# NIACL AO Prelims 2021 Previous year Paper

**Directions (1-6): Read the following passage and answer the given questions. Some words are highlighted to help you answer the questions**

Uzbekistan, is a doubly landlocked country, landlocked itself, and surrounded by landlocked countries. That is unfortunate, given that one of its main exports, natural gas, is increasingly traded by sea. What is more, the trend to liquefy gas and ship it around the world in giant tankers has given importers much more choice about where to buy. The result has been more competition, lower prices and thus a much more difficult market for countries like Uzbekistan that export their gas the old-fashioned way, by pipeline. As if to underline the idea that exporting gas by pipeline was an unreliable way to earn a living, China cut its imports of Uzbek gas by two-thirds this year amid the coronavirus-induced economic slowdown, and Russia shut them off altogether. Those two countries sucked up 80% of Uzbekistan's $2.3bn of gas exports last year, leaving Uzbekistan with lots of gas it has no way of selling.

The government's solution is to consume the gas itself. Near the industrial city of Qarshi, it is pouring $3.6bn into a plant that will turn Uzbekistan's gas into petrol and other liquid fuels, a process called gas-to-liquids. It is also **encouraging** the construction of factories that use gas as a feedstock to make plastics and other petrochemicals. A Chinese-owned PVC factory, for instance, opened late last year about 140km from Qarshi. The plan is to end all gas exports by 2025, even as production of gas grows.

The global market for gas is volatile, complains Ulugbek Sayidov, chairman of the state-owned company that runs the country's pipelines: "It's better for us to use this gas on the domestic market as opposed to exporting it." The government _____ it can make more money by processing the gas, as well as creating jobs and attracting investment. It believes manufacturing polythene, for instance, should generate eight times the value of simply selling the gas used to make it. It wants plastic production to grow 20-fold by 2030. Gas is not the only resource the government wants to put to better use: it hopes to end the export of raw cotton this year, as well.

But gas-to-liquids, at least, is a capital-intensive technology that is usually viable only when oil prices are high, notes David Ramberg, a former academic. Only four other countries use it: Malaysia, Nigeria, Qatar and South Africa. The government, however, insists that even with the oil price at the current $40 or so a barrel, it will save $1bn a year on fuel imports. Oltin Yo'l (Golden Road), the gas-to-liquids plant, will be profitable when it opens next year, promises Bekhzot Normatov, a deputy energy minister. Even sceptics **concede** that its output is more valuable than unsold gas, stranded untouched below the steppe.

**Q1. What is/are the main reason(s) Uzbekistan is facing an export crisis of gas?**

(I)Uzbekistan is a doubly landlocked country, which makes the only way to export gas is through pipelines.
(II) Russia and China stopped their imports of gas from Uzbekistan.
(III) The government is making fundamental shifts to the economy: from a command-and-control to a market-based economy.
(a)Only (I)
(b)Only (II)
(c)Only (III)
(d)Only (I) and (II)
(e)Only (I) and (III)

**Q2. According to the chairman of the state-owned company that runs pipelines, how investment in polythene production would be beneficial for the country?**

(I)It would generate eight times more revenue than simply selling the gas.
(II)Polythene production is an eco-friendly and cheap investment, thus low investment and high revenue.
(III)It could stop the export of raw cotton.
(a)Only (II)
(b)Only (III)
(c)Only (I) and (III)
(d)Only (I) and (II)
(e) All (I), (II) and (III)

**Q3. Which of these countries is not among the ones that use gas-to-liquid technology?**

(a)Nigeria
(b)Sudan
(c)South Africa
(d)Malaysia
(e)Qatar

**Q4.** Which of the following word is the SUBSTITUTE of the word "**Concede**" as per the passage?
(a)Acknowledge
(b)Repudiate
(c)Negate
(d)Contradict
(e)Dispute

**Q5.** Which of the following word is the OPPOSITE of the word "**encouraging**" as per the passage?
(a)inciting
(b)aiding
(c)alleviating
(d)Dissuading
(e)mitigating

**Q6. Which of the following word can fit into the blank given in the passage, that makes the sentence grammatically and contextually correct.**
(a)confirm
(b)reckon
(c)calculate
(d)oppose
(e)rebut

**Directions (7-11): In the questions, a part of the sentence is given in bold. Below are given alternatives to the Underline part at (A), (B) (C)and (D) which may improve the sentence. Choose the correct alternative. In case no improvement is needed your answer is (E).**

**Q7.** When deciding between two options, people will naturally **gravitated for the option** that requires least amount of effort.
(a)gravitates for an option
(b)gravitating towards the option
(c)gravitate towards the option
(d)have gravitated between the option
(e)No improvement required

**Q8.Until the lions have their** own historian, the history of the hunt will always glorify the hunter.
(a)unless lion has his
(b)until the lions has its
(c) then the lions have their
(d)however the lions have their
(e)No Improvement

**Q9.**There are times in our lives when the hours are an unmoving icy morass and **times when they flew past us in a blur**.
(a)times when they flew past us in blurrily
(b)times when they fly past us in a blur
(c)time when it flies past us in a blur
(d)time when it fly past us in blur
(e)No Improvement

**Q10.** The old man felled some trees in the garden with **hardly no effort** at all.
(a)hardly any effort
(b)rarely some effort
(c)barely no effort
(d)hard effort
(e)No Improvement

**Q11.** Although India is still **by far** a poor country, it can become rich if its natural and human resources are fully utilised.
(a)by and large
(b)by and by
(c)far and few
(d)few and large
(e)No Improvement

**Directions (12-18): In each of the questions given below an incomplete sentence which must be filled/completed with one of the words below. Choose the correct option and complete the given sentences.**

**Q12. Many power plants are operating with zero _____stock or with stocks that could last just a few days.**
(a)surplus
(b)reserve
(c)buffer
(d)supply
(e)shortage

**Q13. Women and girls in developing countries spend hours each day _____water, pulling women away from other productive activities and girls out of school.**
(a)fetching
(b)captivating
(c)carry
(d)abandoning
(e)conveying

**Q14. Foremost is the need to develop a _____policy framework to coordinate the reconstruction effort.**
(a)ludicrous
(b)spurious
(c)coherent
(d)illogical
(e)absurd

**Q15. In the wake of the controversy _____on the Internet over the past few days, I wanted to take a deeper look at some of the pictures that were published.**
(a)raging
(b)tranquil
(c)placid
(d)fizzing
(e)excited

**Q16. Soham is very set in his ways, but his friend has a more _____ attitude to life.**
(a)better
(b)changeable
(c)flexible
(d)fluid
(e)moveable

**Q17. After the rain the weather _____and the sun came out.**
(a)cleared up
(b)cleared out
(c)cleared off
(d)cleared away
(e)cleared on

**Q18. The cinema _____ a welcome escape from cramped and dull city life and the Indians are avid movie-goers.**
(a)depicts
(b)highlights
(c)follows
(d)offers
(e)faces

**Directions (19-23): In the question below, the passage consists of five sentences. These are labelled as P, Q, R, S and T. Find out the proper order for the five sentences and answer the questions based on that.**
(P) The value of the money of one country in relation to the money of other countries is agreed upon.
(Q) For instance, an American dollar or a British pound sterling is worth certain amounts in the money of other countries.
(R) Payment for imports and exports is made through a system called foreign exchange.
(S) Sometimes a United States dollar is worth 12 pesos in Mexico. Another time it may be worth eight pesos
(T) These rates of exchange vary from time to time.

**Q19. What will be the second sentence after the rearrangement?**
(a)P
(b)Q
(c)R
(d)S
(e)T

**Q20. What will be the first sentence after rearrangement?**
(a)P
(b)Q
(c)R
(d)S
(e)T

**Q21.what will be the fourth sentence after rearrangement?**
(a)P
(b)Q
(c)R
(d)S
(e)T

**Q22. What will be the third sentence after rearrangement?**
(a)P
(b)Q
(c)R
(d)S
(e)T

**Q23. What will be the fifth(last) sentence after rearrangement?**
(a)P
(b)Q
(c)R
(d)S
(e)T

**Directions (24-26): In each of the given sentence four words are given in bold in which one is wrongly spelt. Choose the one which is wrongly spelt as your answer and if there is no word like that choose the option (E) as your answer.**

**Q24.** social media offers an **accessible** platform for people around the world to **connect**, raise **awareness**, and organize, but these platforms also **sprade** false information faster than truth.
(a)accessible
(b)connect
(c)awareness
(d)sprade
(e)No Error

**Q25.** Officials said that the **systam** had been developed and **implemented** a team of **engineer** to meet the **requirement** of the company.
(a)systam
(b)implemented
(c)engineer
(d)requirement
(e)No error

**Q26.** Due to technology, a lot of **facilities** are available in **villages** today but the right **opportunities** to work, a clean environment and basic **ameneties** are still missing from our villages
(a)Facility
(b)villages
(c)opportunities
(d)ameneties
(e) No error

**Directions (27-30): Each of the sentence is divided into four parts, there can be error in one part of the sentence. Find out the error in each of this sentence, if any. If there is no error, your answer is (E)**

**Q27. (A)Our school is planning/ (B)to organise a cultural festival /(C)to facilitate its /(D) alumni who has done remarkable in life/(E)No error.**
(a)A
(b)B
(c)C
(d)D
(e)E

**Q28. (A)The number of student participating /(B)in the sports has been fallen/ (C)because of the upcoming /(D)sessional exam/(E)No Error.**
(a)A
(b)B
(c) C
(d)D
(e)E

**Q29. (A)We should drink/(B) several glasses of the water/ (C)so that we /(D)remain healthy/(E)No Error.**
(a)A
(b)B
(c)C
(d)D
(e)E

**Q30. (A)India's economy had staged an impressive/(B) rebound from last year's pandemic slump /(C)thanks to affective virus containment and hot overseas/ (D)demand for the country's manufactured goods/(E)No Error.**
(a)A
(b)B
(c)C
(d)D
(e)E

**Directions (31-35): Study the following information carefully and answer the questions given below:**
Seven people M, N, O, P, Q, R and S live on separate floors of a 7-floor building but not necessarily in the same order. Ground floor is as 1st floor, just above floor is as 2nd floor and so on until the topmost floor is as 7th floor. Each of them likes different cities i.e., Mathura, Mumbai, Delhi, Indore, Bhopal, Haridwar and Chennai again not in the same order. S lives on an even numbered floor. There are three persons live between S and the one who likes Chennai. One floor gap is between the persons who like Mumbai and Chennai. N likes Indore. R lives just above the O's floor. One floor gap is between the persons who like Mumbai and Haridwar. There are more than three floors gap between M who likes Bhopal and the one who likes Haridwar. P lives just below of the one who likes Mathura. Q lives below the N's floor. The number of persons live between O and N is the same as between N and Q.

**Q31. Who among the following person lives on 5th floor?**
(a) P
(b) N
(c) O
(d) Q
(e) None of these

**Q32. If we interchanged S and O's floor, then who among the following person lives just below the O's floor?**
(a) R
(b) P
(c) N
(d) Q
(e) None of these

**Q33. How many persons are living between M and O?**
(a) None
(b) One
(c) Two
(d) Three
(e) None of these

**Q34. Four of the following five are alike in a certain way and hence they form a group. Who among the following does not belong to that group?**
(a) M
(b) O
(c) Q
(d) R
(e) N

**Q35. Which of the following is not true, as per the given information?**
(a) P likes Mumbai
(b) S does not like Delhi
(c) M lives on the topmost floor
(d) P lives below the M's floor
(e) All are true

**Directions (36-39): Study the following information carefully and answer the questions given below:**
There are six members in a family. F and C are not females. B is the son of C. A and C are a married couple and they have more than two children. E is the brother of C. D is the only daughter of A.

**Q36. How many male members are there in the family?**
(a) One
(b) Two
(c) Three
(d) Four
(e) None of these

**Q37. Who is the mother of B?**
(a) D
(b) The one who is F's sibling
(c) The one who is E's sibling
(d) A
(e) None of these

**Q38. If L is the spouse of E and has a child T, then how is T related to B?**
(a) Brother
(b) Mother
(c) Aunt
(d) Sister
(e) Cousin

**Q39. How is E's sibling related to A's daughter?**
(a) Uncle
(b) Father
(c) Aunt
(d) Mother
(e) None of these

**Directions (40-44): Study the following information carefully and answer the questions given below:**
Seven Boxes A, D, P, T, V, W and Y are placed one above the another but not necessarily in the same order. All boxes are of different colours i.e., Blue, Pink, Magenta, White, Green, Yellow and Black but not necessarily in the same order.
Box W is placed above the box D. The pink coloured box is placed just above the box D and just below the box A. There are two boxes placed between box A and box Y. There are two boxes placed between box D and box V which is Black coloured. There are two boxes placed between box W and the Blue coloured box. Boxes A, D and Y are not of Blue coloured. Box P is placed above box T which is magenta coloured. More than three boxes are placed between the box which is of White and Green Coloured which is placed above of White box.

**Q40. Which of the following box is yellow coloured?**
(a) Box Y
(b) Box A
(c) Box P
(d) Box D
(e) None of these

**Q41. Which of the following box is placed just below box Y?**
(a) Box P
(b) Box V
(c) Box D
(d) Box T
(e) None of these

**Q42. Which of the following pair of combination is correct as per the final arrangement?**
(a) Y - Black
(b) D - White
(c) A - White
(d) Both a) and b)
(e) Both a) and c)

**Q43. How many boxes are placed between box Y and box W?**
(a) None
(b) One
(c) Two
(d) Three
(e) More than three

**Q44. Which of the following box is Pink coloured?**
(a) Box W
(b) Box D
(c) Box P
(d) Box Y
(e) None of these

**Directions (45-47): Study the following information carefully and answer the questions given below:**
Mithila starts walking from point D. She walks 10m in South and reaches at point E then she turns right and walk 6m to reach point F. Now, she walks 8m to the right and reaches at point G. Finally, she takes left turn and walk 4m to reach point H.

**Q45. Point H is in which direction with respect to point D?**
(a) West
(b) South-west
(c) North-west
(d) East
(e) None of these

**Q46. If point H is in East direction with respect to point G, then, Mithila starts her journey from which of the following direction?**
(a) East
(b) West
(c) North
(d) South
(e) None of these

**Q47. What is the shortest distance between the points G and E?**
(a) 8m
(b) 9m
(c) 7m
(d) 10m
(e) None of these

**Q48. In the word 'PREMIER', how many pairs of the letters have the same number of letters between them from the both forward and backword in the word as in English alphabet?**
(a) Three
(b) Two
(c) One
(d) More than four
(e) Four

**Directions (49-53): Study the following information carefully and answer the questions given below:**
Eight persons i.e., P, Q, R, S, J, K, X and Y are sitting around a circular table with some of them are facing towards the centre of table and some are facing away from the centre of table. No three persons are sitting together faces in the same direction.
X sits third to the right of P. Two persons sit between X and S. Q sits second to the right of S. R sits second to the left of Q. R sits next to K. J sits second to the right of K. Y sits third to the right of R. J sits second to the right of Y. J faces inside. Y faces inside.

**Q49. Four of the following five are alike in a certain way and hence they form a group. Which one of the following does not belong to that group?**
(a) P-S
(b) J-X
(c) Q-K
(d) P-Y
(e) X-R

**Q50. Who among the following sits immediate right of J?**
(a)Q
(b) R
(c) P
(d) S
(e) Y

**Q51. The number of persons sits between Q and K, when counted to right of Q is same as the number of persons sits between R and ___, when counted to the left of ___.**
(a) P
(b) J
(c) S
(d) X
(e) None of these

**Q52. Who among the following faces P?**
(a) U
(b) V
(c) S
(d) W
(e) None of these

**Q53. Who among the following sits 5th to the right of S?**
(a) K
(b) P
(c) Q
(d) R
(e) None of these

**Directions (54-58): In each of the questions below some statements are given followed by some conclusions. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.**

**Q54. Statements:** Only a few Apples are Mango. No Mango is Banana. Some Bananas are not Pear.
**Conclusions:** I. Some Mango is Pear.
II. No Pear is Mango.
(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.

**Q55. Statements:** Some Blue are not White. All White are Green.
**Conclusions:** I. Some Blue are Green.
II. All Blue being Green is a possibility.
(a) If only conclusion I follows.
(b) If only conclusion II follows.
(c) If either conclusion I or II follows.
(d) If neither conclusion I nor II follows.
(e) If both conclusions I and II follow.

**Q56. Statements:** Only a few Tune are Melody. All Melody are Song. Only a few Sufi are Song.
**Conclusions:** I. Some Tune are not Sufi.
II. No Tune is Sufi.
(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.

**Q57. Statements:** Only a few Apples are Mango. No Mango is Banana. Some Bananas are not Pear.
**Conclusions:** I. All Pears being Mango is a possibility.
II. Some Pears are Banana.
(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.

**Q58. Statements:** Only a few Movies are Series. All Webs are Cartoon. No Series is Cartoon.
**Conclusions:** I. Some Movies are not Web.
II. All Series being web is a possibility.
(a) If only conclusion I follows.
(b) If only conclusion II follows.
(c) If either conclusion I or II follows.
(d) If neither conclusion I nor II follows.
(e) If both conclusions I and II follow.

**Q59. In a class of 50 students, Deepam's rank is 21st from the top. Rupam is 9th ranks below Deepam. What is rupam rank from the bottom?**
(a) 22nd
(b) 20th
(c) 21st
(d) 23rd
(e) 25th

**Directions (60-64): Study the following information carefully and answer the questions given below:**
Twelve persons are sitting in two parallel rows containing six persons in each row in such a way that there is an equal distance between adjacent persons. In the first row, A, B, C, D, E and F are seated and all of them are facing south. In the second row, P, Q, R, S, T and U are seated and all of them are facing north. The persons sit in row 1 face the persons sit in row 2 and vice versa.
T is the only neighbour of P. A faces the one who is an immediate neighbour of R who sits at one of the extreme ends of the row. The number of persons sits to the right of A is same as to the left of C. B faces the one who sits 2nd to the right of P. There is one person sits between U and S. D faces the one who sits immediate right of U. Q faces the one who sits 3rd to the left of F. Both B and E are not immediate neighbours to each other.

**Q60. How many persons sit between S and P?**
(a) None
(b) One
(c) Three
(d) Two
(e) Four

**Q61. The number of persons sit between B and E is same as the number of persons sit between ___ and R.**
(a) T
(b) U
(c) S
(d) P
(e) Q

**Q62. Four of the following five are alike in a certain way and hence they form a group. Who among the following does not belong to that group?**
(a) B
(b) S
(c) T
(d) A
(e) E

**Q63. Who among the following faces to Q?**
(a) D
(b) B
(c) A
(d) C
(e) None of these

**Q64. Which among the following pair of persons are immediate neighbours of T?**
(a) P, Q
(b) S, R
(c) U, Q
(d) P, U
(e) Q, S

**Q65. If in the number "9786152493", positions of the first and the second digits are interchanged, positions of the third and fourth digits are interchanged and so on till the positions of 9th and 10thdigits are interchanged, then which digit will be seventh digit from the right end after the arrangement?**
(a) 8
(b) 4
(c) 7
(d) 1
(e) None of these

**Directions (66-70): The line chart shows total people who joined yoga classes and swimming classes in five (A, B, C, D and E) different cities. Read the following line chart carefully and answer the questions given below.**


**Q66. Find the difference between sum of people who joined yoga classes in cities B & E and people who joined swimming classes in city C.**
(a) 35
(b) 40
(c) 45
(d) 60
(e) 50

**Q67. Find the ratio of people who joined swimming classes in city E to total people who joined yoga classes in city D.**
(a) 10:9
(b) 9:10
(c) 11:10
(d) 10:11
(e) 8:9

**Q68. Ratio of males to females who joined yoga classes in city A is 3:2 respectively, then find the females who joined yoga classes in city A is how much percentage of total people who joined swimming classes in city C?**
(a) 25.6%
(b) 26.5%
(c) 22.5%
(d) 25.5%
(e) 22.6%

**Q69. Total people who joined yoga classes in city X are 42% more than the total people who joined swimming classes in city E. If total people who joined swimming classes in city X are half of the people who joined yoga classes in city D, then find the difference between people who joined yoga and swimming classes in city X.**
(a) 87
(b) 99
(c) 93
(d) 97
(e) 89

**Q70. Total people who joined yoga classes in city E is how much percentage more/less than the total people who joined swimming classes in city D?**
(a) 6.67%
(b) 16.67%
(c) 12.5%
(d) 8.33%
(e) 14.28%

**Directions (71-75): In the following questions, there are two equations (I) and (II). You have to solve both the equations and give answer**

**Q71.** I. $2x^2 - 13x + 18 = 0$
II. $2y^2 - 11y + 12 = 0$
(a) if x > y
(b) if x < y
(c) if x ≥ y
(d) if x ≤ y
(e) if x = y or there is no relation between x and y

**Q72.** I. $x^2 - 23x + 126 = 0$
II. $2y^2 - 25y + 63 = 0$
(a) if x > y
(b) if x < y
(c) if x ≥ y
(d) if x ≤ y
(e) if x = y or there is no relation between x and y

**Q73.** I. $x^2 + 15x + 56 = 0$
II. $y^2 + y - 42 = 0$
(a) if x > y
(b) if x < y
(c) if x ≥ y
(d) if x ≤ y
(e) if x = y or there is no relation between x and y

**Q74.** I. $3x^2+22x+32=0$
II. $y^2+19y+78=0$
(a) if x > y
(b) if x < y
(c) if x ≥ y
(d) if x ≤ y
(e) if x = y or there is no relation between x and y

**Q75.**
I. $x^3 = 2197$
II. $\sqrt{784}y = y^2$
(a) if x > y
(b) if x < y
(c) if x ≥ y
(d) if x ≤ y
(e) if x = y or there is no relation between x and y

**Q76. The ratio of investment of P and Q is 4 : 5 respectively. After six-month, P and Q increased their investment by Rs. 3000 and Rs. 1000 respectively. At the end of a year, the ratio of profit share of P to that of Q is 27 : 31. Find initial investment of P.**
(a) Rs. 8000
(b) Rs. 16000
(c) Rs. 12000
(d) Rs. 24000
(e) Rs. 20000

**Q77. There is a mixture of milk and water in which the ratio of milk to water is 3 : 2. when 40 liters of pure milk is added into the mixture, then the ratio of water to milk in the resultant mixture become 1 : 2. If 90 liters of the resultant mixture is taken out, then find the quantity of water in the remaining mixture.**
(a) 80 liters
(b) 75 liters
(c) 60 liters
(d) 50 liters
(e) 55 liters

**Q78. A train crosses a pole and a platform in 26 seconds & 36 seconds respectively. If speed of the train is 90 kmph, find the length of the platform.**
(a) 350 meters
(b) 300 meters
(c) 450 meters
(d) 250 meters
(e) 200 meters

**Q79. A man invested Rs. 14000 partially in scheme A which offers compound interest at rate of 20% p.a. and remaining in scheme B which offer simple interest at rate of 25% p.a. If total interest received by man after two years is Rs. 6640, then find the amount invested in scheme B (in Rs.).**
(a) 6000
(b) 7000
(c) 8000
(d) 9000
(e) 10,000

**Q80. A shopkeeper marked up an article 35% above its cost price and earned profit of Rs 96 after giving 20% discount on the marked price. If he sells article at 15% discount, then find the profit (in Rs.) earned by the shopkeeper.**
(a) 118
(b) 177
(c) 136
(d) 144
(e) 154

**Directions (81-85): The tables show the total number of people who subscribed to two (P and Q) different types of channels on YouTube in four (2019, 2020, 2021 and 2022) different years. The table also shows percentage of number of people who subscribed channel P. Read the following table carefully and answer the questions given below.**
**Note:** Total people who subscribed channels = People who subscribed channel P + People who subscribed channel Q.

| Years | Total people who subscribed channels | Total people who subscribed channel P |
|---|---|---|
| 2019 | 720 | 75% |
| 2020 | 550 | 60% |
| 2021 | 800 | 32.5% |
| 2022 | 650 | 30% |

**Q81. People who subscribed channel Q in 2020 are what percentage (approx.) of people who subscribed channel P in 2021?**
(a) 89%
(b) 85%
(c) 79%
(d) 93%
(e) 72%

**Q82. Total people who subscribed channels (P and Q) in 2023 are 75% that of in 2019. If people who subscribed channel Q in 2023 are 25% more than that of in 2020, then find the difference between people who subscribed channel P in 2023 and 2022.**
(a) 100
(b) 65
(c) 70
(d) 95
(e) 80

**Q83. Find the ratio of people who subscribed channel P in 2021 to people who subscribed channel Q in 2019.**
(a) 8:11
(b) 11:8
(c) 13:9
(d) 9:13
(e) 7:13

**Q84. People who subscribed channel R and people who subscribed channel Q in 2022 in the ratio of 18:13 respectively. Find the people who subscribed channel R in 2022 are how much percentage more or less than the total people (P and Q) who subscribed channel in 2021?**
(a) 21.25%
(b) 28.50%
(c) 26.75%
(d) 20.25%
(e) 23.80%

**Q85. Find the average of total people who subscribed channels (P and Q) in 2022, people who subscribed channels P in 2019 and people who subscribed channels Q in 2020.**
(a) 450
(b) 510
(c) 490
(d) 470
(e) 540

**Q86. Speed of a boat in still water is 3.5 km/hr. If the time taken by boat to cover a certain distance in upstream is 250% of time taken by boat to cover the same distance in downstream, then find the speed of the stream?**
(a) 5/2 km/hr
(b) 3/2 km/hr
(c) 3 km/hr
(d) 5/4 km/hr
(e) 1.75 km/hr

**Q87. Perimeter of square is two times of perimeter of a rectangle and length of rectangle is 6 cm more than that of breadth. If side of square is 75% more than length of rectangle then, find area of square?**
(a) 1764 cm²
(b) 1936 cm²
(c) 1156 cm²
(d) 1444 cm²
(e) 2116 cm²

**Q88. A can do  th of the whole work in 9 hours. There are two people B and C, in which B is 50% more efficient than A and C is 5/9 th as efficient as B. Then find the time taken by all the three people together to complete the work?**
(a) 3 hours
(b) 4 hours
(c) 2 ½ hours
(d) 3 ½ hours
(e) 4 ½ hours

**Q89. Four years ago, the ratio of present age of Ravi to Vicky was 5: 6. The ratio of present age of Rocky to that of Vicky is 5: 4. Two years later, the sum of age of Ravi and Rocky will be 63 years. Find the difference between present age of Ravi and Vicky?**
(a) 4 years
(b) 2 years
(c) 8 years
(d) 6 years
(e) 5 years

**Q90. The monthly income of Kisan is 40% more than Vimal and Vimal monthly income is 15% less than Uday. If total annual income of Vimal Rs. 345000, then find the monthly income of Kisan.**
(a) Rs.40890
(b) Rs.40740
(c) Rs.40250
(d) Rs.40550
(e) Rs.40180

**Directions (91-95): Read the given information below and answer the following question.**
Total boys and girls in three (A, B and C) different schools. The ratio of boys to girls in A, B and C is 11:4, 7:8 & 5:3 respectively. The sum of boys and girls in B and C is 750 and 960 respectively. The average of boys in A and C are 685.

**Q91. Find the difference between boys in school A and girls in school C.**
(a) 390
(b) 400
(c) 410
(d) 450
(e) 430

**Q92. Girls in school A is how much percentage of boys in school B?**
(a) 70%
(b) 65%
(c) 80%
(d) 50%
(e) 75%

**Q93. Total students (boys and girls) in school D are 16.67% more than that of in school C. If boys in school D is 20% less than the boys in school B, then find the average girls in school D and B.**
(a) 610
(b) 640
(c) 650
(d) 630
(e) 620

**Q94. Total students (boys and girls) in school C participated in two different activities, i.e., drawing and painting, in the ratio of 7:5 respectively. If 60% of the boys participated in drawing out of total boys in C, then find the girls who participated in painting.**
(a) 160
(b) 120
(c) 150
(d) 140
(e) 110

**Q95. If teachers in school A are one-third of the total girls in school C, then find the sum of total students (boys and girls) in school B and teachers in school A.**
(a) 820
(b) 870
(c) 845
(d) 875
(e) 860

**Directions (96-100): What will come in the place of question (?) mark in following number series:**

**Q96.** 88, 87, 95, 68, 132, ?
(a) 52
(b) 7
(c) 25
(d) 37
(e) 19

**Q97.** 39, 160, ?, 473, 669, 894
(a) 304
(b) 334
(c) 345
(d) 318
(e) 311

**Q98.** 13.75, ?, 11, 44, 8.8, 35.2
(a) 60
(b) 40
(c) 45
(d) 50
(e) 55

**Q99.** 155, ?, 181, 209, 247, 295
(a) 159
(b) 169
(c) 178
(d) 167
(e) 163

**Q100.** 11, 17, 26, ?, 61, 91
(a) 50
(b) 40
(c) 65
(d) 75
(e) 80

## Solutions

**S1. Ans.(d)**
**Sol.** From the first paragraph of the passage we can clearly see that "*Uzbekistan, is a doubly landlocked country, landlocked itself, and surrounded by landlocked countries. ……The result has been more competition, lower prices and thus a much more difficult market for countries like Uzbekistan that export their gas the old-fashioned way, by pipeline…….. China cut its imports of Uzbek gas by two-thirds this year amid the coronavirus-induced economic slowdown, and Russia shut them off altogether*"
The main reasons Uzbekistan is facing an export crisis of gas are mentioned in the passage:
(I) Uzbekistan is a doubly landlocked country, which makes the only way to export gas through pipelines. Being doubly landlocked means that Uzbekistan is surrounded by landlocked countries and has no direct access to the sea. Therefore, exporting gas by sea, which is becoming the preferred method, is not feasible for Uzbekistan.
(II) Russia and China stopped their imports of gas from Uzbekistan. These two countries were significant buyers of Uzbekistan's gas, and the reduction in their imports has affected Uzbekistan's gas exports.
So, the correct answer is (d) Only (I) and (II).

**S2. Ans.(c)**
**Sol.** From the third paragraph of the passage, we can see *that "It believes manufacturing polythene, for instance, should generate eight times the value of simply selling the gas used to make it……..it hopes to end the export of raw cotton this year, as well"*
The passage mentions the following points about how investment in polythene production would be beneficial for Uzbekistan:
(I) It would generate eight times more revenue than simply selling the gas used to make it. This means that processing the gas into polythene and then selling the polythene products would be more profitable than exporting the gas in its raw form.
(III) It could stop the export of raw cotton this year. While this point is not directly related to polythene production, it indicates that the government wants to put other resources to better use and is taking steps to end the export of raw cotton. This information might imply that the government is seeking alternatives, like polythene production, to boost the economy and reduce reliance on raw material exports.
The passage does not mention anything about point (II) regarding polythene production being eco-friendly and cheap, so we cannot consider it as part of the chairman's statement.
So, the correct answer is (c) Only (I) and (III).

**S3. Ans.(b)**
**Sol.** From the passage we can see that *"But gas-to-liquids, at least, is a capital-intensive technology that is usually viable only when oil prices are high, notes David Ramberg, a former academic. Only four other countries use it: Malaysia, Nigeria, Qatar and South Africa"*

**S4. Ans.(a)**
**Sol.** "Concede" means "accepting the truth", Hence "acknowledge" is the correct substitute of the word.
Meanings of other words are:
Repudiate: to declare not to be true
Negate: to stop something from having any effect
Contradict: to say opposite of something
Dispute: a disagreement or an argument

**S5. Ans.(d)**
**Sol.** "Dissuading" means "persuade someone not to do something", thus correct option for this question.
Meaning of the other words are:
Inciting: encouraging someone to do something either by making them angry or excited
Aiding: to help somebody/something
Alleviating: to make something less strong or bad
Mitigating: to make something less serious, painful, unpleasant, etc

**S6. Ans.(b)**
**Sol.** The correct word for the sentence is "reckon" as it means "to have opinion on something". Note that the sentence is suggesting that the government is assuming about the possibilities, hence "confirm" cannot fit into this.
Rebut: claim or prove that (evidence or an accusation) is false.

**S7. Ans.(c)**
**Sol.** "Gravitate towards the option" is correct answer for this sentence." The verb "gravitate" should be in the base form, and the preposition "towards" should be used to show the direction of the gravitation. Also, "the least amount of effort" is the correct phrase to indicate the option that requires the minimum effort.

**S8. Ans.(e)**
**Sol.** No improvement Required.
The original sentence is grammatically correct and effectively conveys the intended meaning. The sentence uses "Until" to indicate that the glorification of the hunter in the history of the hunt will continue until the lions have their own historian. It implies that the perspective of the history will change once the lions have their own historian. Therefore, "No Improvement" is the correct choice.

**S9. Ans.(b)**
**Sol.** The sentence is in simple present tense so the correct option for this is "times when they fly past us".
So, the corrected sentence is: "There are times in our lives when they fly past us in a blur."

The original sentence is already grammatically correct and effectively conveys the intended meaning. The phrase "times when they fly past us in a blur" is the correct way to express the idea that there are occasions when time seems to pass quickly and everything becomes a blur. Therefore, "No Improvement" is also a valid choice in this case.

**S10. Ans.(a)**
**Sol.** "hardly any effort" is the correct form. With "hardly" we use affirmative word.
So, the corrected sentence is: "The old man felled some trees in the garden with hardly any effort at all."
The original sentence is grammatically incorrect. The correct phrase is "hardly any effort," which means very little or almost no effort. The word "hardly" already implies the negation, so "no" should not be used in this context. Therefore, option (a) is the appropriate improvement.

**S11. Ans.(a)**
**Sol.** "by and large" is the correct form, as it means "on the whole or in general". "By far" is used when you are comparing something or someone with others of the same kind, in order to emphasize how great the difference is between them.

**S12. Ans.(b)**
**Sol.** "reserve" is most appropriate for this sentence. Note "buffer" might look similar, but contextually "reserve" is more suitable.
So, the completed sentence is: "Many power plants are operating with zero reserve stock or with stocks that could last just a few days."
The word "reserve" in this context refers to the extra supply of something (in this case, fuel or resources) that is held in storage or available in case of an emergency or shortage.

**S13. Ans.(a)**
**Sol.** "fetching" means "to go to a place and bring back somebody/something", thus appropriate for this sentence.
So, the completed sentence is: "Women and girls in developing countries spend hours each day fetching water, pulling women away from other productive activities and girls out of school."
The word "fetching" means to go and bring back something, in this case, water. It implies that women and girls have to go and collect water, which takes up a significant amount of their time and affects their ability to engage in other productive activities or attend school.
Captivating: to attract and hold somebody's attention
Abandoning: to leave somebody/something
Conveying: to make ideas, thoughts, feelings, etc. known to somebody

**S14. Ans.(c)**
**Sol.** The correct word for this sentence is "coherent", which means "logical".
So, the completed sentence is: "Foremost is the need to develop a coherent policy framework to coordinate the reconstruction effort."
The word "coherent" means logical, consistent, and well-organized. In this context, it suggests that the policy framework should be well-planned, well-structured, and coordinated to effectively carry out the reconstruction effort.
Ludicrous: illogical
Spurious: false, although seeming to be genuine
Absurd: extremely illogical

**S15. Ans.(a)**
**Sol.** "Raging" means "causing furious atmosphere", so most suitable for this sentence. Whereas "Tranquil" and "placid" means "peace". And "fizzing" means "to show excitement or exhilaration. fizz."
So, the completed sentence is: "In the wake of the controversy raging on the Internet over the past few days, I wanted to take a deeper look at some of the pictures that were published."
The word "raging" in this context means intense, strong, or widespread, indicating that the controversy on the Internet has been heated and highly debated.

**S16. Ans.(c)**
**Sol.** "flexible" is correct word for this sentence.
So, the completed sentence is: "Soham is very set in his ways, but his friend has a more flexible attitude to life."
The word "flexible" means adaptable, open to change, or able to adjust to different circumstances. In contrast, "set in his ways" suggests that Soham is not open to change and prefers to stick to his established habits or opinions.
S17. Ans(a)
**Sol.** "cleared up" means "to get free from something", hence perfect for this sentence.
So, the completed sentence is: "After the rain, the weather cleared up, and the sun came out."
The phrase "cleared up" is used to describe a situation where the weather improves after being cloudy, rainy, or stormy. It means that the sky becomes clear, and the bad weather disappears, allowing the sun to shine.

**S18. Ans.(d)**
**Sol.** "offers" is the appropriate word for the sentence.
So, the completed sentence is: "The cinema offers a welcome escape from cramped and dull city life, and the Indians are avid movie-goers."
The word "offers" in this context means to provide or present something as an option or opportunity. The sentence conveys that cinema provides a welcome escape from the monotonous and confined city life, and Indians enjoy going to the movies.

**S19. Ans.(a)**
**Sol.** The correct rearrangement for this passage is "RPQTS", hence second sentence will be P.
The passage is describing about foreign exchange. The first mention of "foreign exchange" has been done in sentence (R) so, that should be the first sentence in this rearrangement. Whereas, we can see that the sentence (P) describes what "foreign exchange" is so, it should be followed up. In sentence (Q), its example is given and further proceeded by sentence (T). The only remaining sentence (S) is also describing an example, thus it should be the last sentence. Hence the proper rearrangement is "RPQTS"

**S20. Ans.(c)**
**Sol.** The correct rearrangement for this passage is "RPQTS", hence first sentence will be R.
The passage is describing about foreign exchange. The first mention of "foreign exchange" has been done in sentence (R) so, that should be the first sentence in this rearrangement. Whereas, we can see that the sentence (P) describes what "foreign exchange" is so, it should be followed up. In sentence (Q), its example is given and further proceeded by sentence (T). The only remaining sentence (S) is also describing an example; thus, it should be the last sentence. Hence the proper rearrangement is "RPQTS"
S21. Ans (e)
**Sol.** The correct rearrangement for this passage is "RPQTS", hence fourth sentence will be T.
The passage is describing about foreign exchange. The first mention of "foreign exchange" has been done in sentence (R) so, that should be the first sentence in this rearrangement. Whereas, we can see that the sentence (P) describes what "foreign exchange" is so, it should be followed up. In sentence (Q), its example is given and further proceeded by sentence (T). The only remaining sentence (S) is also describing an example; thus, it should be the last sentence. Hence the proper rearrangement is "RPQTS"

**S22. Ans.(b)**
**Sol.** The correct rearrangement for this passage is "RPQTS", hence third sentence will be Q.
The passage is describing about foreign exchange. The first mention of "foreign exchange" has been done in sentence (R) so, that should be the first sentence in this rearrangement. Whereas, we can see that the sentence (P) describes what "foreign exchange" is so, it should be followed up. In sentence (Q), its example is given and further proceeded by sentence (T). The only remaining sentence (S) is also describing an example; thus, it should be the last sentence. Hence the proper rearrangement is "RPQTS"

**S23. Ans.(d)**
**Sol.** The correct rearrangement for this passage is "RPQTS", hence fifth(last) sentence will be S.
The passage is describing about foreign exchange. The first mention of "foreign exchange" has been done in sentence (R) so, that should be the first sentence in this rearrangement. Whereas, we can see that the sentence (P) describes what "foreign exchange" is so, it should be followed up. In sentence (Q), its example is given and further proceeded by sentence (T). The only remaining sentence (S) is also describing an example; thus, it should be the last sentence. Hence the proper rearrangement is "RPQTS"

**S24. Ans.(d)**
**Sol.** The correct spelling is "spread"

**S25. Ans.(a)**
**Sol.** The correct spelling is "system"

**S26. Ans.(d)**
**Sol.** The correct spelling for the answer is "amenities"

**S27. Ans.(d)**
**Sol.** The error is in part (D) of the sentence. The correct form should be "who have done remarkable in life."
So, the corrected sentence is: "Our school is planning to organise a cultural festival to facilitate its alumni who have done remarkable in life."
The pronoun "who" refers to "alumni," which is a plural noun. Therefore, the verb "have" should be used instead of "has" to agree with the plural subject "alumni."

**S28. Ans.(b)**
**Sol.** The error is in part (B) of the sentence. The correct form should be "has been falling" instead of "has been fallen."
So, the corrected sentence is: "The number of students participating in the sports has been falling because of the upcoming sessional exam."
The verb "falling" is the correct present participle form of the verb "fall" to indicate an ongoing action, which is appropriate for the context. "Has been fallen" is not the correct form to use here.

**S29. Ans.(b)**
**Sol.** "water" shouldn't be proceeded by any article. It will only proceed by "the" when we are talking about water of some particular source. Ex: "the water of Ganga"
The correct sentence is: "We should drink several glasses of water so that we remain healthy."
In this context, "water" is used as an uncountable noun, and it doesn't require any article before it. "The" is only used when we are referring to water from a specific source or in a particular context, as you correctly pointed out.

**S30. Ans.(c)**

**Sol.** "affective" should be replaced with "effective". An affective action would be an action that was caused by emotions, whereas effective describes something that produces a desired result.

So, the corrected sentence is: "India's economy had staged an impressive rebound from last year's pandemic slump thanks to effective virus containment and hot overseas demand for the country's manufactured goods."

The word "effective" means successful or producing the desired result, which is appropriate in the context of virus containment measures. "Affective" is not the correct word to use here.

**S31. Ans.(c)**

**Sol.** From the given statements, S lives on an even numbered floor. There are three persons live between S and the one who likes Chennai. Here we get two possibilities i.e., Case 1 and Case 2. One floor gap is between the persons who like Mumbai and Chennai. One floor gap is between the persons who like Mumbai and Haridwar. There are more than three floors gap between M who likes Bhopal and the one who likes Haridwar.

| Floors | Case 1 | | Case 2 | |
|---|---|---|---|---|
| | Persons | Cities | Persons | Cities |
| 7 | M | Bhopal | | |
| 6 | | Chennai | S | Haridwar |
| 5 | | | | |
| 4 | | Mumbai | | Mumbai |
| 3 | | | | |
| 2 | S | Haridwar | | Chennai |
| 1 | | | M | Bhopal |

P lives just below of the one who likes Mathura. Here one more case is added i.e., Case 2a. R lives just above the O's floor. N likes Indore. Q lives below the N's floor.

| Floors | Case 1 | | Case 2 | | Case 2a | |
|---|---|---|---|---|---|---|
| | Persons | Cities | Persons | Cities | Persons | Cities |
| 7 | M | Bhopal | N | Indore | N | Indore |
| 6 | R | Chennai | S | Haridwar | S | Haridwar |
| 5 | O | Mathura | Q | Mathura | R/Q/ | Delhi |
| 4 | P | Mumbai | P | Mumbai | O/R/ | Mumbai |
| 3 | N | Indore | R | Delhi | O/Q/ | Mathura |
| 2 | S | Haridwar | O | Chennai | P | Chennai |
| 1 | Q | Delhi | M | Bhopal | M | Bhopal |

The number of persons live between O and N is the same as between N and Q. Now, Case 2 and Case 2a are eliminated. So, the final arrangement is such as-

| Floors | Persons | Cities |
|---|---|---|
| 7 | M | Bhopal |
| 6 | R | Chennai |
| 5 | O | Mathura |
| 4 | P | Mumbai |
| 3 | N | Indore |
| 2 | S | Haridwar |
| 1 | Q | Delhi |

**S32. Ans.(d)**

**Sol.** From the given statements, S lives on an even numbered floor. There are three persons live between S and the one who likes Chennai. Here we get two possibilities i.e., Case 1 and Case 2. One floor gap is between the persons who like Mumbai and Chennai. One floor gap is between the persons who like Mumbai and Haridwar. There are more than three floors gap between M who likes Bhopal and the one who likes Haridwar.

| Floors | Case 1 | | Case 2 | |
|---|---|---|---|---|
| | Persons | Cities | Persons | Cities |
| 7 | M | Bhopal | | |
| 6 | | Chennai | S | Haridwar |
| 5 | | | | |
| 4 | | Mumbai | | Mumbai |
| 3 | | | | |
| 2 | S | Haridwar | | Chennai |
| 1 | | | M | Bhopal |

P lives just below of the one who likes Mathura. Here one more case is added i.e., Case 2a. R lives just above the O's floor. N likes Indore. Q lives below the N's floor.

| Floors | Case 1 | | Case 2 | | Case 2a | |
|---|---|---|---|---|---|---|
| | Persons | Cities | Persons | Cities | Persons | Cities |
| 7 | M | Bhopal | N | Indore | N | Indore |
| 6 | R | Chennai | S | Haridwar | S | Haridwar |
| 5 | O | Mathura | Q | Mathura | R/Q/ | Delhi |
| 4 | P | Mumbai | P | Mumbai | O/R/ | Mumbai |
| 3 | N | Indore | R | Delhi | O/Q/ | Mathura |
| 2 | S | Haridwar | O | Chennai | P | Chennai |
| 1 | Q | Delhi | M | Bhopal | M | Bhopal |

The number of persons live between O and N is the same as between N and Q. Now, Case 2 and Case 2a are eliminated. So, the final arrangement is such as-

| Floors | Persons | Cities |
|---|---|---|
| 7 | M | Bhopal |
| 6 | R | Chennai |
| 5 | O | Mathura |
| 4 | P | Mumbai |
| 3 | N | Indore |
| 2 | S | Haridwar |
| 1 | Q | Delhi |

**S33. Ans.(b)**

**Sol.** From the given statements, S lives on an even numbered floor. There are three persons live between S and the one who likes Chennai. Here we get two possibilities i.e., Case 1 and Case 2. One floor gap is between the persons who like Mumbai and Chennai. One floor gap is between the persons who like Mumbai and Haridwar. There are more than three floors gap between M who likes Bhopal and the one who likes Haridwar.

| Floors | Case 1 | | Case 2 | |
|---|---|---|---|---|
| | Persons | Cities | Persons | Cities |
| 7 | M | Bhopal | | |
| 6 | | Chennai | S | Haridwar |
| 5 | | | | |
| 4 | | Mumbai | | Mumbai |
| 3 | | | | |
| 2 | S | Haridwar | | Chennai |
| 1 | | | M | Bhopal |

P lives just below of the one who likes Mathura. Here one more case is added i.e., Case 2a. R lives just above the O's floor. N likes Indore. Q lives below the N's floor.

| Floors | Case 1 | | Case 2 | | Case 2a | |
|---|---|---|---|---|---|---|
| | Persons | Cities | Persons | Cities | Persons | Cities |
| 7 | M | Bhopal | N | Indore | N | Indore |
| 6 | R | Chennai | S | Haridwar | S | Haridwar |
| 5 | O | Mathura | Q | Mathura | R/Q/ | Delhi |
| 4 | P | Mumbai | P | Mumbai | O/R/ | Mumbai |
| 3 | N | Indore | R | Delhi | O/Q/ | Mathura |
| 2 | S | Haridwar | O | Chennai | P | Chennai |
| 1 | Q | Delhi | M | Bhopal | M | Bhopal |

The number of persons live between O and N is the same as between N and Q. Now, Case 2 and Case 2a are eliminated. So, the final arrangement is such as-

| Floors | Persons | Cities |
|---|---|---|
| 7 | M | Bhopal |
| 6 | R | Chennai |
| 5 | O | Mathura |
| 4 | P | Mumbai |
| 3 | N | Indore |
| 2 | S | Haridwar |
| 1 | Q | Delhi |

**S34. Ans.(d)**

**Sol.** From the given statements, S lives on an even numbered floor. There are three persons live between S and the one who likes Chennai. Here we get two possibilities i.e., Case 1 and Case 2. One floor gap is between the persons who like Mumbai and Chennai. One floor gap is between the persons who like Mumbai and Haridwar. There are more than three floors gap between M who likes Bhopal and the one who likes Haridwar.

| Floors | Case 1 | | Case 2 | |
|---|---|---|---|---|
| | Persons | Cities | Persons | Cities |
| 7 | M | Bhopal | | |
| 6 | | Chennai | S | Haridwar |
| 5 | | | | |
| 4 | | Mumbai | | Mumbai |
| 3 | | | | |
| 2 | S | Haridwar | | Chennai |
| 1 | | | M | Bhopal |

P lives just below of the one who likes Mathura. Here one more case is added i.e., Case 2a. R lives just above the O's floor. N likes Indore. Q lives below the N's floor.

| Floors | Case 1 | | Case 2 | | Case 2a | |
|---|---|---|---|---|---|---|
| | Persons | Cities | Persons | Cities | Persons | Cities |
| 7 | M | Bhopal | N | Indore | N | Indore |
| 6 | R | Chennai | S | Haridwar | S | Haridwar |
| 5 | O | Mathura | Q | Mathura | R/Q/ | Delhi |
| 4 | P | Mumbai | P | Mumbai | O/R/ | Mumbai |
| 3 | N | Indore | R | Delhi | O/Q/ | Mathura |
| 2 | S | Haridwar | O | Chennai | P | Chennai |
| 1 | Q | Delhi | M | Bhopal | M | Bhopal |

The number of persons live between O and N is the same as between N and Q. Now, Case 2 and Case 2a are eliminated. So, the final arrangement is such as-

| Floors | Persons | Cities |
|---|---|---|
| 7 | M | Bhopal |
| 6 | R | Chennai |
| 5 | O | Mathura |
| 4 | P | Mumbai |
| 3 | N | Indore |
| 2 | S | Haridwar |
| 1 | Q | Delhi |

Except R all of them lives on an odd numbered floor.

**S35. Ans.(e)**

**Sol.** From the given statements, S lives on an even numbered floor. There are three persons live between S and the one who likes Chennai. Here we get two possibilities i.e., Case 1 and Case 2. One floor gap is between the persons who like Mumbai and Chennai. One floor gap is between the persons who like Mumbai and Haridwar. There are more than three floors gap between M who likes Bhopal and the one who likes Haridwar.

| Floors | Case 1 | | Case 2 | |
|---|---|---|---|---|
| | Persons | Cities | Persons | Cities |
| 7 | M | Bhopal | | |
| 6 | | Chennai | S | Haridwar |
| 5 | | | | |
| 4 | | Mumbai | | Mumbai |
| 3 | | | | |
| 2 | S | Haridwar | | Chennai |
| 1 | | | M | Bhopal |

P lives just below of the one who likes Mathura. Here one more case is added i.e., Case 2a. R lives just above the O's floor. N likes Indore. Q lives below the N's floor.

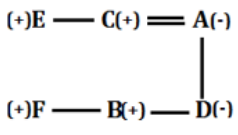
| Floors | Case 1 | | Case 2 | | Case 2a | |
|---|---|---|---|---|---|---|
| | Persons | Cities | Persons | Cities | Persons | Cities |
| 7 | M | Bhopal | N | Indore | N | Indore |
| 6 | R | Chennai | S | Haridwar | S | Haridwar |
| 5 | O | Mathura | Q | Mathura | R/Q/ | Delhi |
| 4 | P | Mumbai | P | Mumbai | O/R/ | Mumbai |
| 3 | N | Indore | R | Delhi | O/Q/ | Mathura |
| 2 | S | Haridwar | O | Chennai | P | Chennai |
| 1 | Q | Delhi | M | Bhopal | M | Bhopal |

The number of persons live between O and N is the same as between N and Q. Now, Case 2 and Case 2a are eliminated. So, the final arrangement is such as-

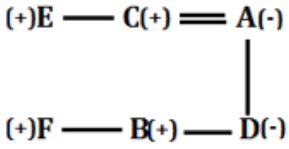
| Floors | Persons | Cities |
|---|---|---|
| 7 | M | Bhopal |
| 6 | R | Chennai |
| 5 | O | Mathura |
| 4 | P | Mumbai |
| 3 | N | Indore |
| 2 | S | Haridwar |
| 1 | Q | Delhi |

**S36. Ans.(d)**

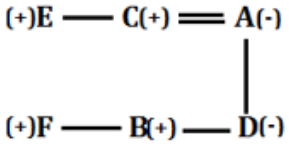
**Sol.**



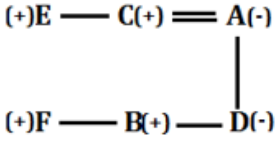
**S37. Ans.(d)**
**Sol.**




**S38. Ans.(e)**
**Sol.**




**S39. Ans.(b)**
**Sol.**




**S40. Ans.(b)**
**Sol.** From the given statements, the pink coloured box is placed just above the box D and just below the box A. There are two boxes placed between box A and box Y. Here we get two possibilities i.e., Case 1 and Case 2.

| Case 1 | | Case 2 | |
|---|---|---|---|
| Box | Colors | Box | Colors |
| Y | | A | |
| | | | Pink |
| | | D | |
| A | | Y | |
| | Pink | | |
| D | | | |

There are two boxes placed between box D and box V, which is Black coloured. Now one more possibility added here i.e., Case 2a.

| Case 1 | | Case 2 | | Case 2a | |
|---|---|---|---|---|---|
| Box | Colors | Box | Colors | Box | Colors |
| Y | | A | | V | Black |
| | | | Pink | A | |
| V | Black | D | | | Pink |
| A | | Y | | D | |
| | Pink | | | Y | |
| D | | V | Black | | |

There are two boxes placed between box W and the Blue coloured box. Box W is placed above the box D. Boxes A, D and Y are not of Blue coloured. Here one more case added i.e., Case 2b. Box P is placed above box T, which is magenta coloured.

| Case 1 | | Case 2 | | Case 2a | | Case 2b | |
|---|---|---|---|---|---|---|---|
| Box | Colors | Box | Colors | Box | Colors | Box | Colors |
| Y | | A | | V | Black | P | Blue |
| P | Blue | W | Pink | A | | V | Black |
| V | Black | D | | W | Pink | A | |
| A | | Y | | D | | W | Pink |
| W | Pink | P | Blue | Y | | D | |
| D | | V | Black | P | Blue | Y | |
| T | Magenta | T | Magenta | T | Magenta | T | Magenta |

More than three boxes are placed between the box which is of White and Green Coloured, which is placed above of White box. Here Case 2, 2a and 2b are ruling out now. So, the final arrangement-

| Box | Colors |
|---|---|
| Y | Green |
| P | Blue |
| V | Black |
| A | Yellow |
| W | Pink |
| D | White |
| T | Magenta |

**S41. Ans.(a)**
**Sol.** From the given statements, the pink coloured box is placed just above the box D and just below the box A. There are two boxes placed between box A and box Y. Here we get two possibilities i.e., Case 1 and Case 2.

| Case 1 | | Case 2 | |
|---|---|---|---|
| Box | Colors | Box | Colors |
| Y | | A | |
| | | | Pink |
| | | D | |
| A | | Y | |
| | Pink | | |
| D | | | |

There are two boxes placed between box D and box V, which is Black coloured. Now one more possibility added here i.e., Case 2a.

| Case 1 | | Case 2 | | Case 2a | |
|---|---|---|---|---|---|
| Box | Colors | Box | Colors | Box | Colors |
| Y | | A | | V | Black |
| | | | Pink | A | |
| V | Black | D | | | Pink |
| A | | Y | | D | |
| | Pink | | | Y | |
| D | | V | Black | | |

There are two boxes placed between box W and the Blue coloured box. Box W is placed above the box D. Boxes A, D and Y are not of Blue coloured. Here one more case added i.e., Case 2b. Box P is placed above box T, which is magenta coloured.

| Case 1 | | Case 2 | | Case 2a | | Case 2b | |
|---|---|---|---|---|---|---|---|
| Box | Colors | Box | Colors | Box | Colors | Box | Colors |
| Y | | A | | V | Black | P | Blue |
| P | Blue | W | Pink | A | | V | Black |
| V | Black | D | | W | Pink | A | |
| A | | Y | | D | | W | Pink |
| W | Pink | P | Blue | Y | | D | |
| D | | V | Black | P | Blue | Y | |
| T | Magenta | T | Magenta | T | Magenta | T | Magenta |

More than three boxes are placed between the box which is of White and Green Coloured, which is placed above of White box. Here Case 2, 2a and 2b are ruling out now. So, the final arrangement-

| Box | Colors |
|---|---|
| Y | Green |
| P | Blue |
| V | Black |
| A | Yellow |
| W | Pink |
| D | White |
| T | Magenta |

**S42. Ans.(b)**

**Sol.** From the given statements, the pink coloured box is placed just above the box D and just below the box A. There are two boxes placed between box A and box Y. Here we get two possibilities i.e., Case 1 and Case 2.

| Case 1 | | Case 2 | |
|---|---|---|---|
| Box | Colors | Box | Colors |
| Y | | A | |
| | | | Pink |
| | | D | |
| A | | Y | |
| | Pink | | |
| D | | | |

There are two boxes placed between box D and box V, which is Black coloured. Now one more possibility added here i.e., Case 2a.

| Case 1 | | Case 2 | | Case 2a | |
|---|---|---|---|---|---|
| Box | Colors | Box | Colors | Box | Colors |
| Y | | A | | V | Black |
| | | | Pink | A | |
| V | Black | D | | | Pink |
| A | | Y | | D | |
| | Pink | | | Y | |
| D | | V | Black | | |

There are two boxes placed between box W and the Blue coloured box. Box W is placed above the box D. Boxes A, D and Y are not of Blue coloured. Here one more case added i.e., Case 2b. Box P is placed above box T, which is magenta coloured.

| Case 1 | | Case 2 | | Case 2a | | Case 2b | |
|---|---|---|---|---|---|---|---|
| Box | Colors | Box | Colors | Box | Colors | Box | Colors |
| Y | | A | | V | Black | P | Blue |
| P | Blue | W | Pink | A | | V | Black |
| V | Black | D | | W | Pink | A | |
| A | | Y | | D | | W | Pink |
| W | Pink | P | Blue | Y | | D | |
| D | | V | Black | P | Blue | Y | |
| T | Magenta | T | Magenta | T | Magenta | T | Magenta |

More than three boxes are placed between the box which is of White and Green Coloured, which is placed above of White box. Here Case 2, 2a and 2b are ruling out now. So, the final arrangement-

| Box | Colors |
|---|---|
| Y | Green |
| P | Blue |
| V | Black |
| A | Yellow |
| W | Pink |
| D | White |
| T | Magenta |

**S43. Ans.(d)**

**Sol.** From the given statements, the pink coloured box is placed just above the box D and just below the box A. There are two boxes placed between box A and box Y. Here we get two possibilities i.e., Case 1 and Case 2.

| Case 1 | | Case 2 | |
|---|---|---|---|
| Box | Colors | Box | Colors |
| Y | | A | |
| | | | Pink |
| | | D | |
| A | | Y | |
| | Pink | | |
| D | | | |

There are two boxes placed between box D and box V, which is Black coloured. Now one more possibility added here i.e., Case 2a.

| Case 1 | | Case 2 | | Case 2a | |
|---|---|---|---|---|---|
| Box | Colors | Box | Colors | Box | Colors |
| Y | | A | | V | Black |
| | | | Pink | A | |
| V | Black | D | | | Pink |
| A | | Y | | D | |
| | Pink | | | Y | |
| D | | V | Black | | |

There are two boxes placed between box W and the Blue coloured box. Box W is placed above the box D. Boxes A, D and Y are not of Blue coloured. Here one more case added i.e., Case 2b. Box P is placed above box T, which is magenta coloured.

| Case 1 | | Case 2 | | Case 2a | | Case 2b | |
|---|---|---|---|---|---|---|---|
| Box | Colors | Box | Colors | Box | Colors | Box | Colors |
| Y | | A | | V | Black | P | Blue |
| P | Blue | W | Pink | A | | V | Black |
| V | Black | D | | W | Pink | A | |
| A | | Y | | D | | W | Pink |
| W | Pink | P | Blue | Y | | D | |
| D | | V | Black | P | Blue | Y | |
| T | Magenta | T | Magenta | T | Magenta | T | Magenta |

More than three boxes are placed between the box which is of White and Green Coloured, which is placed above of White box. Here Case 2, 2a and 2b are ruling out now. So, the final arrangement-

| Box | Colors |
|---|---|
| Y | Green |
| P | Blue |
| V | Black |
| A | Yellow |
| W | Pink |
| D | White |
| T | Magenta |

**S44. Ans.(a)**

**Sol.** From the given statements, the pink coloured box is placed just above the box D and just below the box A. There are two boxes placed between box A and box Y. Here we get two possibilities i.e., Case 1 and Case 2.

| Case 1 | | Case 2 | |
|---|---|---|---|
| Box | Colors | Box | Colors |
| Y | | A | |
| | | | Pink |
| | | D | |
| A | | Y | |
| | Pink | | |
| D | | | |

There are two boxes placed between box D and box V, which is Black coloured. Now one more possibility added here i.e., Case 2a.

| Case 1 | | Case 2 | | Case 2a | |
|---|---|---|---|---|---|
| Box | Colors | Box | Colors | Box | Colors |
| Y | | A | | V | Black |
| | | | Pink | A | |
| V | Black | D | | | Pink |
| A | | Y | | D | |
| | Pink | | | Y | |
| D | | V | Black | | |

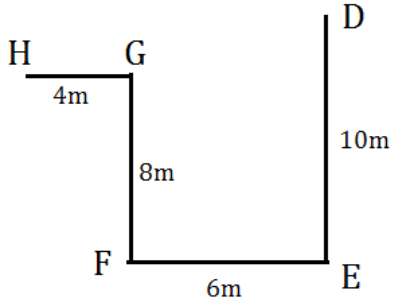
There are two boxes placed between box W and the Blue coloured box. Box W is placed above the box D. Boxes A, D and Y are not of Blue coloured. Here one more case added i.e., Case 2b. Box P is placed above box T, which is magenta coloured.

| Case 1 | | Case 2 | | Case 2a | | Case 2b | |
|---|---|---|---|---|---|---|---|
| Box | Colors | Box | Colors | Box | Colors | Box | Colors |
| Y | | A | | V | Black | P | Blue |
| P | Blue | W | Pink | A | | V | Black |
| V | Black | D | | W | Pink | A | |
| A | | Y | | D | | W | Pink |
| W | Pink | P | Blue | Y | | D | |
| D | | V | Black | P | Blue | Y | |
| T | Magenta | T | Magenta | T | Magenta | T | Magenta |

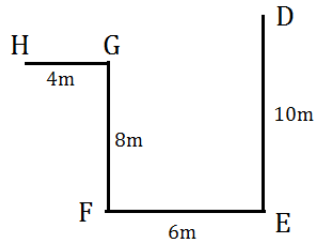
More than three boxes are placed between the box which is of White and Green Coloured, which is placed above of White box. Here Case 2, 2a and 2b are ruling out now. So, the final arrangement-

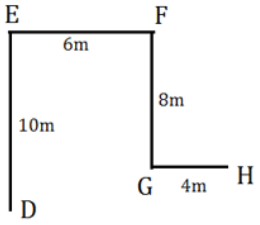
| Box | Colors |
|---|---|
| Y | Green |
| P | Blue |
| V | Black |
| A | Yellow |
| W | Pink |
| D | White |
| T | Magenta |

**S45. Ans.(b)**
**Sol.**

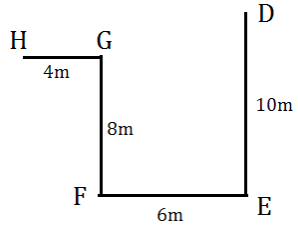


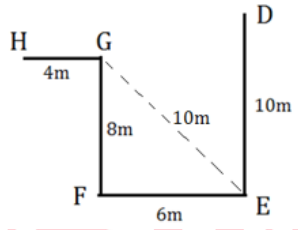

**S46. Ans.(c)**
**Sol.**



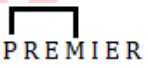




**S47. Ans.(d)**
**Sol.**



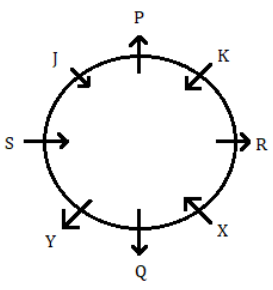




**S48. Ans.(c)**
**Sol.**

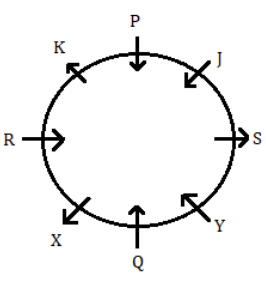



**S49. Ans.(d)**
**Sol.** From the given conditions, X sits third to the right of P. Two persons sit between X and S. Q sits second to the right of S. R sits second to the left of Q. R sits next to K. J sits second to the right of K. Y sits third to the right of R. J sits second to the right of Y. J faces inside. Here there are two cases possible i.e., case 1 and case2.

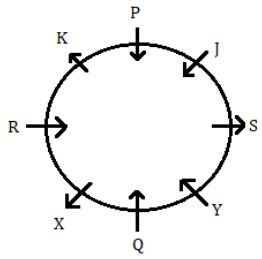
Case 1




Case 2



Y faces inside. Here case 1 is ruled out now. So, the final arrangement is-

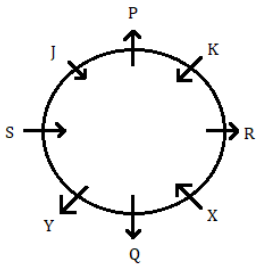



Only in option (d) persons face in the same direction.

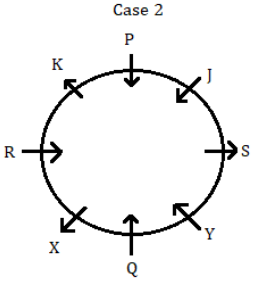
**S50. Ans.(c)**

**Sol.** From the given conditions, X sits third to the right of P. Two persons sit between X and S. Q sits second to the right of S. R sits second to the left of Q. R sits next to K. J sits second to the right of K. Y sits third to the right of R. J sits second to the right of Y. J faces inside. Here there are two cases possible i.e., case 1 and case2.

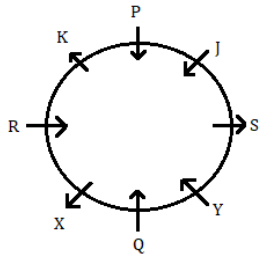
Case 1




Case 2



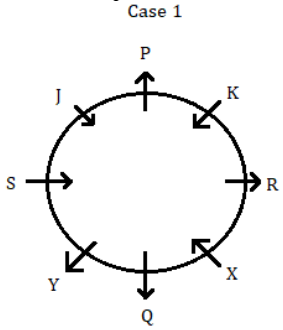

Y faces inside. Here case 1 is ruled out now. So, the final arrangement is-



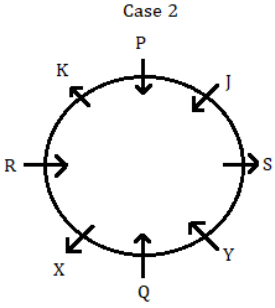

**S51. Ans.(b)**

**Sol.** From the given conditions, X sits third to the right of P. Two persons sit between X and S. Q sits second to the right of S. R sits second to the left of Q. R sits next to K. J sits second to the right of K. Y sits third to the right of R. J sits second to the right of Y. J faces inside. Here there are two cases possible i.e., case 1 and case2.

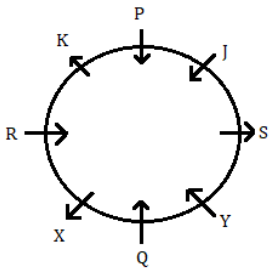
Case 1




Case 2



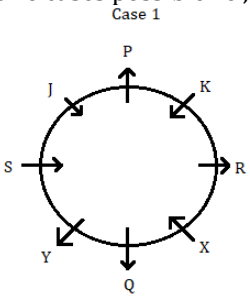

Y faces inside. Here case 1 is ruled out now. So, the final arrangement is-



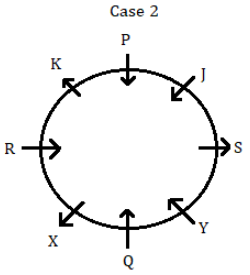

**S52. Ans.(e)**

**Sol.** From the given conditions, X sits third to the right of P. Two persons sit between X and S. Q sits second to the right of S. R sits second to the left of Q. R sits next to K. J sits second to the right of K. Y sits third to the right of R. J sits second to the right of Y. J faces inside. Here there are two cases possible i.e., case 1 and case2.

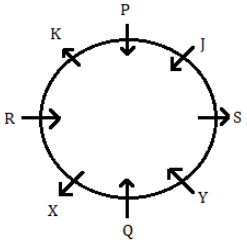
Case 1




Case 2



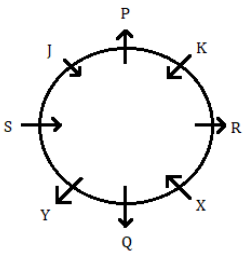

Y faces inside. Here case 1 is ruled out now. So, the final arrangement is-



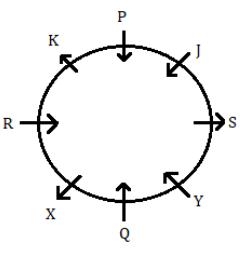

**S53. Ans.(a)**

**Sol.** From the given conditions, X sits third to the right of P. Two persons sit between X and S. Q sits second to the right of S. R sits second to the left of Q. R sits next to K. J sits second to the right of K. Y sits third to the right of R. J sits second to the right of Y. J faces inside. Here there are two cases possible i.e., case 1 and case2.

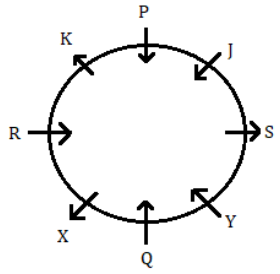
Case 1



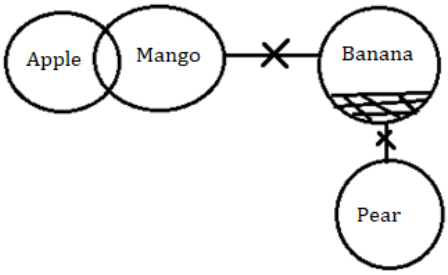

Case 2



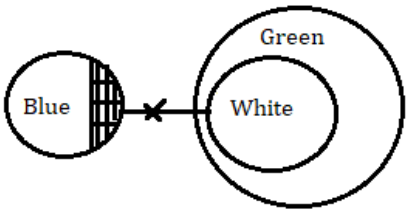

Y faces inside. Here case 1 is ruled out now. So, the final arrangement is-



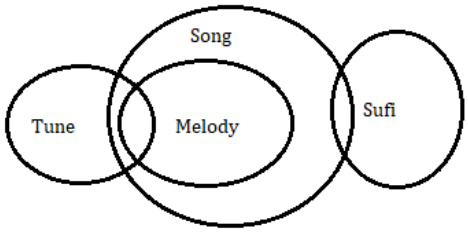

**S54. Ans.(c)**
**Sol.**



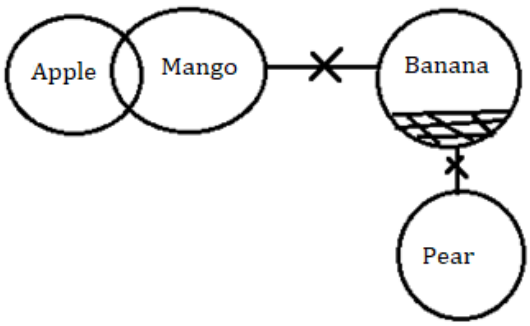

**S55. Ans.(b)**
**Sol.**



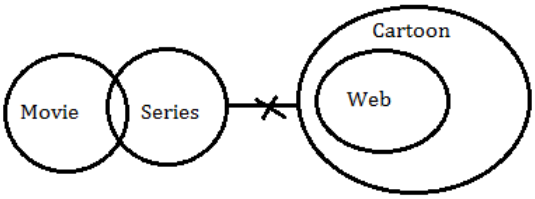

**S56. Ans.(d)**
**Sol.**




**S57. Ans.(a)**
**Sol.**

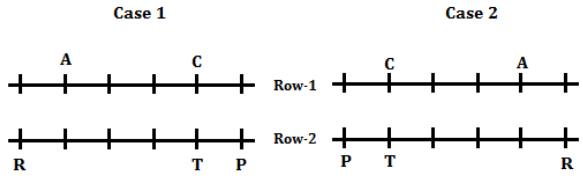



**S58. Ans.(a)**
**Sol.**

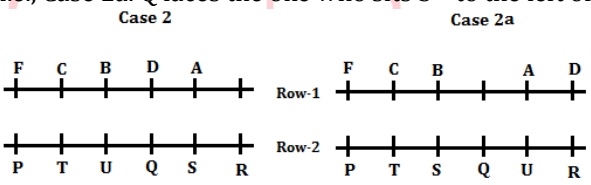



**S59. Ans.(c)**
**Sol.** Deepam's rank from top = $21^{st} + 9^{th} = 30^{th}$
Rupam's rank from bottom = $50 - 30 + 1 = 21^{st}$

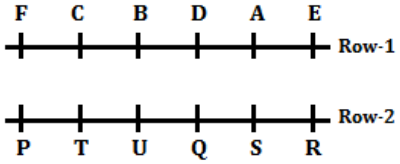
**S60. Ans.(c)**
**Sol.** From the given statements, A faces the one who is an immediate neighbour of R who sits one of the extreme ends of the row. The number of persons sits to the right of A is same as to the left of C. T is the only neighbour of P which means P sits at one of the extreme ends. Here we get 2 possibilities i.e., Case 1 and Case 2.



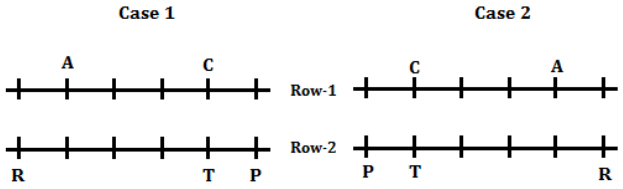

B faces the one who sits $2^{nd}$ to the right of P. From this condition Case 1 is ruled out now. There is one person sits between U and S. D faces the one who sits immediate right of U. From these conditions we get one more possibility i.e., Case 2a. Q faces the one who sits $3^{rd}$ to the left of F.



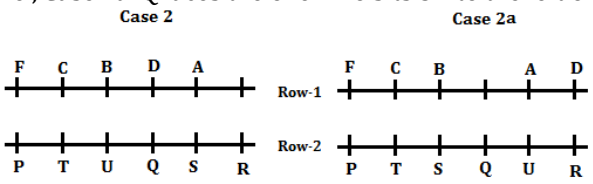

Both B and E are not immediate neighbour to each other. From this condition Case 2a is ruled out now. So, the final arrangement is such as-



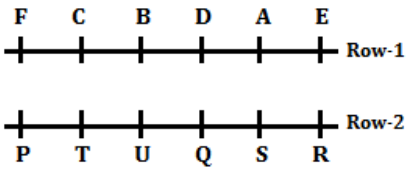

**S61. Ans.(b)**
**Sol.** From the given statements, A faces the one who is an immediate neighbour of R who sits one of the extreme ends of the row. The number of persons sits to the right of A is same as to the left of C. T is the only neighbour of P which means P sits at one of the extreme ends. Here we get 2 possibilities i.e., Case 1 and Case 2.




B faces the one who sits 2nd to the right of P. From this condition Case 1 is ruled out now. There is one person sits between U and S. D faces the one who sits immediate right of U. From these conditions we get one more possibility i.e., Case 2a. Q faces the one who sits 3rd to the left of F.

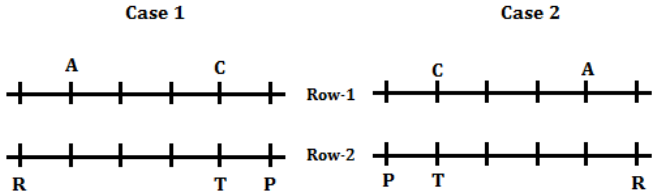



Both B and E are not immediate neighbour to each other. From this condition Case 2a is ruled out now. So, the final arrangement is such as-

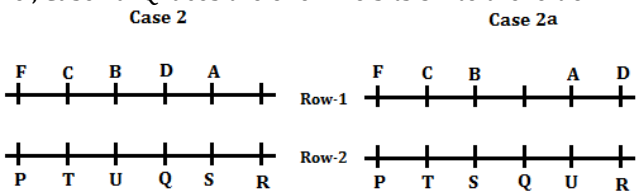



**S62. Ans.(e)**

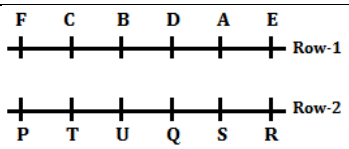
**Sol.** From the given statements, A faces the one who is an immediate neighbour of R who sits one of the extreme ends of the row. The number of persons sits to the right of A is same as to the left of C. T is the only neighbour of P which means P sits at one of the extreme ends. Here we get 2 possibilities i.e., Case 1 and Case 2.




B faces the one who sits 2nd to the right of P. From this condition Case 1 is ruled out now. There is one person sits between U and S. D faces the one who sits immediate right of U. From these conditions we get one more possibility i.e., Case 2a. Q faces the one who sits 3rd to the left of F.

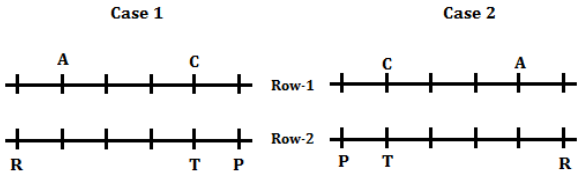



Both B and E are not immediate neighbour to each other. From this condition Case 2a is ruled out now. So, the final arrangement is such as-

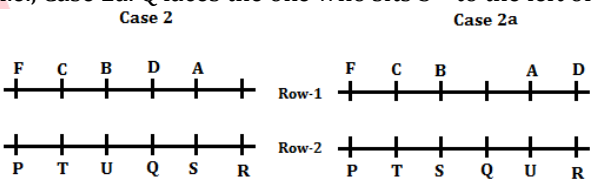



**S63. Ans.(a)**

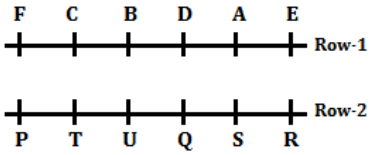
**Sol.** From the given statements, A faces the one who is an immediate neighbour of R who sits one of the extreme ends of the row. The number of persons sits to the right of A is same as to the left of C. T is the only neighbour of P which means P sits at one of the extreme ends. Here we get 2 possibilities i.e., Case 1 and Case 2.




B faces the one who sits 2nd to the right of P. From this condition Case 1 is ruled out now. There is one person sits between U and S. D faces the one who sits immediate right of U. From these conditions we get one more possibility i.e., Case 2a. Q faces the one who sits 3rd to the left of F.

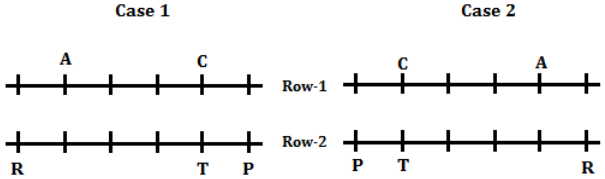



Both B and E are not immediate neighbour to each other. From this condition Case 2a is ruled out now. So, the final arrangement is such as-




**S64. Ans.(d)**

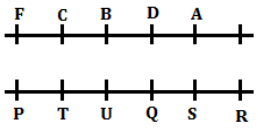
**Sol.** From the given statements, A faces the one who is an immediate neighbour of R who sits one of the extreme ends of the row. The number of persons sits to the right of A is same as to the left of C. T is the only neighbour of P which means P sits at one of the extreme ends. Here we get 2 possibilities i.e., Case 1 and Case 2.



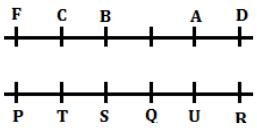

B faces the one who sits 2nd to the right of P. From this condition Case 1 is ruled out now. There is one person sits between U and S. D faces the one who sits immediate right

of U. From these conditions we get one more possibility i.e., Case 2a. Q faces the one who sits 3rd to the left of F.

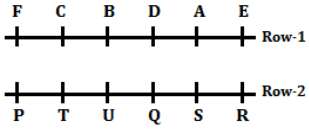
Case 2




Case 2a




Both B and E are not immediate neighbour to each other. From this condition Case 2a is ruled out now. So, the final arrangement is such as-




**S65. Ans.(a)**
**Sol.**9786152493
7968514239

**S66. Ans.(b)**
**Sol.** Sum of people who joined yoga classes in cities B & E = 105+60=165
People who joined swimming classes in city C = 125
Required difference = 165-125=40

**S67. Ans.(a)**
**Sol.** Required ratio = 100 :90=10:9

**S68. Ans.(a)**
**Sol.**
Females who joined yoga classes in city A = $\frac{2}{5} \times 80 = 32$
Total people who joined swimming classes in city C = 125
Required percentage = $\frac{32}{125} \times 100 = 25.6\%$

**S69. Ans.(d)**
**Sol.**
Total people who joined yoga classes in city X = $\frac{142}{100} \times 100 = 142$
Total people who joined swimming classes in city X = $\frac{90}{2} = 45$
Required difference = $142 - 45 = 97$

**S70. Ans.(e)**
**Sol.**
Required percentage = $\frac{70-60}{70} \times 100 = \frac{10}{70} \times 100 = 14.28\%$

**S71. Ans.(e)**
**Sol.**
I. $2x^2 - 13x + 18 = 0$
$2x^2 - 4x - 9x + 18 = 0$
$2x(x-2) - 9(x-2) = 0$
$x = 2, \frac{9}{2}$
II. $2y^2 - 11y + 12 = 0$
$2y^2 - 8y - 3y + 12 = 0$
$2y(y-4) - 3(y-4) = 0$
$y = 4, \frac{3}{2}$
So, no relation between x and y.

**S72. Ans.(c)**
**Sol.**
I. $x^2 - 23x + 126 = 0$
$x^2 - 14x - 9x + 126 = 0$
$x(x-14) - 9(x-14) = 0$
$x = 14, 9$
II. $2y^2 - 25y + 63 = 0$
$2y^2 - 18y - 7y + 63 = 0$
$2y(y-9) - 7(y-9) = 0$
$y = 9, \frac{7}{2}$
So, $x \geq y$

**S73. Ans.(d)**
**Sol.**
I. $x^2 + 15x + 56 = 0$
$x^2 + 8x + 7x + 56 = 0$
$x(x+8) + 7(x+8) = 0$
$x = -7, -8$
II. $y^2 + y - 42 = 0$
$y^2 + 7y - 6y - 42 = 0$
$y(y+7) - 6(y+7) = 0$
$y = -7, 6$
So, $x \leq y$

**S74. Ans.(a)**
**Sol.**
I. $3x^2 + 22x + 32 = 0$
$3x^2 + 6x + 16x + 32 = 0$
$3x(x+2) + 16(x+2) = 0$
$x = -\frac{16}{3}, -2$
II. $y^2 + 19y + 78 = 0$
$y^2 + 13y + 6y + 78 = 0$
$y = -13, -6$
So, $x > y$

**S75. Ans.(e)**
**Sol.**
I. $x^3 = 2197$
$x = 13$
II. $\sqrt{784}y = y^2$
$y^2 - 28y = 0$
$y(y - 28) = 0$
$28 = y$ or $y = 0$
So, there is no relation between x and y

**S76. Ans.(c)**
**Sol.**
Let the initial investment of P = 4x
So, initial investment of Q = $4x \times \frac{5}{4} = 5x$
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,
$\frac{48x+18000}{60x+6000} = \frac{27}{31}$
$\frac{8x+3000}{10x+1000} = \frac{27}{31}$
$270x - 248x = 93000 - 27000$
$22x = 66000$
$\Rightarrow x = 3000$
Initial investment of P = Rs. 12000

**S77. Ans.(d)**
**Sol.**
Let the quantity of milk in the original mixture be 3x.
And the quantity of water be 2x.
ATQ,
$\frac{3x+40}{2x} = \frac{2}{1}$
$\Rightarrow 4x = 3x + 40$
$\Rightarrow x = 40$
Quantity of new mixture = 5 × 40 + 40 = 240 lit.
$\therefore$ Required quantity of water = $240 \times \frac{1}{3} - 90 \times \frac{1}{3} = (240 - 90) \times \frac{1}{3} = 50$ liters

**S78. Ans.(d)**
**Sol.**
let length of the platform be L meter.
ATQ
$\text{Length of the train} = 26 \times 90 \times \frac{5}{18} = 650\ meter$
$\text{Length of the platform} = 36 \times 90 \times \frac{5}{18} - 650$
$= 900 - 650 = 250\ meters$

**S79. Ans.(c)**
**Sol.**
Let, amount invested in scheme A = x
Amount invested in scheme B = 14,000 – x
Cumulative rate of interest = $\left(20 + 20 + 20 \times \frac{20}{100}\right)\% = 44\%$
ATQ,
$x \times \left[\frac{44}{100}\right] + \frac{(14000-x)\times 25\times 2}{100} = 6640$
$x \times \frac{44}{100} + 7000 - \frac{x}{2} = 6640$
$360 = \frac{6x}{100}$
$\Rightarrow x = 6{,}000$
Amount invested in scheme B = 14000-6000 = 8000

**S80. Ans.(b)**
**Sol.**
Let cost price of an article = 100x
Mark price of an article = $100x \times \frac{135}{100} = 135x$
ATQ,
$135x \times \frac{80}{100} - 100x = 96$
$\Rightarrow 108x - 100x = 96$
$\Rightarrow x = \frac{96}{8} = 12$
Shopkeeper's profit if he sells article at 15% discount
$= 135x \times \frac{85}{100} - 100x$
$= 114.75x - 100x$
$= 14.75x$
$= 14.75 \times 12$
$= 177$

**S81. Ans.(b)**
**Sol.** In 2019
Total people who subscribed channels = 720
Total people who subscribed channel P = $720 \times \frac{75}{100} = 540$
Total people who subscribed channel Q = 720 – 540 = 180
Similarly

| Years | Total people who subscribed channels | Total people who subscribed channel P | Total people who subscribed channel Q |
|---|---|---|---|
| 2019 | 720 | 540 | 180 |
| 2020 | 550 | 330 | 220 |
| 2021 | 800 | 260 | 540 |
| 2022 | 650 | 195 | 455 |

Required percentage = $\frac{220}{260} \times 100 = 84.6\% \approx 85\%$

**S82. Ans.(c)**
**Sol.** In 2019
Total people who subscribed channels = 720
Total people who subscribed channel P = $720 \times \frac{75}{100} = 540$
Total people who subscribed channel Q = 720 – 540 = 180
Similarly

| Years | Total people who subscribed channels | Total people who subscribed channel P | Total people who subscribed channel Q |
|---|---|---|---|
| 2019 | 720 | 540 | 180 |
| 2020 | 550 | 330 | 220 |
| 2021 | 800 | 260 | 540 |
| 2022 | 650 | 195 | 455 |

Total people who subscribed channels (P and Q) in 2023 = $\frac{75}{100} \times 720 = 540$
People who subscribed channel Q in 2023 = $\frac{125}{100} \times 220 = 275$
people who subscribed channel P in 2023 = $540 - 275 = 265$
Required difference = 265 – 195 = 70

**S83. Ans.(c)**
**Sol.** In 2019
Total people who subscribed channels = 720
Total people who subscribed channel P = $720 \times \frac{75}{100} = 540$
Total people who subscribed channel Q = 720 – 540 = 180
Similarly

| Years | Total people who subscribed channels | Total people who subscribed channel P | Total people who subscribed channel Q |
|---|---|---|---|
| 2019 | 720 | 540 | 180 |
| 2020 | 550 | 330 | 220 |
| 2021 | 800 | 260 | 540 |
| 2022 | 650 | 195 | 455 |

Required ratio = 260 :180=13:9

**S84. Ans.(a)**
**Sol.** In 2019
Total people who subscribed channels = 720
Total people who subscribed channel P = $720 \times \frac{75}{100} = 540$
Total people who subscribed channel Q = 720 – 540 = 180
Similarly

| Years | Total people who subscribed channels | Total people who subscribed channel P | Total people who subscribed channel Q |
|---|---|---|---|
| 2019 | 720 | 540 | 180 |
| 2020 | 550 | 330 | 220 |
| 2021 | 800 | 260 | 540 |
| 2022 | 650 | 195 | 455 |

People who subscribed channel R in 2022 = $\frac{455}{13} \times 18 = 630$
Required percentage = $\frac{800-630}{800} \times 100 = 21.25\%$

**S85. Ans.(d)**
**Sol.** In 2019
Total people who subscribed channels = 720

Total people who subscribed channel P = $720 \times \frac{75}{100} = 540$

Total people who subscribed channel Q = 720 – 540 = 180

Similarly

| Years | Total people who subscribed channels | Total people who subscribed channel P | Total people who subscribed channel Q |
|---|---|---|---|
| 2019 | 720 | 540 | 180 |
| 2020 | 550 | 330 | 220 |
| 2021 | 800 | 260 | 540 |
| 2022 | 650 | 195 | 455 |

$\text{Required ratio} = \frac{650+540+220}{3} = 470$

**S86. Ans.(b)**

**Sol.**

Let speed of boat in still water and speed of stream be X km/hr and Y km/hr respectively

And, the distance covered by boat = d km

Given, X = 3.5 km/hr

$\frac{d}{X-Y} = \frac{250}{100} \times \frac{d}{X+Y}$

5X – 5Y = 2X + 2Y

3X = 7Y

$3 \times \frac{3.5}{7} = Y$

So, Y = $\frac{3}{2}$ km/hr

**S87. Ans.(a)**

**Sol.**

Let breadth of rectangle be 'x' cm

So, length of rectangle will be '(x + 6)' cm

And side of square will be $\frac{(7x+42)}{4}$ cm

ATQ, $4\times (2x + 6) = \frac{(7x+42)}{4} \times 4$

8x + 24 = 7x + 42

x = 18 cm

Length = 24 cm

So, side of square = $\frac{(7\times18+42)}{4} = 42\ cm$

Area of square = 42 × 42 = 1764 $cm^2$

**S88. Ans.(e)**

**Sol.**

A can complete the whole work alone = $\frac{9\times5}{3}$ = 15 hours

Let the efficiency of A be 3x unit/hour

∴ Total work = 15 × 3x = 45x unit

Efficiency of B = 3x × 1.5 = 4.5x unit/hour

Efficiency of C = 4.5x × $\frac{5}{9}$ = 2.5x unit/hour

Required time = $\frac{45x}{(3x+4.5x+2.5x)}$ = 4.5 hours = $4\frac{1}{2} hours$

**S89. Ans.(a)**

**Sol.**

Let age of Ravi and Vicky, 4 years ago was 5x years and 6x years respectively

2 years later, age of Ravi=(5x+6) years

Age of Rocky, 2 years later=$\left[\left(\frac{6x+4}{4} \times 5\right) + 2\right]\ years$

ATQ

$(5x+6) + \left(\frac{6x+4}{4} \times 5\right) + 2 = 63$

10x + 12 + 15x + 14 = 126

25x = 100

x=4

Required difference= 4 years

**S90. Ans.(c)**

**Sol.**

Let monthly income of Vimal = 85x

Monthly income of Kisan = $85x \times \frac{140}{100} = 119x$

And Monthly income of Uday = $85x \times \frac{100}{85} = 100x$

Monthly income of Vimal= $Rs.\left(\frac{345000}{12}\right) = Rs.\ 28750$

So, monthly income of Kisan= $\frac{28750}{85} \times 119 = Rs.\ 40250$

**S91. Ans.(c)**

**Sol.** Let the number of boys and girls in B be 7x and 8x respectively

Given, (7x + 8x) = 750

x=50

Boys in B = 7 ×50=350

Girls in B = 8 ×50=400

Let the number of boys and girl in C be 5y and 3y respectively

Boys in C = $960 \times \frac{5y}{8y} = 600$

Girls in C = $960 \times \frac{3y}{8y} = 360$

Boys in A = $685 \times 2 - 600 = 770$

Girls in A = $\frac{770}{11} \times 4 = 280$

| Schools | Boys | Girls |
|---|---|---|
| A | 770 | 280 |
| B | 350 | 400 |
| C | 600 | 360 |

Required difference = 770 – 360 = 410

**S92. Ans.(c)**

**Sol.** Let the number of boys and girls in B be 7x and 8x respectively

Given, (7x + 8x) = 750

x=50

Boys in B = 7 ×50=350

Girls in B = 8 ×50=400

Let the number of boys and girl in C be 5y and 3y respectively

Boys in C = $960 \times \frac{5y}{8y} = 600$

Girls in C = $960 \times \frac{3y}{8y} = 360$

Boys in A = $685 \times 2 - 600 = 770$

Girls in A = $\frac{770}{11} \times 4 = 280$

| Schools | Boys | Girls |
|---|---|---|
| A | 770 | 280 |
| B | 350 | 400 |
| C | 600 | 360 |

Required percentage = $\frac{280}{350} \times 100 = 80\%$

**S93. Ans.(e)**

**Sol.** Let the number of boys and girls in B be 7x and 8x respectively

Given, (7x + 8x) = 750

x=50

Boys in B = 7 ×50=350

Girls in B = 8 ×50=400

Let the number of boys and girl in C be 5y and 3y respectively

Boys in C = $960 \times \frac{5y}{8y} = 600$

Girls in C = $960 \times \frac{3y}{8y} = 360$

Boys in A = $685 \times 2 - 600 = 770$

Girls in A = $\frac{770}{11} \times 4 = 280$

| Schools | Boys | Girls |
|---|---|---|
| A | 770 | 280 |
| B | 350 | 400 |
| C | 600 | 360 |

Total students (boys and girls) in school D = $\frac{7}{6} \times 960 = 1120$

Boys in school D = $350 \times \frac{80}{100} = 280$

Girls in school D = 1120 − 280 = 840

Required average = $\frac{840+400}{2}$ =620

**S94. Ans.(a)**

**Sol.** Let the number of boys and girls in B be 7x and 8x respectively

Given, (7x + 8x) = 750

x=50

Boys in B = 7 ×50=350

Girls in B = 8 ×50=400

Let the number of boys and girl in C be 5y and 3y respectively

Boys in C = $960 \times \frac{5y}{8y} = 600$

Girls in C = $960 \times \frac{3y}{8y} = 360$

Boys in A = $685 \times 2 - 600 = 770$

Girls in A = $\frac{770}{11} \times 4 = 280$

| Schools | Boys | Girls |
|---|---|---|
| A | 770 | 280 |
| B | 350 | 400 |
| C | 600 | 360 |

Total students (boys and girls) in school C participated in drawing = $960 \times \frac{7}{12} = 560$

Total students (boys and girls) in school C participated in painting = $960 \times \frac{5}{12} = 400$

Boys participated in drawing = $600 \times \frac{60}{100} = 360$

Boys participated in painting = $600 - 360 = 240$

Girls who participated in painting = $400 - 240 = 160$

**S95. Ans.(b)**

**Sol.** Let the number of boys and girls in B be 7x and 8x respectively

Given, (7x + 8x) = 750

x=50

Boys in B = 7 ×50=350

Girls in B = 8 ×50=400

Let the number of boys and girl in C be 5y and 3y respectively

Boys in C = $960 \times \frac{5y}{8y} = 600$

Girls in C = $960 \times \frac{3y}{8y} = 360$

Boys in A = $685 \times 2 - 600 = 770$

Girls in A = $\frac{770}{11} \times 4 = 280$

| Schools | Boys | Girls |
|---|---|---|
| A | 770 | 280 |
| B | 350 | 400 |
| C | 600 | 360 |

Teachers in school A= $\frac{1}{3} \times 360 = 120$

Required sum =120 + (350 + 400) = 120 + 750 = 870

**S96. Ans.(b)**

**Sol.**

Pattern of series:

$88 - 1^3 = 87$

$87 + 2^3 = 95$

$95 - 3^3 = 68$

$68 + 4^3 = 132$

$132 - 5^3 = \mathbf{7}$

**S97. Ans.(a)**

**Sol.**

Pattern of series:

$39 + (11^2) = 160$

$160 + (12^2) = \mathbf{304}$

$304 + (13^2) = 473$

$473 + (14^2) = 669$

$669 + (15^2) = 894$

**S98. Ans.(e)**

**Sol.**

Pattern of series:

13.75×4=**55**

55÷5=11

11×4=44

44÷5=8.8

8.8×4=35.2

**S99. Ans.(e)**

**Sol.** Pattern of series:

155, 163, 181, 209, 247, 295

+8 +18 +28 +38 +48

+10 +10 +10 +10

**S100. Ans.(b)**

**Sol.** Pattern of series:

11, 17, 26, **?=40**, 61, 91

6 9 14 21 30

3 5 7 9