frac{2 \times 420}{7} = 120$

Now, total employee in Production in P = $480 - 240 - 90 = 150$

And total employee in HR in Q = $420 - 120 - 80 = 220$

Department	P	Q
HR	240	220
Production	150	120
Management	90	80
Total	480	420

Total males in HR from both buildings = $240 \times \frac{5}{8} + 220 \times \frac{7}{11} = 150 + 140 = 290$

S66. Ans.(b)

Sol. Four boxes are placed between G and J. One box is placed between J and W. T is placed two places below W. There are two possible cases. Three boxes are placed between T and R.

Boxes	
Case 1	Case 2
G	J
	W
	T
J	G
W	
	R
T	
R	

R is placed five places below Z which is at sixth position from bottom of the stack. More than one box is placed between Z and G which is at second position from the top of the stack. Case 2 will eliminate here. So, the final arrangement is:

Boxes
G
L
J
W
Z
T
R

S67. Ans.(d)

Sol. Four boxes are placed between G and J. One box is placed between J and W. T is placed two places below W. There are two possible cases. Three boxes are placed between T and R.

Boxes	
Case 1	Case 2
G	J
	W
	T
J	G
W	
	R
T	
R	

R is placed five places below Z which is at sixth position from bottom of the stack. More than one box is placed between Z and G which is at second position from the top of the stack. Case 2 will eliminate here. So, the final arrangement is:

Boxes
G
L
J
W
Z
T
R

S68. Ans.(c)
Sol. Four boxes are placed between G and J. One box is placed between J and W. T is placed two places below W. There are two possible cases. Three boxes are placed between T and R.

Boxes	
Case 1	Case 2
G	J
	W
	T
J	G
W	
	R
T	
R	

R is placed five places below Z which is at sixth position from bottom of the stack. More than one box is placed between Z and G which is at second position from the top of the stack. Case 2 will eliminate here. So, the final arrangement is:

Boxes
G
L
J
W
Z
T
R

S69. Ans.(a)
Sol. Four boxes are placed between G and J. One box is placed between J and W. T is placed two places below W. There are two possible cases. Three boxes are placed between T and R.

Boxes	
Case 1	Case 2
G	J
	W
	T
J	G
W	
	R
T	
R	

R is placed five places below Z which is at sixth position from bottom of the stack. More than one box is placed between Z and G which is at second position from the top of the stack. Case 2 will eliminate here. So, the final arrangement is:

Boxes
G
L
J
W
Z
T
R

S70. Ans.(b)
Sol. Four boxes are placed between G and J. One box is placed between J and W. T is placed two places below W. There are two possible cases. Three boxes are placed between T and R.

Boxes	
Case 1	Case 2
G	J
	W
	T
J	G
W	
	R
T	
R	

R is placed five places below Z which is at sixth position from bottom of the stack. More than one box is placed between Z and G which is at second position from the top of the stack. Case 2 will eliminate here. So, the final arrangement is:

Boxes
G
L
J
W
Z
T
R

S71. Ans.(e)
Sol.

Words	Codes
Premium	ao
Indian	co
Festival	ko
Duration/ Gold	ro/xo
Water	wo
Season	jo

S72. Ans.(d)
Sol.

Words	Codes
Premium	ao
Indian	co
Festival	ko
Duration/ Gold	ro/xo
Water	wo
Season	jo

S73. Ans.(b)
Sol.

Words	Codes
Premium	ao
Indian	co
Festival	ko
Duration/ Gold	ro/xo
Water	wo
Season	jo

S74. Ans.(a)
Sol.

Words	Codes
Premium	ao
Indian	co
Festival	ko
Duration/ Gold	ro/xo
Water	wo
Season	jo

S75. Ans.(b)

S76. Ans.(a)
Sol. T gives exam on 21 December. Same number of persons give the exam before T and after K respectively. K gives exam exactly between L and H. There are two possible cases.

Months	Dates	Persons	Persons
		Case 1	Case 2
October	20	L	H
	21	K	K
	27	H	L
November	20		
	21		
	27		
December	20		
	21	T	T
	27		

Three persons give the exam between L and Y. D gives exam just before B. R is not the last person to give the exam. Less than one person gives the exam between R and B. Case 1 will eliminate here. So, the final arrangement is:

Months	Dates	Persons
		Case 2
October	20	H
	21	K
	27	L
November	20	D
	21	B
	27	R
December	20	Y
	21	T
	27	J

S77. Ans.(c)
Sol. T gives exam on 21 December. Same number of persons give the exam before T and after K respectively. K gives exam exactly between L and H. There are two possible cases.

Months	Dates	Persons Case 1	Persons Case 2
October	20	L	H
	21	K	K
	27	H	L
November	20		
	21		
	27		
December	20		
	21	T	T
	27		

Three persons give the exam between L and Y. D gives exam just before B. R is not the last person to give the exam. Less than one person gives the exam between R and B. Case 1 will eliminate here. So, the final arrangement is:

Months	Dates	Persons Case 2
October	20	H
	21	K
	27	L
November	20	D
	21	B
	27	R
December	20	Y
	21	T
	27	J

S78. Ans.(b)

Sol. T gives exam on 21 December. Same number of persons give the exam before T and after K respectively. K gives exam exactly between L and H. There are two possible cases.

Months	Dates	Persons Case 1	Persons Case 2
October	20	L	H
	21	K	K
	27	H	L
November	20		
	21		
	27		
December	20		
	21	T	T
	27		

Three persons give the exam between L and Y. D gives exam just before B. R is not the last person to give the exam. Less than one person gives the exam between R and B. Case 1 will eliminate here. So, the final arrangement is:

Months	Dates	Persons
		Case 2
October	20	H
	21	K
	27	L
November	20	D
	21	B
	27	R
December	20	Y
	21	T
	27	J

S79. Ans.(b)

Sol. T gives exam on 21 December. Same number of persons give the exam before T and after K respectively. K gives exam exactly between L and H. There are two possible cases.

Months	Dates	Persons	Persons
		Case 1	Case 2
October	20	L	H
	21	K	K
	27	H	L
November	20		
	21		
	27		
December	20		
	21	T	T
	27		

Three persons give the exam between L and Y. D gives exam just before B. R is not the last person to give the exam. Less than one person gives the exam between R and B. Case 1 will eliminate here. So, the final arrangement is:

Months	Dates	Persons
		Case 2
October	20	H
	21	K
	27	L
November	20	D
	21	B
	27	R
December	20	Y
	21	T
	27	J

S80. Ans.(e)

Sol. T gives exam on 21 December. Same number of persons give the exam before T and after K respectively. K gives exam exactly between L and H. There are two possible cases.

Months	Dates	Persons	Persons
		Case 1	Case 2
October	20	L	H
	21	K	K
	27	H	L
November	20		
	21		
	27		
December	20		
	21	T	T
	27		

Three persons give the exam between L and Y. D gives exam just before B. R is not the last person to give the exam. Less than one person gives the exam between R and B. Case 1 will eliminate here. So, the final arrangement is:

Months	Dates	Persons
		Case 2
October	20	H
	21	K
	27	L
November	20	D
	21	B
	27	R
December	20	Y
	21	T
	27	J

S81. Ans.(d)
Sol. Original Number= 3628179452
New number= 2549718263; difference= 8-4= 4

S82. Ans.(b)
Sol.

I(+)———N(-)
|
W(-)———S(-)———D(+)═══E(-)
|
P(+)

S83. Ans.(c)
Sol.

I(+)———N(-)
|
W(-)———S(-)———D(+)═══E(-)
|
P(+)
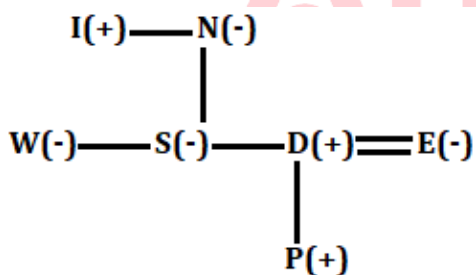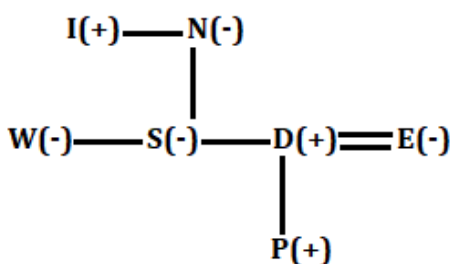
S84. Ans.(d)

Sol. From the statement, B is the only neighbour of F, there are two possible cases. D sits diagonally opposite to L. Two persons sit between D and K. The person sits exactly between K and A faces the one who sits immediate right of J.
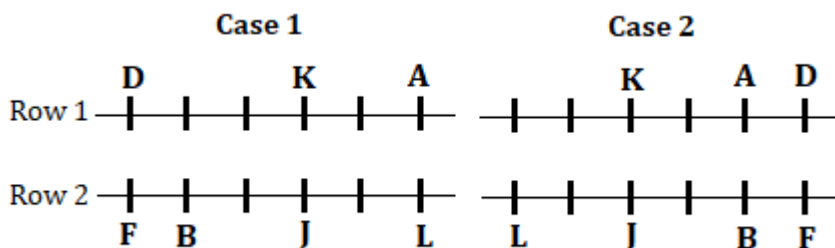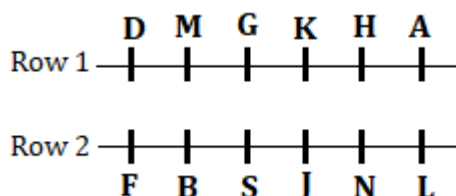
Case 1

Row 1 — D   K   A

Row 2 — F B   J   L

Case 2

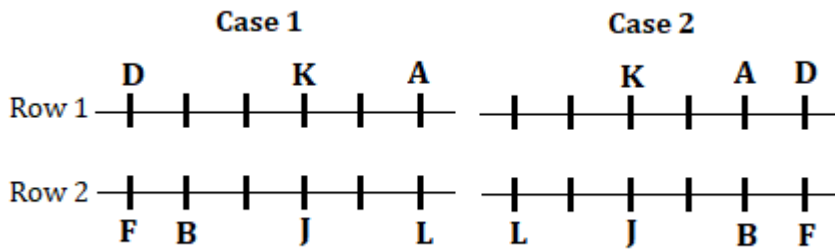Row 1 — K   A D

Row 2 — L   J   B F

N faces the one who sits third to the left of M. N does not sit opposite to G who does not sit to the left of H. No one sits between B and S. Case 2 will eliminate here. So, the final arrangement is:
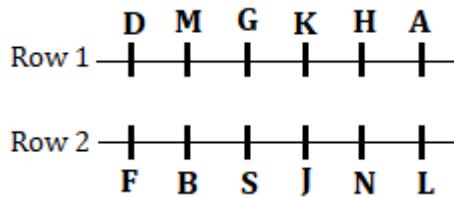
Row 1 — D M G K H A

Row 2 — F B S J N L

S85. Ans.(b)

Sol. From the statement, B is the only neighbour of F, there are two possible cases. D sits diagonally opposite to L. Two persons sit between D and K. The person sits exactly between K and A faces the one who sits immediate right of J.

Case 1

Row 1 — D   K   A

Row 2 — F B   J   L
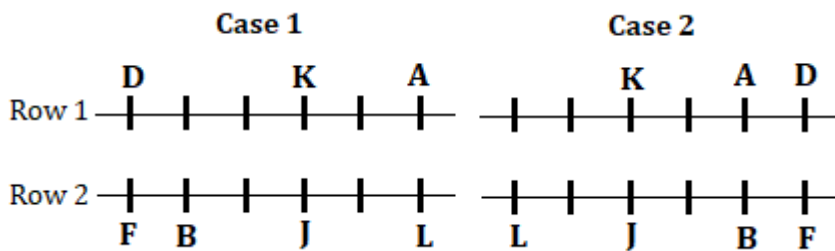
Case 2

Row 1 — K   A D

Row 2 — L   J   B F

N faces the one who sits third to the left of M. N does not sit opposite to G who does not sit to the left of H. No one sits between B and S. Case 2 will eliminate here. So, the final arrangement is:

Row 1 — D M G K H A

Row 2 — F B S J N L

S86. Ans.(b)

Sol. From the statement, B is the only neighbour of F, there are two possible cases. D sits diagonally opposite to L. Two persons sit between D and K. The person sits exactly between K and A faces the one who sits immediate right of J.

N faces the one who sits third to the left of M. N does not sit opposite to G who does not sit to the left of H. No one sits between B and S. Case 2 will eliminate here. So, the final arrangement is:
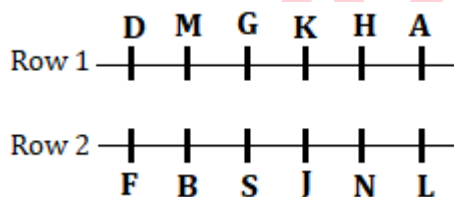

S87. Ans.(e)
Sol. From the statement, B is the only neighbour of F, there are two possible cases. D sits diagonally opposite to L. Two persons sit between D and K. The person sits exactly between K and A faces the one who sits immediate right of J.

N faces the one who sits third to the left of M. N does not sit opposite to G who does not sit to the left of H. No one sits between B and S. Case 2 will eliminate here. So, the final arrangement is:
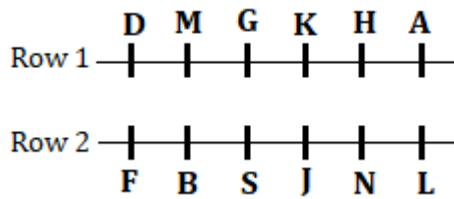

S88. Ans.(c)
Sol. From the statement, B is the only neighbour of F, there are two possible cases. D sits diagonally opposite to L. Two persons sit between D and K. The person sits exactly between K and A faces the one who sits immediate right of J.
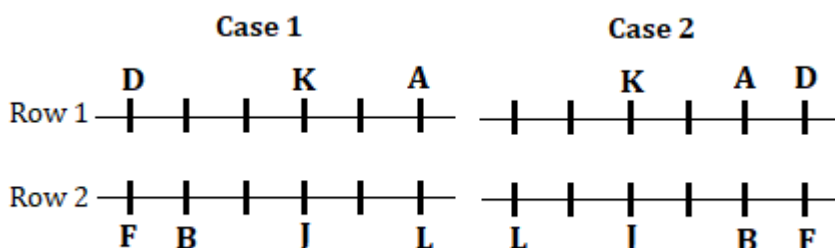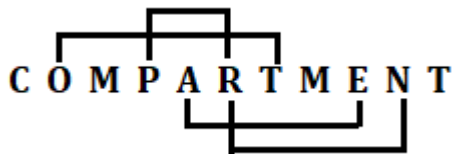
N faces the one who sits third to the left of M. N does not sit opposite to G who does not sit to the left of H. No one sits between B and S. Case 2 will eliminate here. So, the final arrangement is:

S89. Ans.(e)
Sol.

C O M P A R T M E N T

S90. Ans.(d)
Sol. P lives on an even numbered floor. Same number of persons live above and below P and V respectively. T lives two floors above V. There are three possible cases.

Floors	Persons		
	Case 1	Case 2	Case 3
8	P		
7			T
6		P	
5		T	V
4			P
3	T	V	
2			
1	V		

Q lives on an odd numbered floor but below P. Q does not live just below P. R lives exactly between Q and V. R lives adjacent to S. Case 1 and Case 2 will eliminate here. W does not live on the topmost floor. So, the final arrangement is:

Floors	Persons
8	U
7	T
6	W
5	V
4	P
3	R
2	S
1	Q

S91. Ans.(c)
Sol. P lives on an even numbered floor. Same number of persons live above and below P and V respectively. T lives two floors above V. There are three possible cases.

Floors	Persons		
	Case 1	Case 2	Case 3
8	P		
7			T
6		P	
5		T	V
4			P
3	T	V	
2			
1	V		

Q lives on an odd numbered floor but below P. Q does not live just below P. R lives exactly between Q and V. R lives adjacent to S. Case 1 and Case 2 will eliminate here. W does not live on the topmost floor. So, the final arrangement is:

Floors	Persons
8	U
7	T
6	W
5	V
4	P
3	R
2	S
1	Q

S92. Ans.(d)
Sol. P lives on an even numbered floor. Same number of persons live above and below P and V respectively. T lives two floors above V. There are three possible cases.

Floors	Persons		
	Case 1	Case 2	Case 3
8	P		
7			T
6		P	
5		T	V
4			P
3	T	V	
2			
1	V		

Q lives on an odd numbered floor but below P. Q does not live just below P. R lives exactly between Q and V. R lives adjacent to S. Case 1 and Case 2 will eliminate here. W does not live on the topmost floor. So, the final arrangement is:

Floors	Persons
8	U
7	T
6	W
5	V
4	P
3	R
2	S
1	Q

S93. Ans.(b)

Sol. P lives on an even numbered floor. Same number of persons live above and below P and V respectively. T lives two floors above V. There are three possible cases.

Floors	Persons		
	Case 1	Case 2	Case 3
8	P		
7			T
6		P	
5		T	V
4			P
3	T	V	
2			
1	V		

Q lives on an odd numbered floor but below P. Q does not live just below P. R lives exactly between Q and V. R lives adjacent to S. Case 1 and Case 2 will eliminate here. W does not live on the topmost floor. So, the final arrangement is:

Floors	Persons
8	U
7	T
6	W
5	V
4	P
3	R
2	S
1	Q

S94. Ans.(a)

Sol. P lives on an even numbered floor. Same number of persons live above and below P and V respectively. T lives two floors above V. There are three possible cases.

Floors	Persons		
	Case 1	Case 2	Case 3
8	P		
7			T
6		P	
5		T	V
4			P
3	T	V	
2			
1	V		

Q lives on an odd numbered floor but below P. Q does not live just below P. R lives exactly between Q and V. R lives adjacent to S. Case 1 and Case 2 will eliminate here. W does not live on the topmost floor. So, the final arrangement is:

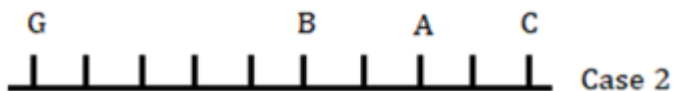| Floors	Persons
8	U
7	T
6	W
5	V
4	P
3	R
2	S
1	Q

S95. Ans.(a)
Sol. I. C > G (True)   II. A ≥ V (False)
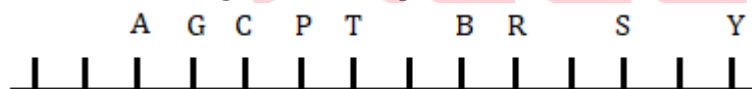
S96. Ans.(e)
Sol. I. L   ≥ E (True)   II. P > K (True)

S97. Ans.(b)
Sol. From the given statements, B sits 5th to the right of G. Three persons sit between B and C. Here we get 2 possible cases- Case 1 and Case 2. A sits 2nd to the left of C and 3rd from one of the extreme ends of the row.

The number of persons sit between A and B is same as the number of persons sit to the right of B. From this condition Case 2 is ruled out now. T sits immediate right of P. Three persons sit between P and R. S sits 2nd to the right of R. One person sits between S and Y. So, the final arrangement is-
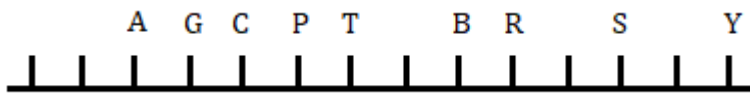

S98. Ans.(e)
Sol. From the given statements, B sits 5th to the right of G. Three persons sit between B and C. Here we get 2 possible cases- Case 1 and Case 2. A sits 2nd to the left of C and 3rd from one of the extreme ends of the row.
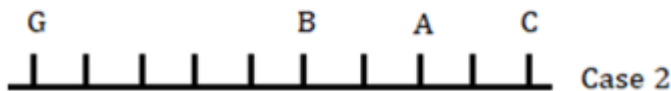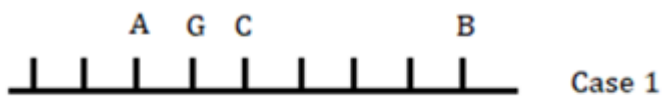
The number of persons sit between A and B is same as the number of persons sit to the right of B. From this condition Case 2 is ruled out now. T sits immediate right of P. Three persons sit between P and R. S sits 2nd to the right of R. One person sits between S and Y. So, the final arrangement is-
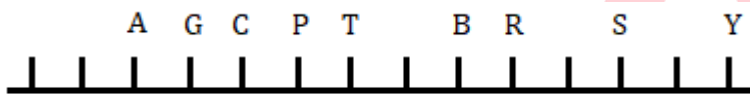
```
        A   G   C   P   T       B   R       S       Y
    |___|___|___|___|___|___|___|___|___|___|___|___|___|___|
```

S99. Ans.(e)
Sol. From the given statements, B sits 5th to the right of G. Three persons sit between B and C. Here we get 2 possible cases- Case 1 and Case 2. A sits 2nd to the left of C and 3rd from one of the extreme ends of the row.

```
        A   G   C           B
    |___|___|___|___|___|___|___|___|___|___|   Case 1
```

```
    G               B       A       C
    |___|___|___|___|___|___|___|___|___|___|   Case 2
```
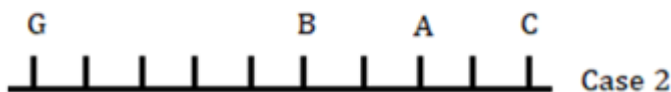
The number of persons sit between A and B is same as the number of persons sit to the right of B. From this condition Case 2 is ruled out now. T sits immediate right of P. Three persons sit between P and R. S sits 2nd to the right of R. One person sits between S and Y. So, the final arrangement is-
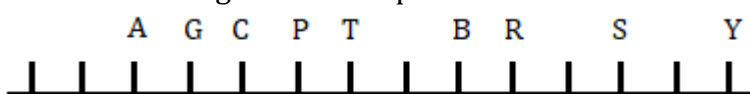
```
        A   G   C   P   T       B   R       S       Y
    |___|___|___|___|___|___|___|___|___|___|___|___|___|___|
```

S100. Ans.(d)
Sol. From the given statements, B sits 5th to the right of G. Three persons sit between B and C. Here we get 2 possible cases- Case 1 and Case 2. A sits 2nd to the left of C and 3rd from one of the extreme ends of the row.

```
        A   G   C           B
    |___|___|___|___|___|___|___|___|   Case 1
```

```
    G               B       A       C
    |___|___|___|___|___|___|___|___|___|   Case 2
```

The number of persons sit between A and B is same as the number of persons sit to the right of B. From this condition Case 2 is ruled out now. T sits immediate right of P. Three persons sit between P and R. S sits 2nd to the right of R. One person sits between S and Y. So, the final arrangement is-

```
        A   G   C   P   T       B   R       S       Y
    |___|___|___|___|___|___|___|___|___|___|___|___|___|___|
```