1 CHAPTER Logical Reasoning

ANALYTICAL REASONING

1990

Direction for Question 1: *The question is followed by two statements. MARK,*

(a) if the question can be answered with the help of statement I alone,

(b) if the question can be answered with the help of statement II alone,

(c) if both, statement I and statement II are needed to answer the question, and

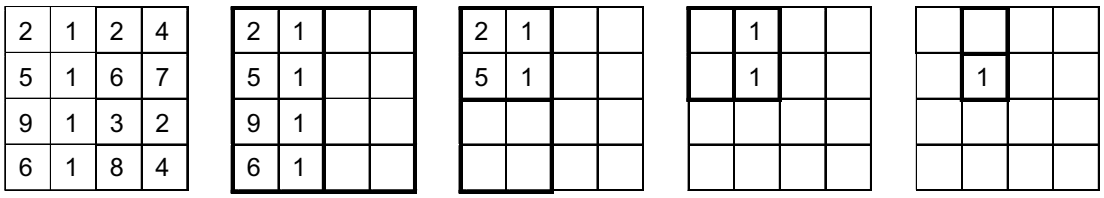
(d) if the statement cannot be answered even with the help of both the statements.

1. X is older than Y, Z is younger than W and V is older than Y. Is Z younger than X?

I. W may not be older than V.

II. W is not older than V.

Directions for Questions 2 to 4 : *The following questions relate to a game to be played by you and your friend. The game consists of a 4 x 4 board (see below) where each cell contains a positive integer. You and your friend make moves alternately. A move by any of the players consists of splitting the current board configuration into two equal halves and retaining one of them. In your moves you are allowed to split the board only vertically and to decide to retain either the left or the right half. Your friend, in his/her moves, can split the board only horizontally and can retain either the lower or the upper half. After two moves by each player a single cell will remain which can no longer be split and the number in that cell will be treated as the gain (in rupees) of the person who has started the game. A sample game is shown below.*



So your gain is Re.1. With the same initial board configuration as above and assuming that you have to make the first move, answer the following questions.

2. If you choose (retain right) (retain left) in your turns, the best move sequence for your friend to reduce your gain to a minimum will be

(a) (retain upper)(retain lower)

(b) (retain lower) (retain upper)

(c) (retain upper) (retain upper)

(d) (retain lower) (retain lower)

3. If both of you select your moves intelligently then at the end of the game your gain will be

(a) Rs.4 (b) Rs.3

(c) Rs.2 (d) None of these

4. If your first move is (retain right), then whatever moves your friend may select you can always force a gain of no less than

(a) Rs.3 (b) Rs.6

(c) Rs.4 (d) None of these

5. Saira, Mumtaz and Zeenat have a ball, a pen and a pencil, and each girl has just one object in hand. Among the following statements, only one is true and the other two are false.

I. Saira has a ball.

II. Mumtaz does not have the ball.

III. Zeenat does not have the pen.

Who has the ball?

(a) Saira
(b) Mumtaz
(c) Zeenat
(d) Cannot be determined

6. Albert, David, Jerome and Tommy were plucking mangoes in a grove to earn some pocket money during the summer holidays. Their earnings were directly related to the number of mangoes plucked and had the following relationship:

Jerome got less money than Tommy. Jerome and Tommy together got the same amount at Albert and David taken together. Albert and Tommy together got less than David and Jerome taken together.

Who earned the most pocket money? Who plucked the least number of mangoes?

(a) David, Jerome (b) David, Albert
(c) Jerome, Tommy (d) Jerome, Albert

7. I happened to be the judge in the all India Essay Competition on Nylon Dying, organized some time back by a dyestuff firm. Mill technicians were eligible to enter the competition. My work was simplified in assessing the essays, which had to be done under five heads-Language, Coherence, Subject Matter, Machinery and Recent Developments. Marks were to be given out of a maximum of 20 under each head. There were only five entries.

The winner got 90 marks. Akhila got 13 in Coherence and Divya 10 in Machinery. Bhanu's total was less than Akhila's. Charulata has sent an entry. Ela had got as many marks as Divya. None got 20 under any head.

Who was the winner?

(a) Divya (b) Charulata
(c) Ela (d) Bhanu

1991

Direction for Question 8 : *The question is followed by two statements. As the answer,*

Mark (a), If the question can be answered with the help of statement I alone,

Mark (b), If the question can be answered with the help of statement II alone,

Mark (c), If both the statement I and statement II are needed to answer the question, and

Mark (d), If the question cannot be answered even with the help of both the statements.

8. Mr. Murthy takes the morning train to his office from station A to station B, and his colleague Mr.Rahman joins him on the way. There are three stations C, D and E on the way not necessarily in that sequence.

What is the sequence of stations?

I. Mr. Rahman boards the train at D.
II. Mr. Thomas, who travels between C & D has two segments of journey in common with Mr. Murthy but none with Mr. Rahman.

1993

Directions for Questions 9 to 12: *Read the text and the numbered statements carefully and answer the questions given at the end.*

Four people of different nationalities live on the same side of a street in four houses each of different color. Each person has a different favorite drink. The following additional information is also known:

The Englishman lives in the red house.

The Italian drinks tea.

The Norwegian lives in the first house on the left.

In the second house from the right they drink milk.

The Norwegian lives adjacent to the blue house.

The Spaniard drinks fruit juice.

Tea is drunk in the blue house.

The white house is to the right of the red house.

9. The color of the Norwegian's house is

(a) yellow (b) white
(c) blue (d) red

10. Milk is drunk by

(a) Norwegian (b) English
(c) Italian (d) None of the above

11. The Norwegian drinks

(a) milk (b) cocoa
(c) tea (d) fruit juice.

12. Which of the following is not true?

(a) Milk is drunk in the red house.
(b) The Italian lives in the blue house.
(c) The Spaniard lives in a corner house.
(d) The Italian lives next to the Spaniard.

Directions for Questions 13 to 16: *Read the text and the numbered statements carefully and answer the questions given at the end.*

"Kya – Kya" is an island in the South Pacific. The inhabitants of "Kya – Kya" always answer any question with two sentences, one of which is always true and the other always false.

13. You find that your boat is stolen. You question three inhabitants of the island and they reply as follows:

John says, "I didn't do it. Mathew didn't do it."

Mathew says. "I didn't do it. Krishna didn't do it."

Krishna says. "I didn't do it. I don't know who did it."

Who stole your boat?

(a) John (b) Mathew

(c) Krishna (d) None of them

14. There is only one pilot on the island. You interview three men, Koik, Lony and Mirna. You also notice that Koik is wearing a cap.

Mirna says, "Lony's father is the pilot. Lony is not the priest's son."

Koik says, "I am the priest. On this island, only priests can wear caps."

Lony says, "I am the priest's son. Koik is not the priest."

Which of the following is true?

(a) Lony is not Koik's son.

(b) Koik is the pilot.

(c) Mirna is the pilot.

(d) Lony is the priest.

15. You are walking on the road and come to a fork. You ask the inhabitants Ram, Laxman and Lila. "Which road will take me to the village?"

Ram says, "I never speak to strangers. I am new to these parts."

Laxman says, "I am married to Lila. Take the left road."

Lila says, "I am married to Ram. He is not new to this place."

Which of the following is true?

(a) Left road takes you to the village.

(b) Right road takes you to the village.

(c) Lila is married to Laxman.

(d) None of these.

16. You want to speak to the chief of the village. You question three inhabitants. Amar, Bobby and Charles. Only Bobby is wearing a red shirt."

Amar says. "I am not Bobby's son. The chief wears a red shirt."

Bobby says, "I am Amar's father. Charles is the chief."

Charles says, "The chief is one among us. I am the chief."

Who is the chief?

(a) Amar (b) Bobby

(c) Charles (d) None of them

17. Amar, Akbar, and Anthony came from the same public school in the Himalayas. Every boy in that school either fishes for trout or plays frisbee. All fishermen like snow while no frisbee player likes rain. Amar dislikes whatever Akbar likes and likes whatever Akbar dislikes. Akbar likes rain and snow. Anthony likes whatever the other two like. Who is a fisherman but not a frisbee player?

(a) Amar (b) Akbar

(c) Anthony (d) None

1994

Directions for Questions 18 to 21: *Study the information below and answer questions based on it.*

A leading socialite decided to organize a dinner and invited a few of her friends. Only the host and the hostess were sitting at the opposite ends of a rectangular table, with three persons along each side. The pre-requisite for the seating arrangement was that each person must be seated such that atleast on one side it has a person of opposite sex. Maqbool is opposite Shobha, who is not the hostess. Ratan has a woman on his right and is sitting opposite a woman. Monisha is sitting to the hostess's right , next to Dhirubhai. One person is seated between Madhuri and Urmila who is not the hostess. The men were Maqbool, Ratan, Dhirubhai and Jackie, while the women were Madhuri, Urmila, Shobha and Monisha.

18. The eighth person present, Jackie, must be

I. the host

II. Seated to Shobha's right

III. Seated opposite Urmila

(a) I only (b) III only

(c) I and II only (d) II and III only

19. Which of the following persons is definitely not seated next to a person of the same sex?

(a) Maqbool (b) Madhuri

(c) Jackie (d) Shobha

20. If Ratan would have exchanged seats with a person four places to his left, which of the following would have been true after the exchange?

I. No one was seated between two persons of the opposite sex. (e.g. no man was seated between two women)

II. One side of the table consisted entirely of persons of the same sex.

III. Either the host or the hostess changed seats.

(a) I only (b) II only

(c) I and II only (d) II and III only

21. If each person is placed directly opposite her spouse, which of the following pairs must be married?

(a) Ratan and Monisha

(b) Madhuri and Dhirubhai

(c) Urmila and Jackie

(d) Ratan and Madhuri

Directions for Questions 22 to 24: *Study the information below and answer questions based on it.*

Five of India's leading models are posing for a photograph promoting "y'know, world peace and understanding". But then, Rakesh Shreshtha the photographer is having a tough time getting them to stand in a straight line, because Aishwarya refuses to stand next to Sushmita because Sushmita had said something about her in a leading gossip magazine. Rachel and Anu want to stand together because they are "such good friends, y'know". Manpreet on the other hand cannot get along well with Rachel, because there is some talk about Rachel scheming to get a contract already awarded to Manpreet. Anu believes her friendly astrologer who has asked her to stand at the extreme right for all group photographs. Finally, Rakesh managed to pacify the girls and got a beautiful picture of five beautiful girls smiling beautifully in a beautiful straight line, promoting world peace.

22. If Aishwarya is standing to the extreme left, which is the girl standing in the middle?

(a) Manpreet (b) Sushmita

(c) Rachel (d) Cannot say

23. If Aishwarya stands to the extreme left, which is the girl who stands second from left?

(a) Cannot say (b) Sushmita

(c) Rachel (d) Manpreet

24. If Anu's astrologer tells her to stand second from left and Aishwarya decides to stand second from right, then who is the girl standing on the extreme right?

(a) Rachel (b) Sushmita

(c) Cannot say (d) Manpreet

Directions for Questions 25 to 28: *Study the information below and answer the questions based on it.*

A, B, C, D, E, F and G are brothers. Two brothers had an argument and A said to B "You are as old as C was when I was twice as old as D, and will be as old as E was when he was as old as C is now". B said to A " You may be older than F but G is as old as I was when you were as old as G is, and D will be as old as F was when F will be as old as G is".

25. Who is the eldest brother?

(a) A (b) E

(c) C (d) Cannot be determined

26. Who is the youngest brother?

(a) B (b) D

(c) F (d) Cannot be determined

27. Which two are probably twins?

(a) D and G (b) E and C

(c) A and B (d) Cannot be determined

28. Which of the following is false?

(a) G has 4 elder brothers.

(b) A is older than G but younger than E.

(c) B has three elder brothers.

(d) There is a pair of twins among the brothers.

Directions for Questions 29 to 32: *Study the information below and answer the questions based on it.*

The primitive tribes – folk of the island of Lexicophobos have recently developed a language for themselves. Which has a very limited vocabulary. In fact, the words can be classified into only three types : the Bingoes, the Cingoes and the Dingoes.

The Bingoes type of words are : Grumbs, Harrumphs, Ihavitoo

The Cingoes type of words are : Ihavitoo, Jingongo, Koolodo

The Dingoes type of words are : Lovitoo, Metoo, Nana

They have also devised some rules of grammar:

Every sentence must have only five words.

Every sentence must have two Bingoes, one Cingo and two Dingoes.

If Grumbs is used in a sentence, Ihavitoo must also be used and vice versa.

Koolodo can be used in a sentence only if Lovitoo is used.

29. Which choice of words in a sentence is not possible, if no rules of grammar are to be violated?

(a) Grumbs and Harrumphs as the Bingoes and Ihavitoo as the Cingo.

(b) Harrumphs and Ihavitoo as the Bingoes.

(c) Grumbs and Ihavitoo as the Bingoes and Lovitoo and Nana as the Dingoes.

(d) Metoo and Nana as the Dingoes.

30. If Grumbs and Harrumphs are the Bingoes in a sentence, and no rule of grammar is violated, which of the following is / are true?

I. Ihavitoo is the Cingo.

II. Lovitoo is the Dingo.

III. Either Lovitoo or Metoo must be one of – or both – the Dingoes.

(a) I only (b) II only

(c) III only (d) I & III only

31. Which of the following is a possible sentence if no grammar rule is violated?

(a) Grumbs harrumphs ihavitoo lovitoo metoo.

(b) Grumbs harrumphs ihavitoo jingongo lovitoo.

(c) Harrumphs ihavitoo jingongo lovitoo metoo.

(d) Grumbs ihavitoo koolodo metoo nana.

32. If in a sentence Grumps is the Bingo and no rule of grammar is violated, which of the following cannot be true?

(a) Harrumphs must be a Bingo.

(b) Ihavitoo must be a Bingo.

(c) Lovitoo may be used.

(d) All three Bingoes are used.

1996

Directions for Questions 33 and 34: *Answer the questions based on the following information.*

In a locality, there are five small cities: A, B, C, D and E. The distances of these cities from each other are as follows.

AB = 2 km AC = 2km AD > 2 km

AE > 3 km BC = 2 km BD = 4 km

BE = 3 km CD = 2 km CE = 3 km

DE > 3 km

33. If a ration shop is to be set up within 2 km of each city, how many ration shops will be required?

(a) 2 (b) 3

(c) 4 (d) 5

34. If a ration shop is to be set up within 3 km of each city, how many ration shops will be required?

(a) 1 (b) 2

(c) 3 (d) 4

1997

Direction for Question 35: *The question is followed by two statements, I and II. Mark the answer*

(a) if the question can be answered with the help of one statement alone.

(b) if the question can be answered with the help of any one statement independently.

(c) if the question can be answered with the help of both statements together.

(d) if the question cannot be answered even with the help of both statements together.

35. Three friends P, Q and R are wearing hats, either black or white. Each person can see the hats of the other two persons. What is the colour of P's hat?

I. P says that he can see one black hat and one white hat.

II. Q says that he can see one white hat and one black hat.

1998

36. P, Q, R and S are four statements. Relation between these statements is as follows.

I. If P is true, then Q must be true.

II. If Q is true, then R must be true.

III. If S is true, then either Q is false or R is false.

Which of the following must be true?

(a) If P is true, then S is false

(b) If S is false, then Q must be true

(c) If Q is true, then P must be true

(d) If R is true, then Q must be true

Directions for Questions 37 to 39: *Answer the questions based on the following information.*

A, B, C and D are to be seated in a row. But C and D cannot be together. Also B cannot be at the third place.

37. Which of the following must be false?

(a) A is at the first place

(b) A is at the second place

(c) A is at the third place

(d) A is at the fourth place

38. If A is not at the third place, then which of the following options does C have?

(a) The first place only

(b) The third place only

(c) The first and third place only

(d) Any of the places

39. If A and B are together, then which of the following must be necessarily true?

(a) C is not at the first place

(b) A is at the third place

(c) D is at the first place

(d) C is at the first place

Directions for Questions 40 and 41: *Answer the questions based on the following information.*

Amar, Akbar and Anthony are three friends. Only three colours are available for their shirts, viz. red, green and blue. Amar does not wear red shirt. Akbar does not wear green shirt. Anthony does not wear blue shirt.

40. If Akbar and Anthony wear the same colour of shirts, then which of the following is not true?

(a) Amar wears blue and Akbar wears green

(b) Amar wears green and Akbar wears red

(c) Amar wears blue and Akbar does not wear blue

(d) Anthony wears red

41. If two of them wear the same colour, then how many of the following must be false?

I. Amar wears blue and Akbar does not wear green

II. Amar does not wear blue and Akbar wears blue

III. Amar does not wear blue and Akbar does not wear blue

IV. Amar wears green, Akbar does not wear red, Anthony does not wear green

(a) None (b) One

(c) Two (d) Three

Directions for Questions 42 to 45: *Answer the questions based on the following information.*

Mr Bankatlal acted as a judge for the beauty contest. There were four participants, viz. Ms Andhra Pradesh, Ms Uttar Pradesh, Ms West Bengal and Ms Maharashtra. Mrs Bankatlal, who was very anxious about the result, asked him about it as soon as he was back home. Mr Bankatlal just told that the one who was wearing the yellow saree won the contest. When Mrs Bankatlal pressed for further details, he elaborated as follows:

All of them were sitting in a row.

All of them wore sarees of different colours, viz. green, yellow, white, red.

There was only one runner-up and she was sitting beside Ms. Maharashtra.

The runner-up was wearing the green saree.

Ms West Bengal was not sitting at the ends and was not the runner up.

The winner and the runner-up are not sitting adjacent to each other.

Ms Maharashtra was wearing white saree.

Ms Andhra Pradesh was not wearing the green saree.

Participants wearing yellow saree and white saree were at the ends.

42. W ho wore the red saree?

(a) Ms Andhra Pradesh (b) Ms West Bengal

(c) Ms Uttar Pradesh (d) Ms Maharashtra

43. Ms. West Bengal was sitting adjacent to

(a) Ms Andhra Pradesh and Ms Maharashtra

(b) Ms Uttar Pradesh and Ms Maharashtra

(c) Ms Andhra Pradesh and Ms Uttar Pradesh

(d) Ms Uttar Pradesh

44. Which saree was worn by Ms Andhra Pradesh?

(a) Yellow (b) Red

(c) Green (d) White

45. Who was the runner-up?

(a) Ms Andhra Pradesh (b) Ms West Bengal

(c) Ms Uttar Pradesh (d) Ms Maharashtra

46. A, B, C, D, ..., X, Y, Z are the players who participated in a tournament. Everyone played with every other player exactly once. A win scores 2 points, a draw scores 1 point and a loss scores 0 point. None of the matches ended in a draw. No two players scored the same score. At the end of the tournament, by ranking list is published which is in accordance with the alphabetical order. Then

(a) M wins over N

(b) N wins over M

(c) M does not play with N

(d) None of these

Directions for Questions 47 and 48: *Each question is followed by two statements, I and II. Answer the questions based on the statements and mark the answer as*

(a) if the question can be answered with the help of any one statement alone but not by the other statement.

(b) if the question can be answered with the help of either of the statements taken individually.

(c) if the question can be answered with the help of both statements together.

(d) if the question cannot be answered even with the help of both statements together.

47. There are four envelopes — E_1, E_2, E_3 and E_4 — in which one was supposed to put letters L_1, L_2, L_3 and L_4 meant for persons C_1, C_2, C_3 and C_4 respectively, but by mistake the letters got jumbled up and went in wrong envelopes. Now if C_2 is allowed to open an envelope at random, then how will he identify the envelope containing the letter for him?

I. L_2 has been put in E_1.

II. The letter belonging to C_3 has gone in the correct envelope.

48. There are four racks numbered 1, 2, 3, 4 and four books numbered 1, 2, 3, 4. If an even rack has to contain an odd-numbered book and an odd rack contains an even-numbered book, then what is the position of book 4?

I. Second book has been put in third rack.

II. Third book has been put in second rack.

1999

49. Three labelled boxes containing red and white cricket balls are all mislabelled. It is known that one of the boxes contains only white balls and another one contains only red balls. The third contains a mixture of red and white balls. You are required to correctly label the boxes with the labels red, white and red and white by picking a sample of one ball from only one box. What is the label on the box you should sample?

(a) white
(b) red
(c) red and white
(d) Not possible to determine from a sample of one ball

50. Abraham, Border, Charlie, Dennis and Elmer, and their respective wives recently dined together and were seated at a circular table. The seats were so arranged that men and women alternated and each woman was three places away from her husband. Mrs Charlie sat to the left of Mr Abraham. Mrs Elmer sat two places to the right of Mrs Border. Who sat to the right of Mr Abraham?
(a) Mrs Dennis
(b) Mrs Elmer
(c) Mrs Border
(d) Mrs Border or Mrs Dennis

Directions for Questions 51 and 52: *Answer the questions based on the following information.*

A, B, C, D, E and F are a group of friends from a club. There are two housewives, one lecturer, one architect, one accountant and one lawyer in the group. There are two married couples in the group. The lawyer is married to D who is a housewife. No lady in the group is either an architect or an accountant. C, the accountant, is married to F who is a lecturer. A is married to D and E is not a housewife.

51. What is the profession of E?
(a) Lawyer (b) Architect
(c) Lecturer (d) Accountant

52. How many members of the group are male?
(a) 2 (b) 3
(c) 4 (d) None of these

Directions for Questions 53 and 54: *Answer the questions based on the following information.*

Seven university cricket players are to be honoured at a special luncheon. The players will be seated on the dais along one side of a single rectangular table.

I. A and G have to leave the luncheon early and must be seated at the extreme right end of the table, which is closest to the exit.
II. B will receive the Man of the Match Award and must be in the centre chair.
III. C and D who are bitter rivals for the position of wicketkeeper, dislike one another and should be seated as far apart as possible.
IV. E and F are best friends and want to sit together.

53. Which of the following may not be seated at either end of the table?
(a) C (b) D
(c) G (d) F

54. Which of the following pairs may not be seated together?
(a) E and A (b) B and D
(c) C and F (d) G and D

Directions for Questions 55 to 57: *Each question is followed by two statements I and II.*

Mark:

(a) if the question can be answered by any one of the statements alone, but cannot be answered by using the other statement alone.
(b) if the question can be answered by using either statement alone.
(c) if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.
(d) if the question cannot be answered even by using both the statements together.

55. Three professors A, B and C are separately given three sets of numbers to add. They were expected to find the answers to 1 + 1, 1 + 1 + 2, and 1 + 1 respectively. Their respective answers were 3, 3 and 2. How many of the professors are mathematicians?
I. A mathematician can never add two numbers correctly, but can always add three numbers correctly.
II. When a mathematician makes a mistake in a sum, the error is +1 or –1.

56. How many students among A, B, C and D have passed the examination?
I. The following is a true statement: A and B passed the examination.
II. The following is a false statement: At least one among C and D has passed the examination.

57. Mr Mendel grew 100 flowering plants from black seeds and white seeds, each seed giving rise to one plant. A plant gives flowers of only one colour. From a black seed comes a plant giving red or blue flowers. From a white seed comes a plant giving red or white flowers. How many black seeds were used by Mr Mendel?
I. The number of plants with white flowers was 10.
II. The number of plants with red flowers was 70.

2000

Directions for Questions 58 and 59: *Answer the questions based on the following information.*

There are three bottles of water — A, B, C, whose capacities are 5 L, 3 L, and 2 L respectively. For transferring water from one bottle to another and to drain out the bottles, there exists a piping system. The flow through these pipes is computer-controlled. The computer that controls the flow through these pipes can be fed with three types of instructions, as explained below.

Instruction type	Explanation of the instruction
Fill (X, Y)	Fill bottle labelled X from the water in bottle labelled Y, where the remaining capacity of X is less than or equal to the amount of water in Y.
Empty (X, Y)	Empty out the water in bottle labelled X into bottle labelled Y, where the amount of water in X is less than or equal to remaining capacity of Y.
Drain (X)	Drain out all the water contained in bottle labelled X

Initially, A is full with water, and B and C are empty.

58. After executing a sequence of three instructions, bottle A contains one litre of water. The first and the third of these instructions are shown below.

First instruction: FILL (C, A)

Third instruction: FILL (C, A)

Then which of the following statements about the instructions is true?

(a) The second instruction is FILL (B, A).

(b) The second instruction is EMPTY (C, B).

(c) The second instruction transfers water from B to C.

(d) The second instruction involves using the water in bottle A.

59. Consider the same sequence of three instructions and the same initial state mentioned above. Three more instructions are added at the end of the above sequence to have A contain 4 L of water. In this total sequence of six instructions, the fourth one is DRAIN (A). This is the only DRAIN instruction in the entire sequence. At the end of the execution of the above sequence, how much water is contained in C?

(a) 1 L (b) 2 L

(c) 0 (d) None of these

60. There is a vertical stack of books marked 1, 2 and 3 on Table A, with 1 at the bottom and 3 on the top. These are to be placed vertically on Table B with 1 at the bottom and 2 on the top, by making a series of moves from one table to the other. During a move, the topmost book, or the topmost two books, or all the three, can be moved from one of the tables to the other. If there are any books on the other table, the stack being transferred should be placed on top of the existing books, without changing the order of books in the stack that is being moved in that move. If there are no books on the other table, the stack is simply placed on the other table without disturbing the order of books in it. What is the minimum number of moves in which the above task can be accomplished?

(a) 1 (b) 2

(c) 3 (d) 4

Directions for Questions 61 to 65: *Answer the questions based on the following information.*

Sixteen teams have been invited to participate in the ABC Gold Cup cricket tournament. The tournament is conducted in two stages. In the first stage, the teams are divided into two groups. Each group consists of eight teams, with each team playing every other team in its group exactly once. At the end of the first stage, the top four teams from each group advance to the second stage while the rest are eliminated. The second stage comprises of several rounds. A round involves one match for each team. The winner of a match in a round advances to the next round, while the loser is eliminated. The team that remains undefeated in the second stage is declared the winner and claims the Gold Cup.

The tournament rules are such that each match results in a winner and a loser with no possibility of a tie. In the first stage, a team earns one point for each win and no points for a loss. At the end of the first stage, teams in each group are ranked on the basis of total points to determine the qualifiers advancing to the next stage. Ties are resolved by a series of complex tie-breaking rules so that exactly four teams from each group advance to the next stage.

61. What is the total number of matches played in the tournament?

(a) 28 (b) 55

(c) 63 (d) 35

62. The minimum number of wins needed for a team in the first stage to guarantee its advancement to the next stage is

(a) 5 (b) 6

(c) 7 (d) 4

63. What is the highest number of wins for a team in the first stage in spite of which it would be eliminated at the end of first stage?

(a) 1 (b) 2

(c) 3 (d) 4

64. What is the number of rounds in the second stage of the tournament?

(a) 1 (b) 2

(c) 3 (d) 4

65. Which of the following statements is true?

(a) The winner will have more wins than any other team in the tournament.

(b) At the end of the first stage, no team eliminated from the tournament will have more wins than any of the teams qualifying for the second stage.

(c) It is possible that the winner will have the same number of wins in the entire tournament as a team eliminated at the end of the first stage.

(d) The number of teams with exactly one win in the second stage of the tournament is 4.

Directions for Questions 66 to 70: *Read each of the five problems given below and choose the best answer from among the four given choices.*

66. Persons X, Y, Z and Q live in red, green, yellow or blue-coloured houses placed in a sequence on a street. Z lives in a yellow house. The green house is adjacent to the blue house. X does not live adjacent to Z. The yellow house is in between the green and red houses. The colour of the house, X lives in is

(a) blue

(b) green

(c) red

(d) Not possible to determine

67. My bag can carry not more than ten books. I must carry at least one book each of management, mathematics, physics and fiction. Also, for every management book I carry I must carry two or more fiction books, and for every mathematics book I carry I must carry two or more physics books. I earn 4, 3, 2 and 1 points for each management, mathematics, physics and fiction book, respectively, I carry in my bag. I want to maximise the points I can earn by carrying the most appropriate combination of books in my bag. The maximum points that I can earn is

(a) 20 (b) 21

(c) 22 (d) 23

68. Five persons with names P, M, U, T and X live separately in any one of the following: a palace, a hut, a fort, a house or a hotel. Each one likes two different colours from among the following: blue, black, red, yellow and green. U likes red and blue. T likes black. The person living in a palace does not like black or blue. P likes blue and red. M likes yellow. X lives in a hotel. M lives in a

(a) hut (b) palace

(c) fort (d) house

69. There are ten animals — two each of lions, panthers, bison, bears, and deer — in a zoo. The enclosures in the zoo are named X, Y, Z, P and Q and each enclosure is allotted to one of the following attendants: Jack, Mohan, Shalini, Suman and Rita. Two animals of different species are housed in each enclosure. A lion and a deer cannot be together. A panther cannot be with either a deer or a bison. Suman attends to animals from among bison, deer, bear and panther only. Mohan attends to a lion and a panther. Jack does not attend to deer, lion or bison. X, Y and Z are allotted to Mohan, Jack and Rita respectively. X and Q enclosures have one animal of the same species. Z and P have the same pair of animals. The animals attended by Shalini are

(a) bear and bison (b) bison and deer

(c) bear and lion (d) bear and panther

70. Eighty kilogram of store material is to be transported to a location 10 km away. Any number of couriers can be used to transport the material. The material can be packed in any number of units of 10, 20, or 40 kg. Courier charges are Rs. 10 per hour. Couriers travel at the speed of 10 km/hr if they are not carrying any load, at 5 km/hr if carrying 10 kg, at 2 km/hr if carrying 20 kg and at

1 km/hr if carrying 40 kg. A courier cannot carry more than 40 kg of load. The minimum cost at which 80 kg of store material can be transported to its destination will be

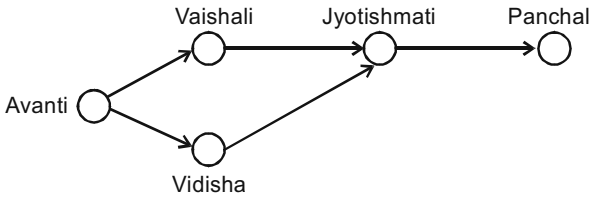
(a) Rs. 180 (b) Rs. 160

(c) Rs. 140 (d) Rs. 120

2001

Directions for Questions 71 to 73: *Answer the questions based on the pipeline diagram below.*

The following sketch shows the pipelines carrying material from one location to another. Each location has a demand for material. The demand at Vaishali is 400, at Jyotishmati is 400, at Panchal is 700, and at Vidisha is 200. Each arrow indicates the direction of material flow through the pipeline. The flow from Vaishali to Jyotishmati is 300. The quantity of material flow is such that the demands at all these locations are exactly met. The capacity of each pipeline is 1,000.



71. The quantity moved from Avanti to Vidisha is

(a) 200 (b) 800

(c) 700 (d) 1,000

72. The free capacity available at the Avanti-Vaishali pipeline is

(a) 0 (b) 100

(c) 200 (d) 300

73. What is the free capacity available in the Avanti-Vidisha pipeline?

(a) 300 (b) 200

(c) 100 (d) 0

74. At a village mela, the following six nautankis (plays) are scheduled as shown in the table below.

No.	Nautanki	Duration	Show Times
1	Sati Savitri	1 hr	9 a.m. and 2 p.m.
2	Joru ka Ghulam	1 hr	10.30 a.m. and 11: 30 a.m.
3	Sundar Kand	30 min	10 am and 11 a.m.
4	Veer Abhimanyu	1 hr	10 a.m. and 11a.m.
5	Reshma aur Shera	1 hr	9.30 a.m., 12 noon and 2 p.m.
6	Jhansi ki Rani	30 min	11 a.m. and 1: 30 p

You wish to see all the six nautankis. Further, you wish to ensure that you get a lunch break from 12.30 p.m. to 1.30 p.m. Which of the following ways can you do this?

(a) Sati Savitri is viewed first; Sundar Kand is viewed third, and Jhansi ki Rani is viewed last

(b) Sati Savitri is viewed last; Veer Abhimanyu is viewed third, and Reshma aur Shera is viewed first

(c) Sati Savitri is viewed first; Sundar Kand is viewed third, and Joru ka Ghulam is viewed fourth

(d) Veer Abhimanyu is viewed third; Reshma aur Shera is viewed fourth, and Jahansi ki Rani is viewed fifth

75. Mrs Ranga has three children and has difficulty remembering their ages and months of their birth. The clue below may help her remember.

- The boy, who was born in June, is 7 years old.
- One of the children is 4 years old but it was not Anshuman.
- Vaibhav is older than Suprita.
- One of the children was born in September, but it was not Vaibhav.
- Suprita's birthday is in April.
- The youngest child is only 2-year-old.

Based on the above clues, which one of the following statements is true?

(a) Vaibhav is the oldest, followed by Anshuman who was born in September, and the youngest is Suprita who was born in April

(b) Anshuman is the oldest being born in June, followed by Suprita who is 4-year-old, and the youngest is Vaibhav who is 2-year-old

(c) Vaibhav is the oldest being 7-year-old, followed by Suprita who was born in April, and the youngest is Anshuman who was born in September

(d) Suprita is the oldest who was born in April, followed by Vaibhav who was born in June, and Anshuman who was born in September

76. The Bannerjees, the Sharmas, and the Pattabhiramans each have a tradition of eating Sunday lunch as a family. Each family serves a special meal at a certain time of day. Each family has a particular set of chinaware used for this meal. Use the clues below to answer the following question.

- The Sharma family eats at noon.
- The family that serves fried brinjal uses blue chinaware.
- The Bannerjee family eats at 2 o'clock.
- The family that serves sambar does not use red chinaware.
- The family that eats at 1 o'clock serves fried brinjal.
- The Pattabhiraman family does not use white chinaware.
- The family that eats last likes makkai-ki-roti.

Which one of the following statements is true?

(a) The Bannerjees eat makkai-ki-roti at 2 o'clock, the Sharmas eat fried brinjal at 12 o'clock and the Pattabhiramans eat sambar from red chinaware

(b) The Sharmas eat sambar served in white chinaware, the Pattabhiramans eat fried brinjal at 1 o'clock, and the Bannerjees eat makkai-ki-roti served in blue chinaware

(c) The Sharmas eat sambar at noon, the Pattabhiramans eat fried brinjal served in blue chinaware, and the Bannerjees eat makkai-ki-roti served in red chinaware

(d) The Bannerjees eat makkai-ki-roti served in white chinaware, the Sharmas eat fried brinjal at 12 o'clock and the Pattabhiramans eat sambar from red chinaware

77. While Balbir had his back turned, a dog ran into his butcher shop, snatched a piece of meat off the counter and ran out. Balbir was mad when he realised what had happened. He asked three other shopkeepers, who had seen the dog, to describe it. The shopkeepers really did not want to help Balbir. So each of them made a statement which contained one truth and one lie.

- Shopkeeper number 1 said: "The dog had black hair and a long tail."
- Shopkeeper number 2 said: "The dog had a short tail and wore a collar."
- Shopkeeper number 3 said: "The dog had white hair and no collar."

Based on the above statements, which of the following could be a correct description?

(a) The dog had white hair, short tail and no collar

(b) The dog had white hair, long tail and a collar

(c) The dog had black hair, long tail and a collar

(d) The dog had black hair, long tail and no collar

Directions for Questions 78 and 79: *Answer the following questions based on the information given below.*

Elle is three times older than Yogesh. Zaheer is half the age of Wahida. Yogesh is older than Zaheer.

78. Which of the following can be inferred?

(a) Yogesh is older than Wahida

(b) Elle is older than Wahida

(c) Elle may be younger than Wahida

(d) None of these

79. Which of the following information will be sufficient to estimate Elle's age?

(a) Zaheer is 10-year-old

(b) Both Yogesh and Wahida are older than Zaheer by the same number of years

(c) Both (a) and (b)

(d) None of these

Directions for Questions 80 to 82: *Answer the questions based on the passage below.*

A group of three or four has to be selected from seven persons. Among the seven are two women: Fiza and Kavita, and five men: Ram, Shyam, David, Peter and Rahim. Ram would not like to be in the group If Shyam is also selected. Shyam and Rahim want to be selected together in the group. Kavita would like to be in the group only if David is also there. David, if selected, would not like Peter in the group. Ram would like to be in the group only if Peter is also there. David insists that Fiza be selected in case he is there in the group.

80. Which of the following is a feasible group of three?

(a) David, Ram and Rahim

(b) Peter, Shyam and Rahim

(c) Kavita, David and Shyam

(d) Fiza, David and Ram

81. Which of the following is a feasible group in four?

(a) Ram, Peter, Fiza and Rahim

(b) Shyam, Rahim, Kavita and David

(c) Shyam, Rahim, Fiza and David

(d) Fiza, David, Ram and Peter

82. Which of the following statements is true?

(a) Kavita and Ram can be part of a group of four

(b) A group of four can have two women

(c) A group of four can have all four men

(d) None of these

83. On her walk through the park, Hamsa collected 50 coloured leaves, all either maple or oak. She sorted them by category when she got home, and found the following:

The number of red oak leaves with spots is even and positive.

The number of red oak leaves without any spot equals the number of red maple leaves without spots.

All non-red oak leaves have spots, and there are five times as many of them as there are red spotted oak leaves.

There are no spotted maple leaves that are not red.

There are exactly 6 red spotted maple leaves.

There are exactly 22 maple leaves that are neither spotted nor red.

How many oak leaves did she collect?

(a) 22 (b) 17

(c) 25 (d) 18

84. Eight people carrying food baskets are going for a picnic on motorcycles. Their names are A, B, C, D, E, F, G, and H. They have 4 motorcycles M1, M2, M3 and M4 among them. They also have 4 food baskets O, P, Q and R of different sizes and shapes and each can be carried only on motorcycles M1, M2, M3 and M4 respectively. No more than 2 persons can travel on a motorcycle and no more than one basket can be carried on a motorcycle. There are 2 husband-wife pairs in this group of 8 people and each pair will ride on a motorcycle together. C cannot travel with A or B. E cannot travel with B or F. G cannot travel with F, or H, or D. The husband-wife pairs must carry baskets O and P. Q is with A and P is with D. F travels on M1

and E travels on M2 motorcycles. G is with Q, and B cannot go with R. Who is travelling with H?

(a) A (b) B

(c) C (d) D

85. In a family gathering there are 2 males who are grandfathers and 4 males who are fathers. In the same gathering there are 2 females who are grandmothers and 4 females who are mothers. There is at least one grandson or a granddaughter present in this gathering. There are 2 husband-wife pairs in this group. These can either be a grandfather and a grandmother, or a father and a mother. The single grandfather (whose wife is not present) has 2 grandsons and a son present. The single grandmother (whose husband is not present) has 2 grand daughters and a daughter present. A grandfather or a grandmother present with their spouses does not have any grandson or granddaughter present.

What is the minimum number of people present in this gathering?

(a) 10 (b) 12

(c) 14 (d) 16

86. I have a total of Rs. 1,000. Item A costs Rs. 110, item B costs Rs. 90, item C costs Rs. 70, item D costs Rs. 40 and item E costs Rs. 45. For every item D that I purchase, I must also buy two of item B. For every item A, I must buy one of item C. For every item E, I must also buy two of item D and one of item B. For every item purchased I earn 1,000 points and for every rupee not spent I earn a penalty of 1,500 points. My objective is to maximise the points I earn.

What is the number of items that I must purchase to maximise my points?

(a) 13 (b) 14

(c) 15 (d) 16

87. Four friends Ashok, Bashir, Chirag and Deepak are out for shopping. Ashok has less money than three times the amount that Bashir has. Chirag has more money than Bashir. Deepak has an amount equal to the difference of amounts with Bashir and Chirag. Ashok has three times the money with Deepak. They each have to buy at least one shirt, or one shawl, or one sweater, or one jacket that are priced Rs. 200, Rs. 400, Rs. 600, and Rs. 1,000 a piece respectively. Chirag borrows Rs. 300 from Ashok and buys a jacket. Bashir buys a sweater after borrowing Rs. 100 from Ashok and is left with no money. Ashok buys three shirts. What is the costliest item that Deepak could buy with his own money?

(a) A shirt (b) A shawl

(c) A sweater (d) A jacket

88. In a 'keep-fit' gymnasium class there are 15 females enrolled in a weight-loss programme. They all have been grouped in any one of the five weight-groups W1, W2, W3, W4, or W5. One instructor is assigned to one weight-group only. Sonali, Shalini, Shubhra and Shahira belong to the same weight-group. Sonali and Rupa are in one weight-group, Rupali and Renuka are also in one weight-group. Rupa, Radha, Renuka, Ruchika, and Ritu belong to different weight-groups. Somya cannot be with Ritu, and Tara cannot be with Radha. Komal cannot be with Radha, Somya, or Ritu. Shahira is in W1 and Somya is in W4 with Ruchika. Sweta and Jyotika cannot be with Rupali, but are in a weight-group with total membership of four. No weight-group can have more than five or less than one member. Amita, Babita, Chandrika, Deepika and Elina are instructors of weight-groups with membership sizes 5, 4, 3, 2 and 1 respectively. Who is the instructor of Radha?

(a) Babita (b) Elina

(c) Chandrika (d) Deepika

89. A king has unflinching loyalty from eight of his ministers M1 to M8, but he has to select only four to make a cabinet committee. He decides to choose these four such that each selected person shares a liking with at least one of the other three selected. The selected persons must also hate at least one of the likings of any of the other three persons selected.

M1 likes fishing and smoking, but hates gambling.

M2 likes smoking and drinking, but hates fishing.

M3 likes gambling, but hates smoking,

M4 likes mountaineering, but hates drinking,

M5 likes drinking, but hates smoking and mountaineering.

M6 likes fishing, but hates smoking and mountaineering.

M7 likes gambling and mountaineering, but hates fishing.

M8 likes smoking and gambling, but hates mountaineering.

Who are the four people selected by the king?

(a) M1, M2, M5 and M6

(b) M3, M4, M5 and M6

(c) M4, M5, M6 and M8

(d) M1, M2, M4 and M7

Directions for Questions 90 to 93: *Answer the questions based on the following information.*

A and B are two sets (e.g. A = Mothers, B = Women). The elements that could belong to both the sets (e.g. women who are mothers) is given by the set C = A . B. The elements which could belong to either A or B, or both, is indicated by the set D = A $\cup$ B . A set that does

not contain any elements is known as a null set represented by φ (e.g. if none of the women in the set B is a mother, then C = A .B is a null set, or C = φ).

Let 'V' signify the set of all vertebrates, 'M' the set of all mammals, 'D' dogs, 'F' fish, 'A' alsatian and 'P', a dog named Pluto.

90. Given that X = M .D is such that X = D. Which of the following is true?

(a) All dogs are mammals

(b) Some dogs are mammals

(c) X = φ

(d) All mammals are dogs

91. If Y = F . (D . V) is not a null set, it implies that

(a) all fish are vertebrates

(b) all dogs are vertebrates

(c) some fish are dogs

(d) None of these

92. If Z = (P . D) $\cup$ M, then

(a) the elements of Z consist of Pluto, the dog, or any other mammal

(b) Z implies any dog or mammal

(c) Z implies Pluto or any dog that is a mammal

(d) Z is a null set

93. If P . A = φ and P $\cup$ A = D, then which of the following is true?

(a) Pluto and alsatians are dogs

(b) Pluto is an alsatian

(c) Pluto is not an alsatian

(d) D is a null set

2002

Directions for Questions 94 to 97: *Four students — Ashish, Dhanraj, Felix and Sameer sat for the Common Entrance Exam for Management (CEEM). One student got admission offers from three NIMs (National Institutes of Management), another from two NIMs, the third from one NIM, while the fourth got none. Below are some of the facts about who got admission offers from how many NIMs and what is their educational background.*

I. The one who is an engineer didn't get as many admissions as Ashish.

II. The one who got offer for admissions in two NIMs isn't Dhanraj nor is he a chartered accountant.

III. Sameer is an economist.

IV. Dhanraj isn't an engineer and received more admission offers than Ashish.

V. The doctor got the most number of admission offers.

94. Which one of the following statements is necessarily true?

(a) Ashish is a chartered accountant and got offer for admission in three NIMs.

(b) Dhanraj is a doctor and got admission offer in one NIM.

(c) Sameer is an economist who got admission offers in two NIMs.

(d) Felix who is not an engineer did not get any offer for admission.

95. Five boys went to a store to buy sweets. One boy had Rs. 40. Another boy had Rs. 30. Two other boys had Rs. 20 each. The remaining boy had Rs. 10. Below are some more facts about the initial and final cash positions.

I. Alam started with more than Jugraj.

II. Sandeep spent Rs. 1.50 more than Daljeet.

III. Ganesh started with more money than just only one other person.

IV. Daljeet started with $\frac{2}{3}$ of what Sandeep started with.

V. Alam spent the most, but did not end with the least.

VI. Jugraj spent the least and ended with more than Alam or Daljeet.

VII. Ganesh spent Rs.3.50.

VIII. Alam spent 10 times more than what Ganesh did.

In the choices given below, all statements except one are false. Which one of the following statements can be true?

(a) Alam started with Rs. 40 and ended with Rs. 9.50

(b) Sandeep started with Rs. 30 and ended with Re. 1

(c) Ganesh started with Rs. 20 and ended with Rs. 4

(d) Jugraj started with Rs. 10 and ended with Rs. 7

96. In a hospital there were 200 diabetes, 150 hyperglycaemia and 150 gastro-enteritis patients. Of these, 80 patients were treated for both diabetices and hyperglycaemia. Sixty patients were treated for gastro-enteritis and hyperglycaemia, while 70 were treated for diabetes and gastro-enteritis. Some of these patients have all the three diseases. Dr. Dennis treats patients with only gastro-enteritis. Dr. Paul is a generalist. Therefore, he can treat patients with multiple diseases. Patients always prefer a specialist for their disease. If Dr. Dennis had 80 patients, then the other three doctors can be arranged in terms of the number of patients treated as:

(a) Paul > Gerard > Hormis

(b) Paul > Hormis > Gerard

(c) Gerard > Paul > Hormis

(d) None of these

97. Three children won the prizes in the Bournvita Quiz contest. They are from the schools: Loyola, Convent and Little Flowers, which are located at different cities. Below are some of the facts about the schools, the children and the city they are from.

I. One of the children is Bipin.

II. Loyola School's contestant did not come first.

III. Little Flower's contestant was named Riaz.

IV. Convent School is not in Hyderabad.

V. The contestant from Pune is not from Loyola School.

VI. The contestant from Bangalore did not come first.

VII. Convent School's contestant's name is not Balbir.

Which of the following statements is true?

(a) 1st prize: Riaz (Little Flowers), 2nd prize: Bipin (Convent), 3rd prize: Balbir (Loyola)

(b) 1st prize: Bipin (Convent), 2nd prize: Riaz (Little Flowers), 3rd prize: Balbir (Loyola)

(c) 1st prize: Riaz (Little Flowers), 2nd prize: Balbir (Loyola), 3rd prize: Bipin (Convent)

(d) 1st prize: Bipin (Convent), 2nd prize: Balbir (Loyola), 3rd prize: Riaz (Litttle Flowers)

98. Six persons are playing a card game. Suresh is facing Raghubir who is to the left of Ajay and to the right of Pramod. Ajay is to the left of Dhiraj. Yogendra is to the left of Pramod. If Dhiraj exchanges his seat with Yogendra and Pramod exchanges with Raghubir, who will be sitting to the left of Dhiraj?

(a) Yogendra (b) Raghubir

(c) Suresh (d) Ajay

2003

Directions for Questions 99 to 102: *Answer the questions on the basis of the following information.*

Four families decided to attend the marriage ceremony of one of their colleagues. One family has no kids, while the others have at least one kid each. Each family with kids has at least one kid attending the marriage. Given below is some information about the families, and who reached when to attend the marriage.

The family with two kids came just before the family with no kids.

Shanthi who does not have any kids reached just before Sridevi's family.

Sunil and his wife reached last with their only kid.

Anil is not the husband of Joya.

Anil and Raj are fathers.

Sridevi's and Anita's daughters go to the same school.

Joya came before Shanthi and met Anita when she reached the venue

Raman stays the farthest from the venue.

Raj said his son could not come because of his exams.

99. Who among the following arrived third?

(a) Shanthi (b) Sridevi

(c) Anita (d) Joya

100. Name the correct pair of husband and wife.

(a) Raj and Shanthi (b) Sunil and Sridevi

(c) Anil and Sridevi (d) Raj and Anita

101. Of the following pairs, whose daughters go to the same school?

(a) Anil and Raman (b) Sunil and Raman

(c) Sunil and Anil (d) Raj and Anil

102. Whose family is known to have more than one kid for certain?

(a) Raman's (b) Raj's

(c) Anil's (d) Sunil's

Directions for Questions 103 to 106: *Answer the questions on the basis of the following information.*

Seven faculty members at a management institute frequent a lounge for strong coffee and stimulating conversation. On being asked about their visit to the lounge last Friday we got the following responses.

JC: I came in first, and the next two persons to enter were SS and SM. When I left the lounge, JP and VR were present in the lounge. DG left with me.

JP: When I entered the lounge with VR, JC was sitting there. There was someone else, but I cannot remember who it was.

SM: I went to the lounge for a short while, and met JC, SS and DG in the lounge that day.

SS: I left immediately after SM left.

DG: I met JC, SS, SM, JP and VR during my first visit to the lounge, I went back to my office with JC. When I went to the lounge the second time, JP and VR were there.

PK: I had some urgent work, so I did not sit in the lounge that day, but just collected my coffee and left. JP and DG were the only people in the lounge while I was there.

VR: No comments.

103. Based on the responses, which of the two, JP or DG, entered the lounge first?

(a) JP

(b) DG

(c) Both entered together

(d) Cannot be determined

104 . Who was sitting with JC when JP entered the lounge?

(a) SS (b) SM

(c) DG (d) PK

105. How many of the seven members did VR meet on Friday in the lounge?

(a) 2 (b) 3

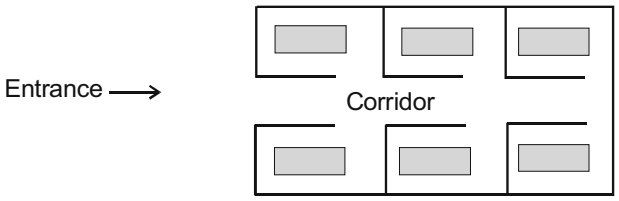
(c) 4 (d) 5

106. Who were the last two faculty members to leave the lounge?

(a) JC and DG (b) PK and DG

(c) JP and PK (d) JP and DG

Directions for Questions 107 to 110: *Answer the questions on the basis of the following information.*



The plan above shows an office block for six officers — A, B, C, D, E and F. Both B and C occupy offices to the right of the corridor (as one enters the office block) and A occupies an office to the left of the corridor. E and F occupy offices on opposite sides of the corridor but their offices do not face each other. The offices of C and D face each other. E does not have a corner office. F's office is further down the corridor than A's, but on the same side.

107. If E sits in his office and faces the corridor, whose office is to his left?

(a) A (b) B

(c) C (d) D

108. Whose office faces A's office?

(a) B (b) C

(c) D (d) E

109. Who is/are F's neighbour(s)?

(a) A only (b) A and D

(c) C only (d) B and C

110. D was heard telling someone to go further down the corridor to the last office on the right. To whose room was he trying to direct that person?

(a) A (b) B

(c) C (d) F

Directions for Questions 111 to 113: *Answer the questions on the basis of the information given below.*

A, B, C, D, E, and F are a group of friends. There are two housewives, one professor, one engineer, one accountant and one lawyer in the group. There are only two married couples in the group. The lawyer is married to D, who is a housewife. No woman in the group is either an engineer or an accountant. C, the accountant, is married to F, who is a professor. A is married to a housewife. E is not a housewife.

111. Which of the following is one of the married couples?

(a) A & B (b) B & E

(c) D & E (d) A & D

112. What is E's profession?

(a) Engineer (b) Lawyer

(c) Professor (d) Accountant

113. How many members of the group are males?

(a) 2 (b) 3

(c) 4 (d) Cannot be determined

Directions for Questions 114 and 115: *Answer the questions on the basis of the information given below.*

The Head of a newly formed government desires to appoint five of the six elected members A, B, C, D, E and F to portfolios of Home, Power, Defence, Telecom and Finance. F does not want any portfolio if D gets one of the five. C wants either Home or Finance or no portfolio. B says that if D gets either Power or Telecom then she must get the other one. E insists on a portfolio if A gets one.

114. Which is a valid assignment?

(a) A-Home, B-Power, C-Defence, D-Telecom, E-Finance.

(b) C-Home, D-Power, A-Defence, B-Telecom, E-Finance.

(c) A-Home, B-Power, E-Defence, D-Telecom, F-Finance.

(d) B-Home, F-Power, E-Defence, C-Telecom, A-Finance.

115. If A gets Home and C gets Finance, then which is NOT a valid assignment of Defense and Telecom?

(a) D-Defence, B-Telecom.

(b) F-Defence, B-Telecom.

(c) B-Defence, E-Telecom.

(d) B-Defence, D-Telecom.

Directions for Questions 116 to 118: *Answer the questions on the basis of the information given below.*

Rang Barsey Paint Company (RBPC) is in the business of manufacturing paints. RBPC buys RED, YELLOW, WHITE, ORANGE, and PINK paints. ORANGE paint can be also produced by mixing RED and YELLOW paints in equal proportions. Similarly, PINK paint can also be produced by mixing equal amounts of RED and WHITE

paints. Among other paints, RBPC sells CREAM paint, (formed by mixing WHITE and YELLOW in the ratio 70:30) AVOCADO paint (formed by mixing equal amounts of ORANGE and PINK paint) and WASHEDORANGE paint (formed by mixing equal amounts of ORANGE and WHITE paint). The following table provides the price at which RBPC buys paints

Color	Rs./litre
RED	20
YELLOW	25
WHITE	15
ORANGE	22
PINK	18

116. The cheapest way to manufacture AVOCADO paint would cost

(a) Rs. 19.50 per litre. (b) Rs. 19.75 per litre

(c) Rs. 20.00 per litre. (d) Rs. 20.25 per litre.

117. WASHEDORANGE can be manufactured by mixing

(a) CREAM and RED in the ratio 14:10.

(b) CREAM and RED in the ratio 3:1.

(c) YELLOW and PINK in the ratio 1:1.

(d) RED, YELLOW, and WHITE in the ratio 1:1:2.

118. Assume that AVOCADO, CREAM and WASHEDORANGE each sells for the same price. Which of the three is the most profitable to manufacture?

(a) AVOCADO

(b) CREAM

(c) WASHEDORANGE

(d) Sufficient data is not available.

Directions for Questions 119 to 121: *Answer the questions on the basis of the information given below.*

Seven varsity basketball players (A, B, C, D, E, F, and G) are to be honoured at a special luncheon. The players will be seated on the dais in a row. A and G have to leave the luncheon early and so must be seated at the extreme right. B will receive the most valuable player's trophy and so must be in the centre to facilitate presentation. C and D are bitter rivals and therefore must be seated as far apart as possible.

119. Which of the following cannot be seated at either end?

(a) C (b) D

(c) F (d) G

120. Which of the following pairs cannot be seated together?

(a) B & D (b) C & F

(c) D & G (d) E & A

121. Which of the following pairs cannot occupy the seats on either side of B?

(a) F & D (b) D & E

(c) E & G (d) C & F

2004

Directions for Questions 122 to 125: *Answer the questions on the basis of the information given below.*

Twenty one participants from four continents (Africa, America, Australasia, and Europe) attended a United Nations conference. Each participant was an expert in one of four fields, labour, health, population studies, and refugee relocation. The following five facts about the participants are given.

(a) The number of labour experts in the camp was exactly half the number of experts in each of the other three categories.

(b) Africa did not send any labour expert. Otherwise, every continent, including Africa, sent at least one expert for each category.

(c) None of the continents sent more than three experts in any category.

(d) If there had been one less Australasian expert, then the Americas would have had twice as many experts as each of the other continents.

(e) Mike and Alfanso are leading experts of population studies who attended the conference. They are from Australasia.

122. Which of the following combinations is NOT possible?

(a) 2 experts in population studies from the Americas and 2 health experts from Africa attended the conference.

(b) 2 experts in population studies from the Americas and 1 health expert from Africa attended the conference.

(c) 3 experts in refugee relocation from the Americas and 1 health expert from Africa attended the conference.

(d) Africa and America each had 1 expert in population studies attending the conference.

123. If Ramos is the lone American expert in population studies, which of the following is NOT true about the numbers of experts in the conference from the four continents?

(a) There is one expert in health from Africa.

(b) There is one expert in refugee relocation from Africa.

(c) There are two experts in health from the Americas.

(d) There are three experts in refugee relocation from the Americas.

124. Alex, an American expert in refugee relocation, was the first keynote speaker in the conference. What can be inferred about the number of American experts in refugee relocation in the conference, excluding Alex?

i. At least one

ii. At most two

(a) Only i and not ii (b) Only ii and not i

(c) Both i and ii (d) Neither i nor ii

125. Which of the following numbers cannot be determined from the information given?

(a) Number of labour experts from the Americas.

(b) Number of health experts from Europe.

(c) Number of health experts from Australasia.

(d) Number of experts in refugee relocation from Africa.

Directions for Questions 126 to 129: *Answer the questions on the basis of the information given below.*

The year was 2006. All six teams in Pool A of World Cup hockey, play each other exactly once. Each win earns a team three points, a draw earns one point and a loss earns zero points. The two teams with the highest points qualify for the semifinals. In case of a tie, the team with the highest goal difference (Goal For - Goals Against) qualifies.

In the opening match, Spain lost to Germany. After the second round (after each team played two matches), the pool table looked as shown below.

Pool A

Teams	Games Played	Won	Drawn	Lost	Goals For	Goals Against	Points
Germany	2	2	0	0	3	1	6
Argentina	2	2	0	0	2	0	6
Spain	2	1	0	1	5	2	3
Pakistan	2	1	0	1	2	1	3
New Zealand	2	0	0	2	1	6	0
South Africa	2	0	0	2	1	4	0

In the third round, Spain played Pakistan, Argentina played Germany, and New Zealand played South Africa. All the third round matches were drawn. The following are some results from the fourth and fifth round matches

(a) Spain won both the fourth and fifth round matches.

(b) Both Argentina and Germany won their fifth round matches by 3 goals to 0.

(c) Pakistan won both the fourth and fifth round matches by 1 goal to 0.

126. Which one of the following statements is true about matches played in the first two rounds?

(a) Germany beat New Zealand by 1 goal to 0.

(b) Spain beat New Zealand by 4 goals to 0.

(c) Spain beat South Africa by 2 goals to 0.

(d) Germany beat South Africa by 2 goals to 1.

127. Which one of the following statements is true about matches played in the first two rounds?

(a) Pakistan beat South Africa by 2 goals to 1.

(b) Argentina beat Pakistan by 1 goal to 0.

(c) Germany beat Pakistan by 2 goals to 1.

(d) Germany beat Spain by 2 goals to 1.

128. If Pakistan qualified as one of the two teams from Pool A, which was the other team that qualified?

(a) Argentina (b) Germany

(c) Spain (d) Cannot be determined

129. Which team finished at the top of the pool after five rounds of matches?

(a) Argentina (b) Germany

(c) Spain (d) Cannot be determined

2006

Directions for Questions 130 to 134: *Answer the questions on the basis of the information given below:*

K, L, M, N, P, Q, R, S, U and W are the only ten members in a department. There is a proposal to form a team from within the members of the department, subject to the following conditions:

1. A team must include exactly one among P, R, and S.
2. A team must include either M or Q, but not both.
3. If a team includes K, then it must also include L, and vice versa.
4. If a team includes one among S, U, and W, then it must also include the other two.
5. L and N cannot be members of the same team.
6. L and U cannot be members of the same team.

The size of a team is defined as the number of members in the team.

130. Who cannot be a member of a team of size 3?

(a) L (b) M

(c) N (d) P

(e) Q

131. Who can be a member of a team of size 5?

(a) K (b) L

(c) M (d) P

(e) R

132. What would be the size of the largest possible team?
(a) 8 (b) 7
(c) 6 (d) 5
(e) Cannot be determined

133. What could be the size of a team that includes K?
(a) 2 or 3 (b) 2 or 4
(c) 3 or 4 (d) Only 2
(e) Only 4

134. In how many ways a team can be constituted so that the team includes N?
(a) 2 (b) 3
(c) 4 (d) 5
(e) 6

Directions for Questions 135 to 139: *Answer the questions on the basis of the information given below:*

Mathematicians are assigned a number called Erdös number (named after the famous mathematician, Paul Erdös). Only Paul Erdös himself has an Erdös number of zero. Any mathematician who has written a research paper with Erdös has an Erdös number of 1. For other mathematicians, the calculation of his/her Erdös number is illustrated below:

Suppose that a mathematician X has co-authored papers with several other mathematicians. From among them, mathematician Y has the smallest Erdös number. Let the Erdös number of Y be y. Then X has an Erdös number of y+1. Hence any mathematician with no co-authorship chain connected to Erdös has an Erdös number of infinity.

In a seven day long mini-conference organized in memory of Paul Erdös, a close group of eight mathematicians, call them A, B, C, D, E, F, G and H, discussed some research problems. At the beginning of the conference, A was the only participant who had an infinite Erdös number. Nobody had an Erdös number less than that of F.

1. On the third day of the conference F co-authored a paper jointly with A and C. This reduced the average Erdös number of the group of eight mathematicians to 3. The Erdös numbers of B, D, E, G and H remained unchanged with the writing of this paper. Further, no other co-authorship among any three members would have reduced the average Erdös number of the group of eight to as low as 3.
2. At the end of the third day, five members of this group had identical Erdös numbers while the other three had Erdös numbers distinct from each other.
3. On the fifth day, E co-authored a paper with F which reduced the group's average Erdös number by 0.5. The Erdös numbers of the remaining six were unchanged with the writing of this paper.
4. No other paper was written during the conference.

135. How many participants in the conference did not change their Erdös number during the conference?
(a) 2 (b) 3
(c) 4 (d) 5
(e) Cannot be determined

136. The person having the largest Erdös number at the end of the conference must have had Erdös number (at that time):
(a) 5 (b) 7
(c) 9 (d) 14
(e) 15

137. How many participants had the same Erdös number at the beginning of the conference?
(a) 2 (b) 3
(c) 4 (d) 5
(e) Cannot be determined

138. The Erdös number of C at the end of the conference was:
(a) 1 (b) 2
(c) 3 (d) 4
(e) 5

139. The Erdös number of E at the beginning of the conference was:
(a) 2 (b) 5
(c) 6 (d) 7
(e) 8

2008

Directions for Questions 140 to 142: *Answer the following questions based on the statements given below:*

(i) There are three houses on each side of the road.
(ii) These six houses are labeled as P, Q, R, S, T and U.
(iii) The houses are of different colours, namely, Red, Blue, Green, Orange, Yellow and White.
(iv) The houses are of different heights.
(v) T, the tallest house, is exactly opposite to the Red coloured house.
(vi) The shortest house is exactly opposite to the Green coloured house.
(vii) U, the Orange coloured house, is located between P and S.
(viii) R, the Yellow coloured house, is exactly opposite to P.
(ix) Q, the Green coloured house, is exactly opposite to U.
(x) P, the White coloured house, is taller than R, but shorter than S and Q.

140. What is the colour of the house diagonally opposite to the Yellow coloured house?
(a) White (b) Blue
(c) Green (d) Red
(e) none of these

141. Which is the second tallest house?

(a) P (b) S

(c) Q (d) R

(e) cannot be determined

142. What is the colour of the tallest house?

(a) Red (b) Blue

(c) Green (d) Yellow

(e) none of these

MEMORY BASED QUESTIONS

2009

143. Three people among A, B, C, D, E and F are to be selected to form a committee. Each selected person should share at least one 'liking' with at least one of the other two selected people. Each selected person should also hate at least one 'liking' of at least one of the other two people selected.

- A likes reading and travelling, and hates surfing and singing.
- B likes surfing and driving, and hates fishing.
- C likes dancing and travelling, and hates reading and fishing.
- D likes fishing and surfing, and hates driving.
- E likes singing and travelling, and hates dancing
- F likes reading and fishing, and hates surfing.

Which three can be selected together to form the committee?

(a) A, D and F (b) A, C and E

(c) B, D and F (d) Both (b) and (c)

144. Seven friends Salim, Govind, Sajid, Hasan, Sunil, Sanjay and Reeta are to be divided into two teams such that the difference between the number of people in the two teams is the least possible. Reeta and Sajid cannot be placed in the same team. Sunil can be placed in the same team with neither Salim nor Sanjay. Hasan and Govind must be placed in the same team.

How many of the following statements cannot be true?

(1) Hasan and Sunil are placed in the same team.

(2) Reeta and Hasan are placed in the same team.

(3) Hasan and Salim are placed in the same team.

(a) 0 (b) 1

(c) 2 (d) 3

145. Five dancers Angad, Bali, Gaurav, Monica and Shonali participate in a competition called DOD. Each participant gets some points from each of the five judges A, B, C, D and E for their performance in DOD. The final score of a participant is the sum of the points received by him/her from the five judges. The winner of the competition is the dancer whose final score is the maximum among the five dancers. The following details are also known:

- Bali gets 37 marks from judge B and Shonali gets 39 marks from judge C.
- The final score of Gaurav is less than the final score of Shonali.
- The winner of DOD gets a final score of 220.
- No contestant gets more than 45 marks from any of the five judges.
- The arithmetic mean of the final scores of Angad and Gaurav is greater than the arithmetic mean of the final scores of Monica and Shonali.

Who is the winner of DOD?

(a) Shonali (b) Monica

(c) Angad (d) Cannot be determined

2010

146. Each of the five children – Aman, Bhanu, Chaman, Deepak and Elhan – likes at least one activity among Rowing, Singing, Dancing, Sketching and Running. Each activity except Dancing is liked by at least three of the five children. There are two children who like exactly the same set of activities. Aman likes Rowing and Running. There is no activity which is liked by both Aman and Deepak. Both Bhanu and Deepak like Dancing but there is no other activity which is liked by both of them. Deepak likes Sketching. Who among the five children definitely like Running?

(a) Aman, Bhanu, Chaman and Elhan.

(b) Aman, Chaman, Deepak and Elhan.

(c) Aman, Chaman and Elhan.

(d) Aman, Bhanu and Chaman.

147. Six persons – Chetan, Kartik, Hari, Pankaj, Naresh and Vicky – are married to Radha, Kiran, Shama, Hema, Divya, and Charu, not necessarily in the same order. There is no person among the six whose name starts with the same letter as his wife's name. They are going on a picnic in three cars such that each car has two couples. It is known that:

(i) Charu is not in the same car as Hari.

(ii) Radha is in the same car as Pankaj.

(iii) Shama is in the same car as Hema.

(iv) Kiran is not in the same car as Naresh.

(v) Divya is not in the same car as Charu.

If Vicky is in a car in which nobody's name starts with the same letter as that of any of the other eleven persons, then which of the following statements cannot be true?

(a) Shama is married to Hari.

(b) Hema is married to Kartik.

(c) Radha is married to Vicky.

(d) Pankaj is married to Divya.

148. Eight persons – Anu, Bindu, Candy, Dolly, Emran, Fiza, Gauri and Hemant – are sitting at a square table, in the same order, in clockwise direction. Two persons are sitting on each side of the table. Two of them are Managers, two Executives, two Consultants and two Engineers.

The Executives are sitting opposite each other. One of the Executives is sitting on the same side of the table as an Engineer and on his/her left. The Consultants are sitting opposite each other and each of them is sitting next to an Engineer. The Managers are sitting next to each other. If Anu is a Consultant who is sitting next to a Manager, then which of the following statements is definitely false?

(a) Fiza is an Executive.

(b) Hemant is sitting next to a Manager.

(c) Emran is an Engineer.

(d) None of these

2013

Directions for questions 149 to 150: Answer the questions on the basis of the information given below.

A Cricket team of 11 players is to be formed from a group of 15 players—A, B, C, D, E, F, G, H, I, J, K, L, M, N and O. Among the players A, D, K, L, M, N and O are batsmen; B, C, E, F, G and H are bowlers; I and J are wicketkeepers. It is also known that:

I. The team must have at least 5 batsmen and exactly 1 wicketkeeper.

II. H can be selected only if B is selected.

III. F can be selected only if both G and N are selected.

IV. If I is selected, then F is also selected.

V. K and M cannot be selected together for the team. The same is true for B and G.

149. If G is one of the bowlers in the team, then who will be the wicketkeeper?

(a) J

(b) I

(c) Either (a) or (b)

(d) No such team is possible

150. If H is selected, then who among the following cannot be selected in the team?

(a) O (b) N

(c) G (d) J

2014

151. Read the following arguments and answer the questions that follow.

A study of the effect of language on memory was performed by Loftus and Loftus, in 1975. They showed subjects a film of a traffic accident to two groups, and then asked them questions about what they had seen. After a week, the subjects were asked about the film again. One group of subjects was asked, immediately after seeing the film, "How fast were the cars going when they hit each other?" The other group of subjects was asked, "How fast were the cars going when they smashed into each other?" When they were tested later, the subjects were asked if they had seen any broken glass in the film. (There hadn't been any.) Those subjects who had heard the word "smashed" remembered seeing broken glass scattered around after the accident.

The findings of the study have significant relevance for

(a) A move subscribing severe penalties for rash drivers who cause accidents amounting to culpable homicide.

(b) A memory-improvement course for students who score below the national average in IQ tests.

(c) People who are concerned about 'leading questions' in court, or in the police questioning of witnesses.

(d) None of the above

Directions for questions 152 to 154 : Answer the questions on the basis of the information given below.

Mr. Alfonso has six cars such that each car is of a different brand. The cars with Mr. Alfonso are of the six brands Chevrolet, Ferrari, Honda, Mercedes, BMW and Hyundai. In the months of January and February in the year 2008, Mr. Alfonso drove exactly one car each day. The following table gives details about the days in January and February 2008 on which he did not drive a car of each of the given six brands. Given that January 1, 2008 was a Tuesday.

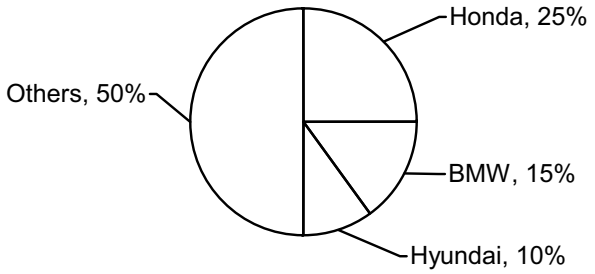
Chevrolet	Sunday	Monday	Wednesday	Friday
Ferrari	Tuesday	Thursday	Saturday	Monday
Honda	Sunday	Wednesday	Thursday	Friday
Mercedes	Tuesday	Monday	Wednesday	Thursday
BMW	Friday	Monday	Saturday	Tuesday
Hyundai	Sunday	Tuesday	Wednesday	Saturday

The number of days in January and February 2008 on which he drove a car of brand Chevrolet, Ferrari, Honda, Mercedes, BMW and Hyundai is denoted by CH, FE, HO, ME, BM and HY respectively.

It is also known that HO > ME > CH > BM > HY > FE.

The following pie – chart gives details about the number of days in January and February 2008 on which he drove a car of brand Honda, BMW and Hyundai.

Percentage_Break up



152. Given that the number of days in January 2008 on which Mr. Alfonso drove the car of brand Honda is the maximum. What is the number of days in February 2008 on which he drove the car of brand Honda?

(a) Zero (b) One

(c) Three (d) Two

153. If Mr. Alfonso drove the car of brand Chevrolet on all possible Saturdays in January 2008 and all possible Thursdays in January 2008 and February 2008, then what is the number of days on which he drove Ferrari in the given two months?

(a) Four (b) Two

(c) Three (d) Five

154. What is the difference between the maximum and minimum possible number of days on which Mr. Alfonso drove the car of brand Mercedes in the given two months?

(a) Four (b) Three

(c) Two (d) One

2015

Directions for questions 155 to 158: Answer the questions on the basis of the information given below.

In a given season of F1 racing, 9 races are to be held. There are 8 teams with two drivers in each team and the points are awarded to the drivers in each race as per to the following table.

Rank	1st	2nd	3rd	4th	5th	6th	7th	8th	9th to 16th
Points	10	8	6	5	4	3	2	1	0

Two championships viz. 'Driver's Championship' and 'Constructor's Championship' take place simultaneously. 'Driver's Championship' is given to the player who has the maximum number of points at the end of the season. 'Constructor's Championship' is given to the team for which the sum of the points of two its drivers is the maximum. A driver is said to get the podium finish only when he is among the top 3 rankers in a race.

After the first 6 races, the point standings of the 16 drivers is as follows:

Driver	Team	Points
Alonso	Renault	54
Schumacher	Ferrari	39
Kimi	Mclaren	29
Fisichella	Renault	27
Montoya	Mclaren	22
Massa	Ferrari	22
Button	Honda	21
Barichello	Honda	10
Villeneuve	Red Bull	4
Webber	Williams	3
Roseberg	Williams	2
Coulthard	BMW Soubers	1
Heidfeld	Red Bull	0
Klien	BMW Soubers	0
Liuzzi	Toro Rosso	0
Scott Speed	Toro Rosso	0

155. If Alonso got the podium finish in each of the first 6 races, then what was the maximum number of races in which he had 2nd rank?

(a) 4 (b) 3

(c) 2 (d) 1

156. Apart from the first six races, Alonso got the podium finish in the 7th race as well. However, he was not allowed to participate in the subsequent races due to mechanical failure. At the end of the season, if Schumacher won the 'Driver's Championship', then which of the following could have been his lowest rank in any of the last three races?

(a) 5th (b) 6th

(c) 7th (d) 4th

157. Which of the following statements CANNOT be true?

(a) Renault and Ferrari had a tie for the 'Constructor's Championship'.

(b) Alonso got the podium finish in each of the first 6 races out of which he did not have rank 1st in the 6th race.

(c) Fisichella got the podium finish in the 9th race and Honda won the 'Constructor's Championship'.

(d) Barichello got the podium finish in the 3rd race but he did not score any point in the 1st race.

158. If Schumacher ranked 9th in one of the first six races, then which of the following CANNOT be the points scored by him in any one of the first six races?

(a) 3 (b) 2
(c) 1 (d) 0

Directions for questions 159 to 162 : Answer the questions on the basis of the information given below.

From ISBT, buses ply on 6 different routes viz. 414, 413, 427, 966, 893 and 181 at an interval of 10 min, 10 min, 12 min, 15 min, 20 min and 30 min, not necessarily in that order, to four different destinations viz. Mehrauli, Badarpur, Uttam Nagar and Azadpur. There is at least one bus for each destination. Further information is also known:

i. Two buses to the same destination cannot start at the same time.
ii. If the timings of two buses plying different routes but heading towards the same destination clash, then the bus of the route number having the shorter time interval will skip this journey.
iii. Buses on two different routes ply between ISBT and Mehrauli.
iv. The difference between the time intervals of a route to Mehrauli and Uttam Nagar is equal to the difference between the time intervals of the two routes to Uttam Nagar.
v. Buses on a route to Mehrauli leaves after every 10 min.
vi. 414 leaves for Badarpur after every 30 min.
vii. Time intervals between two different routes heading towards the same destination cannot be equal.
viii. Buses on one of the routes to Uttam Nagar leave after every 15 min.
ix. Buses to any destination can leave from ISBT with an interval of at least one minute or an integral multiple of one minute.

159. If 427 leaves to Mehrauli after every 10 min, then in a given hour a minimum of how many buses can ply on route 427?

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

160. On a festival day, if frequency of all buses was increased by decreasing the time interval of all the routes by 5 min, then what can be the minimum time difference between any two buses plying to Mehrauli?

(a) 2 min (b) 5 min
(c) 1 min (d) None of these

161. Which of the following statements is necessarily TRUE?

(a) A maximum of 3 buses can depart at a given time.
(b) Maximum of 11 buses can depart for Mehrauli in 1 hour.
(c) Maximum difference between the intervals of the buses plying to Uttam Nagar and Badarpur is 10 min.
(d) The difference between the time intervals of buses plying to Uttam Nagar is an integral multiple of 5 min.

162. If condition (iii) is not there, then what can be the minimum difference between the time intervals between the buses plying to Uttam Nagar?

(a) 2 min (b) 3 min
(c) 4 min (d) 5 min.

2016

Directions for questions 163 to 166: Answer the questions on the basis of the information given below.

H1, H2, H3 and H4 are four horses that participated in each of the four different races – Race-I, Race-II, Race-III and Race-IV – during an annual horse-racing event in Goa. Each horse is owned by a different owner among Rahul, Dharma, Dablu and Ritesh, in no particular order. None of the four horses finished at the same position in more than two of the four races. In each race the four horses were given ranks 1, 2, 3 and 4 according to the positions at which they finished in the race. It is also known that:

(i) In Race-I, H2 finished third and Ritesh's horse finished first. Interestingly, in Race-II, H2 finished first and Ritesh's horse finished third.
(ii) In Race-IV, H2 finished third and H3 finished fourth.
(iii) Dablu's horse finished at the same position in Race-I and Race-II, and also in Race-III and Race-IV.
(iv) In Race-IV, H1 and H3 interchanged the positions at which they had finished in Race-II.
(v) In Race-III, H3 finished fourth and H4 finished second.
(vi) Rahul's horse did not finish first in any of the four races.

163. Who are the owners of H3 and H4 respectively?

(a) Ritesh and Rahul (b) Dablu and Ritesh
(c) Rahul and Dablu (d) Cannot be determined

164. Whose horse finished third in Race-III?

(a) Rahul (b) Ritesh
(c) Dharma (d) Either Rahul or Dablu

165. If the horse with the lowest sum of ranks in the four races won a Jackpot of Rs. 1 crore, which horse won the Jackpot?

(a) H1 (b) H2
(c) H3 (d) H4

166. Which of the following statements is definitely false?

(a) H2 is owned by Dharama
(b) H3 finished second in Race-II
(c) H4 finished fourth in Race-II
(d) None of these

Directions for questions 167 to 170: Answer the questions on the basis of the information given below.

Anu, Banu, Charu, Dhanu, Ellu, Fiza, Goru and Hina are eight friends, from eight different B-Schools. They perform in Nukkad Natak "LPG" held at Patna. During the performance they sit at a circular table such that four of them face inside i.e. towards the center and the rest four face outside i.e. away from the center of the table. Each of them uses one of the four props – Dholak, Danda, Dafli and Chunni. Anu and Hina sit diametrically opposite to each other and use the same prop. No other pair of friends sitting diametrically opposite uses the same prop. It is also known that:

(i) Hina from IMT uses Dafli. She sits immediately to the left of both Charu from IMI and Banu from FMS.

(ii) The person sitting diametrically opposite the person from IMI faces inside.

(iii) Goru from IIMS sits immediately to the left of Anu from CIMP.

(iv) Charu and both her immediate neighbours face inside.

(v) Dhanu from IIMA sits diametrically opposite Ellu.

(vi) The props used by Banu and Charu are Chunni and Dholak respectively.

(vii) Dhanu, who uses Chunni, sits third to the left of the person from IIMR.

(viii) The person from IIFT uses Danda and is the only person sitting between the two persons using Dholak.

167. Who is from IIMR and which prop does he/she use?

Fill 1 if "your answer is Fiza, Chunni"

Fill 2 if "your answer is Charu, Dholak"

Fill 3 if "your answer is Fiza, Dholak"

Fill 4 if "your answer is Cannot be determined"

168. How many of the following combinations of person-prop is/are correct?

(i) Goru - Dholak

(ii) Dhanu - Chunni

(iii) Ellu - Danda

(iv) Anu - Dafli

169. The number of friends sitting between Fiza and the friend from FMS is

170. The number of letters in the name of the person who is sitting opposite to Charu is

Directions for questions 171 to 174: Answer the questions on the basis of the information given below.

During a cycle racing event in 2012 Olympic Games, eight riders – Alex, Fausto, Hilton, Jason, Matt, Nathan, Rahsaan and Ryan – cycled in eight different lanes on a track. The lanes were numbered 1 to 8 from left to right in that order. In a strange coincidence, the finishing positions of all the riders were same as their lane numbers. E.g. the rider cycling in the lane numbered 1 finished first, the rider cycling in the lane numbered 2 finished second and so on. It is also known that:

(i) Exactly two riders finished between Hilton and Rahsaan.

(ii) Jason finished just ahead of Rahsaan.

(iii) Nathan finished just ahead of Alex.

(iv) Jason finished ahead of Hilton.

(v) Neither Matt nor Ryan finished last.

(vi) Exactly two riders finished ahead of Jason.

171. Who could not have finished fifth in the race?

(a) Alex (b) Matt

(c) Nathan (d) Ryan

172. Who finished seventh and eighth respectively in the race?

(a) Rahsaan and Fausto

(b) Hilton and Fausto

(c) Jason and Hilton

(d) Cannot be determined

173. The sum of all the possible positions to which Matt could finish the race was

(a) 14 (b) 11

(c) 12 (d) 13

174. If Ryan did not finish first, who finished first?

(a) Nathan (b) Matt

(c) Rahsaan (d) Cannot be determined

Directions for questions 175 to 178: Answer the questions on the basis of the information given below.

Amar went for a vacation to a different place every year from 2004 to 2008. His vacation lasted for a different number of day(s) among 1, 2, 3, 4 and 5 on each occasion, in no particular order. It is also known that:

(i) His vacation in 2007 lasted a day longer as compared to the year when he went to Singapore.

(ii) He went to Europe in the year next to the one in which he went to the USA.

(iii) He went to Bangkok in the year next to the one in which his vacation lasted for just 1 day.

(iv) He didn't go to Europe in 2008. His vacation in Europe lasted for less than 5 days.

(v) His vacation in 2006 lasted a day longer as compared to the year when he went to Nepal.

(vi) He went to Bangkok in 2005 and his vacation lasted for less than 5 days.

175. Which of the following combinations of the destination and the year of vacation is not correct?

(a) Nepal – 2008 (b) Europe – 2007

(c) Singapore – 2004 (d) None of these

176. How many days did Amar spend on his vacation in Europe?

(a) 1 (b) 2

(c) 3 (d) 4

177. Which of the following statement(s) is/are true?

I. He spent 1 day on his vacation in Nepal.

II. He spent 4 days on his vacation in the USA.

(a) Only I (b) Only II

(c) Both I and II (d) Neither I nor II

178. In which year did he visit Nepal?

(a) 2004 (b) 2006

(c) 2007 (d) 2008

2017

Question Numbers (179 to 182) : A tea taster was assigned to rate teas from six different locations - Munnar, Wayanad, Ooty, Darjeeling, Assam and Himachal. These teas were placed in six cups, numbered 1 to 6, not necessarily in the same order The tea taster was asked to rate these teas on the strength of their flavour on a scale of 1 to 10. He gave a unique integer rating to each tea. Some other information is given below:

1. Cup 6 contained tea from Himachal.
2. Tea from Ooty got the highest rating, but it was not in Cup 3.
3. The rating of tea in Cup 3 was double the rating of the tea in Cup 5.
4. Only two cups got ratings in even numbers.
5. Cup 2 got the minimum rating and this rating was an even number.
6. Tea in Cup 3 got a higher rating than that in Cup 1.
7. The rating of tea from Wayanad was more than the rating of tea from Munnar, but less than that from Assam.

179. What was the second highest rating given?

180. What was the number of the cup that contained tea from Ooty?

181. If the tea from Munnar did not get the minimum rating, what was the rating of the tea from Wayanad?

(a) 3 (b) 5

(c) 1 (d) 6

182. If cups containing teas from Wayanad and Ooty had consecutive numbers, which of the following statements may be true?

(a) Cup 5 contains tea from Assam

(b) Cup 1 contains tea from Darjeeling

(c) Tea from Wayanad has got a rating of 6

(d) Tea from Darjeeling got the minimum rating

Question Numbers : (183 to 186) : In an 8 × 8 chessboard a queen placed anywhere can attack another piece if the piece is present in the same row, or in the same column or in any diagonal position in any possible 4 directions, provided there is no other piece in between in the path from the queen to that piece.

The columns are labelled a to h (left to right) and the rows are numbered 1 to 8 (bottom to top). The position of a piece is given by the combination of column and row labels. For example, position c5 means that the piece is in c^{th} column and 5^{th} row.

Sub questions

183. If the queen is at c5, and the other pieces at positions c2, g1, g3, g3 and a3, how many are under attack by the queen? There are no other pieces on the board.

(a) 2 (b) 3

(c) 4 (d) 5

184. If the other pieces are only at positions a1, a3, b4, d7, h7 and h8, then which of the following positions of the queen results in the maximum number of pieces being under attack?

(a) f8 (b) a7

(c) c1 (d) d3

185. If the other pieces are only at positions a1, a3, b4, d7, h7 and h8, then from how many positions the queen cannot attack any of the pieces?

(a) 0 (b) 3

(c) 4 (d) 6

186. Suppose the queen is the only piece on the board and it is at position d5.

In how many positions can another piece be placed on the board such that it is safe from attack from the queen?

(a) 32 (b) 33

(c) 36 (d) 37

Question Numbers : (187 to 190) : Eight friends: Ajit, Byomkesh, Gargi, Jayanta, Kikira, Manik, Prodosh and Tapesh are going to Delhi from Kolkata by a flight operated by Cheap Air. In the flight, sitting is arranged in 30 rows, numbered 1 to 30, each consisting of 6 seats, marked by letters A to F from left to right, respectively. Seats A to C are to the left of the aisle (the passage running from the front of the aircraft to the back), and seats D to F are to the right of the aisle. Seats A and F are by the windows and referred to as Window seats, C and D are by the aisle and are referred to as Aisle seats while B and E are referred to as Middle seats. Seats marked by consecutive letters are called consecutive seats (or seats next to each other). A seat number is a combination of the row number, followed by the letter indicating the position in the row; e.g., 1A is the left window seat in the first row, while 12E is the right middle seat in the 12th row.

Cheap Air charges Rs.1000 extra for any seats in Rows 1, 12 and 13 as those have extra legroom. For Rows 210, it charges Rs.500 extra for Window seats and Rs.300 extra for Aisle seats. For Rows 11 and 14 to 20, it charges Rs.200 extra for Window seats and Rs.400 extra for Aisle seats. All other seats are available at no extra charge.

The following are known:

1. The eight friends were seated in six different rows.
2. They occupied 3 Window seats, 4 Aisle seats and 1 Middle seat.
3. Seven of them had to pay extra amounts, totaling to Rs. 4600, for their choices of seat. One of them did not pay any additional amount for his/her choice of seat.
4. Jayanta, Ajit and Byomkesh were sitting in seats marked by the same letter, in consecutive rows in increasing order of row numbers; but all of them paid different amounts for their choices of seat. One of these amounts may be zero.
5. Gargi was sitting next to Kikira, and Manik was sitting next to Jayanta.
6. Prodosh and Tapesh were sitting in seats marked by the same letter, in consecutive rows in increasing order of row numbers; but they paid different amounts for their choices of seat. One of these amounts may be zero.

187. In which row was Manik sitting?

(a) 10 (b) 11

(c) 12 (d) 13

188. How much extra did Jayanta pay for his choice of seat?

(a) Rs. 300 (b) RS. 400

(c) Rs. 500 (d) RS. 1000

189. How much extra did Gargi pay for her choice of seat?

(a) 0 (b) Rs. 300

(c) Rs. 400 (d) Rs. 1000

190. Who among the following did not pay any extra amount for his/her choice of seat?

(a) Kikira (b) Manik

(c) Gargi (d) Tapesh

Question Numbers : (191 to 194) : A high security research lab requires the researchers to set a pass key sequence Passed on the scan of the five fingers of their left hands. When an employee first joins the lab, her fingers are scanned in an order of her choice, and then when she wants to re-enter the facility, she has to scan the five fingers in the same sequence.

The lab authorities are considering some relaxations of the scan order requirements, since it is observed that some employees often get locked-out because they forget the sequence.

191. The lab has decided to allow a variation in the sequence of scans of the five fingers so that at most two scans (out of five) are out of place. For example, if the original sequence is Thumb (T), index finger (I), middle finger (M), ring finger (R) and little finger (L) then TLMRI is also allowed, but TMRLI is not.

How many different sequences of scans are allowed for any given person's original scan?

192. The lab has decided to allow variations of the original sequence so that input of the scanned sequence of five fingers is allowed to vary from the original sequence by one place for any of the fingers. Thus, for example, if TIMRL is the original sequence, then ITRML is also allowed, but LIMRT is not.

How many different sequences are allowed for any given person's original scan?

(a) 7 (b) 5

(c) 8 (d) 13

193. The lab has now decided to require six scans in the pass key sequence, where exactly one finger is scanned twice, and the other fingers are scanned exactly once, which can be done in any order. For example, a possible sequence is TIMTRL.

Suppose the lab allows a variation of the original sequence (of six inputs) where at most two scans (out of six) are out of place, as long as the finger originally scanned twice is scanned twice and other fingers are scanned once.

How many different sequences of scans are allowed for any given person's original scan?

194. The lab has now decided to require six scans in the pass key sequence, where exactly one finger is scanned twice, and the other fingers are scanned exactly once, which can be done in any order. For example, a possible sequence is TIMTRL.

Suppose the lab allows a variation of the original sequence (of six inputs) so that input in the form of scanned sequence of six fingers is allowed to vary from the original sequence by one place for any of the fingers, as long as the finger originally scanned twice is scanned twice and other fingers are scanned once.

How many different sequences of scans are allowed if the original scan sequence is LRLTIM?

(a) 8 (b) 11

(c) 13 (d) 14

2018 Slot 1

195. Who are the students from the institute Z?

(a) Adriana and Bandita (b) Chitra and Daisy

(c) Adriana and Daisy (d) Bandita and Chitra

196. Which subject does Deb minor in?

(a) Cannot be determined uniquely from the given information

(b) Finance

(c) Operations

(d) Marketing

197. Which subject does Amit major in?

(a) Cannot be determined uniquely from the given information

(b) Finance

(c) Marketing

(d) Operations

198. If Chitra majors in Finance, which subject does Bandita major in?

(a) Marketing

(b) Cannot be determined uniquely from the given information

(c) Operations

(d) Finance

Question Numbers (199 to 202) :

An ATM dispenses exactly Rs. 5000 per withdrawal using 100, 200 and 500 rupee notes. The ATM requires every customer to give her preference for one of the three denominations of notes. It then dispenses notes such that the number of notes of the customer's preferred denomination exceeds the total number of notes of other denominations dispensed to her.

199. In how many different ways can the ATM serve a customer who gives 500 rupee notes as her preference?

200. If the ATM could serve only 10 customers with a stock of fifty 500 rupee notes and a sufficient number of notes of other denominations, what is the maximum number of customers among these 10 who could have given 500 rupee notes as their preferences?

201. What is the maximum number of customers that the ATM can serve with a stock of fifty 500 rupee notes and a sufficient number of notes of other denominations, if all the customers are to be served with at most 20 notes per withdrawal?

(a) 16 (b) 10

(c) 12 (d) 13

202. What is the number of 500 rupee notes required to serve 50 customers with 500 rupee notes as their preferences and another 50 customers with 100 rupee notes as their preferences, if the total number of notes to be dispensed is the smallest possible?

(a) 1400 (b) 800

(c) 750 (d) 900

Question Numbers (203 to 206) :

Fuel contamination levels at each of 20 petrol pumps P1, P2, …, P20 were recorded as either high, medium, or low.

1. Contamination levels at three pumps among P1 - P5 were recorded as high.
2. P6 was the only pump among P1 - P10 where the contamination level was recorded as low.
3. P7 and P8 were the only two consecutively numbered pumps where the same levels of contamination were recorded.
4. High contamination levels were not recorded at any of the pumps P16 - P20.
5. The number of pumps where high contamination levels were recorded was twice the number of pumps where low contamination levels were recorded.

203. Which of the following MUST be true?

(a) The contamination level at P12 was recorded as high.

(b) The contamination level at P13 was recorded as low.

(c) The contamination level at P20 was recorded as medium.

(d) The contamination level at P10 was recorded as high.

204. What best can be said about the number of pumps at which the contamination levels were recorded as medium?

(a) At most 9 (b) At least 8

(c) More than 4 (d) Exactly 8

205. If the contamination level at P11 was recorded as low, then which of the following MUST be true?

(a) The contamination level at P12 was recorded as high.

(b) The contamination level at P18 was recorded as low.

(c) The contamination level at P15 was recorded as medium.

(d) The contamination level at P14 was recorded as medium.

206. If contamination level at P15 was recorded as medium, then which of the following MUST be FALSE?

(a) Contamination levels at P13 and P17 were recorded as the same.

(b) Contamination levels at P11 and P16 were recorded as the same.

(c) Contamination levels at P10 and P14 were recorded as the same.

(d) Contamination level at P14 was recorded to be higher than that at P15.

Question Numbers (207 to 210) :

You are given an n×n square matrix to be filled with numerals so that no two adjacent cells have the same numeral. Two cells are called adjacent if they touch each other horizontally, vertically or diagonally. So a cell in one of the four corners has three cells adjacent to it, and a cell in the first or last row or column which is not in the corner has five cells adjacent to it. Any other cell has eight cells adjacent to it.

207. What is the minimum number of different numerals needed to fill a 3 × 3 square matrix?

208. What is the minimum number of different numerals needed to fill a 5 × 5 square matrix?

209. Suppose you are allowed to make one mistake, that is, one pair of adjacent cells can have the same numeral. What is the minimum number of different numerals required to fill a 5 × 5 matrix?

(a) 16 (b) 4

(c) 9 (d) 25

210. Suppose that all the cells adjacent to any particular cell must have different numerals. What is the minimum number of different numerals needed to fill a 5 × 5 square matrix?

(a) 9 (b) 16

(c) 4 (d) 25

2018 Slot 2

Question Numbers: (212 to 214):

Fun Sports (FS) provides training in three sports – Gilli-danda (G), Kho-Kho (K), and Ludo (L). Currently it has an enrollment of 39 students each of whom is enrolled in at least one of the three sports. The following details are known:

1. The number of students enrolled only in L is double the number of students enrolled in all the three sports.
2. There are a total of 17 students enrolled in G.
3. The number of students enrolled only in G is one less than the number of students enrolled only in L.
4. The number of students enrolled only in K is equal to the number of students who are enrolled in both K and L.
5. The maximum student enrollment is in L.
6. Ten students enrolled in G are also enrolled in at least one more sport.

212. What is the minimum number of students enrolled in both G and L but not in K?

213. If the numbers of students enrolled in K and L are in the ratio 19:22, then what is the number of students enrolled in L?

(a) 17 (b) 18

(c) 19 (d) 22

214. Due to academic pressure, students who were enrolled in all three sports were asked to withdraw from one of the three sports. After the withdrawal, the number of students enrolled in G was six less than the number of students enrolled in L, while the number of students enrolled in K went down by one. After the withdrawal, how many students were enrolled in both G and K?

215. Due to academic pressure, students who were enrolled in all three sports were asked to withdraw from one of the three sports. After the withdrawal, the number of students enrolled in G was six less than the number of students enrolled in L, while the number of students enrolled in K went down by one. After the withdrawal, how many students were enrolled in both G and L?

(a) 8 (b) 5

(c) 6 (d) 7

Question Numbers: (216 to 219):

Seven candidates, Akil, Balaram, Chitra, Divya, Erina, Fatima, and Ganeshan, were invited to interview for a position. Candidates were required to reach the venue before 8 am. Immediately upon arrival, they were sent to one of three interview rooms: 101, 102, and 103. The following venue log shows the arrival times for these candidates. Some of the names have not been recorded in the log and have been marked as '?'.

Time	7:10 am	7:15 am	7:25 am	7:30 am	7:40 am	7:45 am
Person	Akil, ?	?	?	Chitra	Fatima	?

Additionally here are some statements from the candidates:

Balaram: I was the third person to enter Room 101.

Chitra: I was the last person to enter the room I was allotted to.

Erina: I was the only person in the room I was allotted to.

Fatima: Three people including Akil were already in the room that I was allotted to when I entered it.

Ganeshan: I was one among the two candidates allotted to Room 102.

216. What best can be said about the room to which Divya was allotted?

(a) Definitely Room 103

(b) Definitely Room 101

(c) Definitely Room 102

(d) Either Room 101 or Room 102

217. Who else was in Room 102 when Ganeshan entered?

(a) No one (b) Divya

(c) Akil (d) Chitra

218. When did Erina reach the venue?

(a) 7:15 am (b) 7:10 am

(c) 7:45 am (d) 7:25 am

219. If Ganeshan entered the venue before Divya, when did Balaram enter the venue?

(a) 7:25 am (b) 7:10 am

(c) 7:15 am (d) 7:45 am

Question Numbers: (220 to 223):

According to a coding scheme the sentence

Peacock is designated as the national bird of India is coded as

5688999 35 1135556678 56 458 13666689 1334 79 13366

This coding scheme has the following rules:

1. The scheme is case-insensitive (does not distinguish between upper case and lower case letters).
2. Each letter has a unique code which is a single digit from among 1,2,3, …, 9.
3. The digit 9 codes two letters, and every other digit codes three letters.
4. The code for a word is constructed by arranging the digits corresponding to its letters in a non-decreasing sequence.

Answer these questions on the basis of this information.

220. What best can be concluded about the code for the letter L?

(a) 1 or 8 (b) 8

(c) 6 (d) 1

221. What best can be concluded about the code for the letter B?

(a) 3 or 4 (b) 3

(c) 1 or 3 or 4 (d) 1

222. For how many digits can the complete list of letters associated with that digit be identified?

(a) 0 (b) 2

(c) 3 (d) 1

223. Which set of letters CANNOT be coded with the same digit?

(a) S, E, Z

(b) S, U, V

(c) X, Y, Z

(d) I, B, M

Question Numbers: (224 to 227):

Each visitor to an amusement park needs to buy a ticket. Tickets can be Platinum, Gold, or Economy. Visitors are classified as Old, Middle-aged, or Young. The following facts are known about visitors and ticket sales on a particular day:

1. 140 tickets were sold.
2. The number of Middle-aged visitors was twice the number of Old visitors, while the number of Young visitors was twice the number of Middle-aged visitors.
3. Young visitors bought 38 of the 55 Economy tickets that were sold, and they bought half the total number of Platinum tickets that were sold.
4. The number of Gold tickets bought by Old visitors was equal to the number of Economy tickets bought by Old visitors.

224. If the number of Old visitors buying Platinum tickets was equal to the number of Middle-aged visitors buying Platinum tickets, then which among the following could be the total number of Platinum tickets sold?

(a) 34 (b) 32

(c) 38 (d) 36

225. If the number of Old visitors buying Platinum tickets was equal to the number of Middle-aged visitors buying Economy tickets, then the number of Old visitors buying Gold tickets was

226. If the number of Old visitors buying Gold tickets was strictly greater than the number of Young visitors buying Gold tickets, then the number of Middle-aged visitors buying Gold tickets was

227. Which of the following statements MUST be FALSE?

(a) The numbers of Gold and Platinum tickets bought by Young visitors were equal

(b) The numbers of Old and Middle-aged visitors buying Platinum tickets were equal

(c) The numbers of Old and Middle-aged visitors buying Economy tickets were equal

(d) The numbers of Middle-aged and Young visitors buying Gold tickets were equal

DATA SUFFICIENCY

2000

Direction for Question 1: *The question is followed by two statements, I and II. Answer the question using the following instructions.*

Mark the answer as

(a) if the question can be answered by one of the statements alone, but cannot be answered by using the other statement alone.

(b) if the question can be answered by using either statement alone.

(c) if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

(d) if the question cannot be answered even by using both statements together.

1. Consider three real numbers, X, Y and Z. Is Z the smallest of these numbers?

I. X is greater than at least one of Y and Z.

II. Y is greater than at least one of X and Z.

2003

Direction for Question 2: *In the question there are two statements: A and B.*

Choose (a) if the question can be answered by one of the statements alone but not by the other.

Choose (b) if the question can be answered by using either statement alone.

Choose (c) if the question can be answered by using both the statements together but cannot be answered using either statement alone.

Choose (d) if the question cannot be answered even by using both the statements A and B.

2. F and M are father and mother of S, respectively. S has four uncles and three aunts. F has two siblings. The siblings of F and M are unmarried. How many brothers does M have?

A. F has two brothers.

B. M has five siblings.

2004

Directions for Questions 3 and 4: *Each question is followed by two statements, A and B. Answer each question using the following instructions.*

Choose (a) if the question can be answered by using one of the statements alone but not by using the other statement alone.

Choose (b) if the question can be answered by using either of the statements alone.

Choose (c) if the question can be answered by using both statements together but not by either statement alone.

Choose (d) if the question cannot be answered on the basis of the two statements.

3. Four candidates for an award obtain distinct scores in a test. Each of the four casts a vote to choose the winner of the award. The candidate who gets the largest number of votes wins the award. In case of a tie in the voting process, the candidate with the highest score wins the award. Who wins the award?

A. The candidates with top three scores each vote for the top score amongst the other three.

B. The candidate with the lowest score votes for the player with the second highest score.

4. In a class of 30 students, Rashmi secured the third rank among the girls, while her brother Kumar studying in the same class secured the sixth rank in the whole class. Between the two, who had a better overall rank?

A. Kumar was among the top 25% of the boys merit list in the class in which 60% were boys.

B. There were three boys among the top five rank holders, and three girls among the top ten rank holders.

2007

Direction for Question 5: *The question is followed by two statements, A and B.*

Answer the question using the following instructions:

Mark (a) if the question can be answered by using the statement A alone but not by using the statement B alone.

Mark (b) if the question can be answered by using the statement B alone but not by using the statement A alone.

Mark (c) if the question can be answered by using either of the statements alone.

Mark (d) if the question can be answered by using both the statements together but not by either of the statements alone.

Mark (e) if the question cannot be answered on the basis of the two statements.

5. Five students Atul, Bala, Chetan, Dev and Ernesto were the only ones who participated in a quiz contest. They were ranked based on their scores in the contest. Dev got a higher rank as compared to Ernesto, while Bala got a higher rank as compared to Chetan. Chetan's rank was lower than the median. Who among the five got the highest rank?

A. Atul was the last rank holder.

B. Bala was not among the top two rank holders.

2003 (R)

Directions for Questions 6 and 7: *Each question is followed by two statements, A and B. Answer each question using the following instructions:*

Choose (a) if the question can be answered by using statement A alone but not by using B alone.

Choose (b) if the question can be answered by using statement B alone but not by using A alone.

Choose (c) if the question can be answered by using either statement alone and

Choose (d) if the question can be answered using both the statements together but not by either statement alone.

6. In a cricket match, the 'Man of the Match' award is given to the player scoring the highest number of runs. In case of a tie, the player (out of those locked in the tie) who has taken the higher number of catches is chosen. Even thereafter if there is a tie, the player (out of those locked in the tie) who has dropped fewer catches is selected. Aakash, Biplab, and Chirag who were contenders for the award dropped at least one

catch each. Biplab dropped two catches more than Aakash did, scored 50, and took two catches. Chirag got two chances to catch and dropped both. Who was the 'Man of the Match'?

A. Chirag made 15 runs less than both Aakash and Bipla2.

B. The catches dropped less by Biplab are 1 more than the catches taken by Aakash.

7. Four friends — A, B, C and D got the top four ranks in a competitive examination, but A did not get the first, B did not get the second, C did not get the third, and D did not get the fourth rank. Who secured which rank?

A. Neither A nor D were among the first 2.

B. Neither B nor C was third or fourth.

MEMORY BASED QUESTIONS

2009

8. The question given below is followed by two statements, A and B. Mark the answer using the following instructions:

Mark (a) if the question can be answered by using Statement A alone, but cannot be answered by using Statement B alone.

Mark (b) if the question can be answered by using Statement B alone, but cannot be answered by using Statement A alone.

Mark (c) if the question cannot be answered even by using both the statements together.

Mark (d) if the question can be answered by using either statement alone.

Q. Uncle Gomes distributes 40 candies among five children in such a way that each child gets at least one candy and no two children get the same number of candies. What is the number of candies received by the child who gets the maximum number of candies among the five children?

A. Each child gets more than 4 candies.

B. The sum of the number of candies received by the child who gets the maximum and the child who gets the minimum number of candies among the five children is 29.

9. The question given below is followed by two statements, A and B. Mark the answer using the following instructions:

Mark (a) if the question can be answered by using one of the statements alone, but cannot be answered by using the other statement alone.

Mark (b) if the question can be answered by using either statement alone.

Mark (c) if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

Mark (d) if the question cannot be answered even by using both the statements together.

Q. Some students are standing in a row facing the West direction. Fourteen students are standing to the left of Mukesh and twenty two students are standing to the right of Rakesh. How many students are there in all?

A. Exactly 5 students are standing between Mukesh and Rakesh.

B. The total number of students is a prime number less than 37.

10. The question given below is followed by two statements, A and B. Mark the answer using the following instructions:

Mark (a) if the question can be answered by using either statement alone.

Mark (b) if the question can be answered by using one of the statements alone, but cannot be answered by using the other statement alone.

Mark (c) if the question cannot be answered even by using both the statements together.

Mark (d) if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

Q. ABCDEF is a hexagon in which all the interior angles are equal. If AB = 20 cm and DE = 10 cm, then what is the perimeter of the hexagon?

A. The shortest distance between AB and DE is 30 cm.

B. The line joining the midpoints of AB and DE is perpendicular to both AB and DE.

2010

11. The question given below is followed by two statements, A and B. Mark the answer using the following instructions:

Mark (a) if the question can be answered by using one of the statements alone, but cannot be answered by using the other statement alone.

Mark (b) if the question can be answered by using either statement alone.

Mark (c) if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

Mark (d) if the question cannot be answered even by using both the statements together.

Q. The houses of Pavan, Pranab, Mohit and Santosh are of different sizes and each house has some vehicle parking slots. Pavan stays in the second smallest house, which has the same number of parking slots as that in Pranab's house. The largest house is not the one with the highest number of parking slots. Santosh's house is not the smallest. The sum of the number of parking slots in Mohit's house and Pranab's house is an even number. Who among the four stays in the second largest house and how many parking slots does it have?

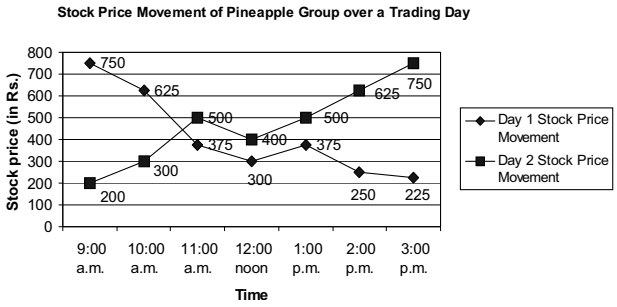
A. One house has two parking slots and the remaining three houses have one parking slot each.

B. The four houses have two, three, three and five parking slots, in no particular order.

Directions for questions 12 and 13: Answer the questions on the basis of the information given below.

Two stock traders – Hasan and Sajid – trade in the shares of Pineapple Group only. Each of them follows a different strategy for selling and buying the stocks. Sajid sells an equal number of shares at 9 a.m. and 10 a.m. and buys them back in equal numbers at 1 p.m. and 2 p.m. Hasan sells some shares at 11 a.m. and the rest at 12 noon such that the amount he gets on the two occasions is the same. He buys back the whole lot at 3 p.m. The chart given below displays the performance of Pineapple Group stock on two particular days – Day 1 and Day 2.

The profit/loss made by a trader on a particular day is the difference between the amount that he obtains by selling the shares and the amount that he spends in buying the shares. "Margin" for a day is the profit/loss expressed as a percentage of the total amount obtained by selling the shares on that day.



12. If Sajid and Hasan sold an equal number of shares on Day 1, then which of the following statements would definitely be true?

I. Hasan made more profit than Sajid on Day 1.

II. Hasan made less profit than Sajid on Day 1.

III. Hasan's Margin was more than Sajid's Margin on Day 1.

IV. Hasan's Margin was less than Sajid's Margin on Day 1.

(a) I only (b) I and IV

(c) II and IV (d) I and III

13. What was the ratio of Hasan's Margin to Sajid's Margin on Day 2?

(a) 13 : 20 (b) 11 : 20

(c) 20 : 13 (d) Cannot be determined

14. The question given below is followed by two statements, A and B. Mark the answer using the following instructions:

Mark (a) if the question can be answered by using one of the statements alone, but cannot be answered by using the other statement alone.

Mark (b) if the question can be answered by using either statement alone.

Mark (c) if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

Mark (d) if the question cannot be answered even by using both the statements together.

Q. ABCD is a cyclic quadrilateral in which AB = 8 cm and BC = 15 cm. What is the area of the quadrilateral?

A. AD = CD

B. The length of the diameter of the circumcircle of triangle BCD is 17 cm.

2011

15. The question given below is followed by two statements, A and B. Mark the answer using the following instructions:

Mark (a) if the question can be answered by using either statement alone.

Mark (b) if the question can be answered by using one of the statements alone, but cannot be answered by using the other statement alone.

Mark (c) if the question cannot be answered even by using both the statements together.

Mark (d) if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

Q. What is the sum of a, b and c?

A. The numbers a, b and c are in Arithmetic Progression.

B. $a^2 + b^2 + c^2 = 83$, where a, b and c are natural numbers.

16. The question given below is followed by two statements, A and B. Mark the answer using the following instructions:

Mark (a) if the question can be answered by using one of the statements alone, but cannot be answered by using the other statement alone.

Mark (b) if the question can be answered by using either statement alone.

Mark (c) if the question cannot be answered even by using both the statements together.

Mark (d) if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

Q. If p and q are natural numbers, then what is the remainder when (p + q) is divided by 7?

A. $6q - p = 5$

B. $8q + p = 45$

17. The question given below is followed by two statements, A and B. Mark the answer using the following instructions:

Mark (a) if the question can be answered by using Statement A alone, but cannot be answered by using Statement B alone.

Mark (b) if the question can be answered by using Statement B alone, but cannot be answered by using Statement A alone.

Mark (c) if the question can be answered by using either statement alone.

Mark (d) if the question cannot be answered by any of the two statements.

Q. Four friends – Ajay, Bikas, Chetan and Deepak – have different surnames among Rathore, Agarwal, Yadav and Sharma, not necessarily in the same order. They are standing in a queue one after the other. Either Rathore or Agarwal is standing immediately in front of Ajay and the other is standing immediately behind Ajay. Bikas and Chetan are standing at the two ends of the queue. What is the surname of Ajay?

A. The surname of Chetan is Agarwal.

B. The surname of Bikas is Yadav.

18. The question given below is followed by two statements, A and B. Mark the answer using the following instructions:

Mark (a) if the question can be answered by using Statement A alone, but cannot be answered by using Statement B alone.

Mark (b) if the question can be answered by using Statement B alone, but cannot be answered by using Statement A alone.

Mark (c) if the question can be answered by using either statement alone.

Mark (d) if the question cannot be answered by any of the two statements.

Q. Five people having different ages are standing in a row. They are Engineer, Professor, Manager, Doctor and Lawyer respectively by profession. The oldest among them is standing in the middle of the row and he is not a Lawyer. The youngest among them is an Engineer and he is not standing at any of the two ends of the row. The Professor is younger than exactly three people and he is standing at one of the ends of the row. The Doctor is standing beside the Engineer. The Lawyer is standing beside the Doctor. The Manager is standing beside the Lawyer. How many people are younger than the Manager?

A. The Lawyer is younger than the Doctor.

B. The Manager is younger than the Lawyer.

2013

Directions for questions 19 to 21: Answer the questions on the basis of the information given below.

Four teams—T1, T2, T3 and T4— participated in a tournament of 'Bat and trap', an English bat-and-ball pub game. In the tournament, each team played exactly one match with each of the other teams. The matches were played on six consecutive days of a week from Monday to Saturday. Two points were awarded to the winner of a match and no points to the loser. No match in the tournament resulted in a tie/draw. It is also known that:

I. T1 won only one match in the tournament and it was played on Monday.

II. The match played on Thursday was won by T4.

III. T3 won against T2 on Tuesday.

IV. T2, T3 and T4 definitely did not play on Wednesday, Monday and Saturday respectively.

V. T2 and T3 ended up with the same number of points at the end of the tournament.

19. How many points did T4 score in the tournament?

(a) 2 (b) 4

(c) 6 (d) Cannot be determined

20. T3 lost its match against

(a) T1 (b) T2

(c) T4 (d) Both T1 and T2

21. The match played on Friday was between

(a) T1 and T2 (b) T2 and T3

(c) T1 and T4 (d) T2 and T4

Directions for questions 22 to 24: Answer the questions on the basis of the information given below.

Eight persons are sitting at a rectangular table such that four persons are sitting along each of the longer sides of the table. Each person works in a different bank among PNB, SBI, HDFC, ICICI, CBI, BOB, BOI and Citi, and holds a different designation among IT Officer, Marketing Officer, Law Officer, Agricultural Officer, Rajbhasha Adhikari, Technical Officer, Finance Officer and HR Manager, not necessarily in the same order. It is also known that:

I. The Finance Officer, who works in BOI, is sitting to the immediate left of the HR Manager.

II. The Marketing Officer, who works in SBI, is sitting opposite the Technical Officer.

III. The Agricultural Officer, who works in ICICI, is sitting diagonally opposite the Rajbhasha Adhikari, who is sitting to the immediate left of the Technical Officer.

IV. The Law Officer, who works in HDFC, is sitting to the immediate left of the Marketing officer.

V. The persons who work in PNB and HDFC are sitting along the same side of the table.

VI. The Rajbhasha Adhikari, who works in CBI, is sitting at one of the extreme ends in his row.

22. Who is sitting to the immediate right of the Finance Officer?

(a) Agricultural Officer
(b) Technical Officer
(c) Marketing Officer
(d) None of these

23. For how many persons can we definitely determine the banks in which they work?

(a) 8 (b) 6
(c) 4 (d) None of these

24. The person who is sitting opposite the Law Officer works in

(a) BOI (b) ICICI
(c) BOB (d) Cannot be determined

2014

Directions for questions 25 to 28 : Answer the questions on the basis of information given below.

A farmer has 60 hens in his poultry farm. Each of these 60 hens lays one egg per day. On each day out of the eggs laid, some of the eggs are found to be rotten and some of the eggs get broken. Only the eggs that are neither rotten nor broken are taken to the market for sale but due to some unavoidable reasons some eggs are not sold. The eggs that are not sold are brought back to the poultry farm.

Additional Information Given:

I. Out of the eggs that are brought back on each day, 40% are rotten and 20% are broken the next morning (and they are always integers).

II. Out of the eggs that are brought back to the poultry farm on each day, the eggs that are neither broken nor rotten are taken along with the eggs that are laid by the hens on the next day to the market for sale.

III. On any particular day the number of eggs that are not sold is less than 20% of the number of eggs that are taken to be sold out of the eggs that are laid on each day.

IV. Out of the eggs that are laid on each day, the number of eggs that are rotten is greater than 1 but less than 5 and the number of eggs that got broken is greater than 3 and less than 7.

V. Every week has five days and each week starts from day 1 and ends on day 5. Assume there are no eggs with the farmer at the beginning of day 1 of the given week.

25. Find the minimum possible aggregate number of eggs sold on day 4 and day 5.

(a) 84 (b) 83
(c) 86 (d) 85

26. If the number of eggs that got rotten and broken is maximum possible in a particular week, then find the difference between the total number of eggs that got rotten and the total number of eggs that got broken across all the five days of the week.

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

27. What can be the maximum number of eggs (that are unbroken and not rotten) that were left unsold at the end of the fifth day?

(a) 10
(b) 50
(c) 25
(d) Cannot be determined

28. If the number of eggs sold on any day of the week is maximum possible then what is the aggregate sum of the total number of eggs sold in the entire week?

(a) 253 (b) 254
(c) 265 (d) 251

Directions for questions 29 to 32: Answer the questions on the basis of the information given below.

There are 6 friends — Gurvinder, Surinder, Mahinder, Bhupinder, Harinder and Joginder. Their wives are — Sita, Rama, Dolly, Monica, Trisna and Kaveri (not in the same order as their husbands). Each of these 6 friends belong to exactly one out of Ambala, Jaipur, Guntur, Kapurthala, Noida and Jammu (not necessarily in order). Each of them plays exactly one of the games — cricket, football, volleyball, snooker, TT and badminton (again not necessarily in that order). Each of the friends is married to one lady only.

— Husbands of Dolly, Trisna or Kaveri do not play football or volleyball.

— The one who is from Guntur plays cricket.

— Joginder plays football and is from Jammu.

— Mahinder and Harinder are married to Sita and Monica respectively but are not from Guntur.

— The men from Jaipur and Kapurthala are TT and volleyball players respectively.

— Bhupinder is from Noida.

— Rama is married to the man from Jammu.

— Mahinder plays snooker.

29. Who is married to the man from Kapurthala?

(a) Dolly (b) Monica

(c) Sita (d) Cannot be determined

30. The person who plays Snooker belongs to which place?

(a) Noida (b) Ambala

(c) Jammu (d) Cannot be determined

31. Which game is being played by Bhupinder?

(a) Badminton (b) Football

(c) Volleyball (d) Cannot be determined

32. Who is the wife of Surinder?

(a) Dolly (b) Trisna

(c) Kaveri (d) Cannot be determined

Directions for questions 33 to 36: Answer the questions on the basis of information given below.

Volleyball is a sport played by two teams on a playing court divided by a net.

The object of the game is to send the ball over the net in order to ground it on the opponent's court, and to prevent the same effort by the opponent.

The team has three hits for returning the ball.

The rally continues until the ball is grounded on the playing court, goes "out" or a team fails to return it properly. In Volleyball, the team winning a rally scores a point (Rally Point System).

There are six players on court in a volleyball team.

Matches are played in five sets. The first four sets are played to 25 points, with the final set being played to 15 points. A team must win a set by at least two points. There is no ceiling, so a set continues until one of the teams gains a two-point advantage.

A match was played between Brazil and Russia in which-

(i) Only three sets finished with the minimum threshold points.

(ii) The final score of Russia was same in two of the sets in which it won one of the sets.

(iii) In one of the sets, the final score of Brazil was less than half of Russia.

(iv) The score of Brazil in one of the sets is same as the score of Russia in one of the other set. Both of them lost their respective sets with a different margin.

(v) The total score of five sets of Brazil and Russia were 108 and 116 respectively. Also, Brazil won 3 sets.

(vi) The maximum score by any team in the five sets was 30 and the minimum was 12. Russia scored 23 points in one of the sets.

(vii) There were only three sets in which a team won by exactly two-point advantage.

33. What was the maximum difference by which a team won the set?

(a) 2 points (b) 12 points

(c) 13 points (d) 3 points

34. What was the score of Russia in the fifth set?

(a) 12 points (b) 13 points

(c) 15 points (d) Cannot be determined

35. In how many sets, the score of Brazil was an even number?

(a) 2 (b) 3

(c) 4 (d) 5

36. What was the score which was common with both the teams, and in which both won their respective sets?

(a) 28 (b) 12

(c) 25 (d) No such score

■■

ANSWERS

ANALYTICAL REASONING

1. (d)	**2.** (c)	**3.** (b)	**4.** (a)	**5.** (b)	**6.** (b)	**7.** (b)	**8.** (c)	**9.** (a)	**10.** (b)
11. (b)	**12.** (d)	**13.** (b)	**14.** (b)	**15.** (a)	**16.** (b)	**17.** (b)	**18.** (c)	**19.** (d)	**20.** (a)
21. (a)	**22.** (b)	**23.** (d)	**24.** (d)	**25.** (b)	**26.** (b)	**27.** (c)	**28.** (c)	**29.** (b)	**30.** (d)
31. (a)	**32.** (b)	**33.** (a)	**34.** (a)	**35.** (d)	**36.** (a)	**37.** (a)	**38.** (c)	**39.** (b)	**40.** (a)
41. (b)	**42.** (b)	**43.** (c)	**44.** (a)	**45.** (c)	**46.** (a)	**47.** (a)	**48.** (a)	**49.** (c)	**50.** (d)
51. (b)	**52.** (b)	**53.** (d)	**54.** (a)	**55.** (d)	**56.** (c)	**57.** (d)	**58.** (b)	**59.** (c)	**60.** (d)
61. (c)	**62.** (b)	**63.** *	**64.** (c)	**65.** (c)	**66.** (a)	**67.** (c)	**68.** (b)	**69.** (c)	**70.** (b)
71. (d)	**72.** (d)	**73.** (d)	**74.** (c)	**75.** (c)	**76.** (c)	**77.** (b)	**78.** (b)	**79.** (c)	**80.** (b)
81. (c)	**82.** (d)	**83.** (b)	**84.** (c)	**85.** (b)	**86.** (b)	**87.** (b)	**88.** (b)	**89.** (d)	**90.** (a)
91. (c)	**92.** (a)	**93.** (c)	**94.** (c)	**95.** (d)	**96.** (d)	**97.** (c)	**98.** (c)	**99.** (a)	**100.** (b)
101. (c)	**102.** (b)	**103.** (b)	**104.** (c)	**105.** (b)	**106.** (d)	**107.** (c)	**108.** (d)	**109.** (a)	**110.** (b)
111. (d)	**112.** (a)	**113.** (b)	**114.** (b)	**115.** (d)	**116.** (b)	**117.** (d)	**118.** (b)	**119.** (c)	**120.** (d)
121. (c)	**122.** (d)	**123.** (c)	**124.** (c)	**125.** (d)	**126.** (d)	**127.** (b)	**128.** (d)	**129.** (d)	**130.** (a)
131. (c)	**132.** (d)	**133.** (e)	**134.** (e)	**135.** (d)	**136.** (b)	**137.** (b)	**138.** (b)	**139.** (c)	**140.** (d)
141. (e)	**142.** (b)	**143.** (d)	**144.** (b)	**145.** (c)	**146.** (c)	**147.** (b)	**148.** (d)	**149.** (c)	**150.** (c)
151. (c)	**152.** (d)	**153.** (c)	**154.** (d)	**155.** (b)	**156.** (c)	**157.** (c)	**158.** (b)	**159.** (a)	**160.** (c)
161. (d)	**162.** (a)	**163.** (b)	**164.** (a)	**165.** (d)	**166.** (c)	**167.** 3	**168.** 3	**169.** 3	**170.** 4
171. (a)	**172.** (b)	**173.** (a)	**174.** (d)	**175.** (d)	**176.** (b)	**177.** (d)	**178.** (d)	**179.** 7	**180.** 4
181. (b)	**182.** (b)	**183.** (c)	**184.** (d)	**185.** (c)	**186.** (c)	**187.** (a)	**188.** (c)	**189.** (d)	**190.** (d)
191. 11	**192.** (c)	**193.** 15	**194.** (c)	**195.** (d)	**196.** (b)	**197.** (b)	**198.** (c)	**199.** 3	**200.** 6
201. (c)	**202.** (d)	**203.** (d)	**204.** (d)	**205.** (d)	**206.** (b)	**207.** 4	**208.** 4	**209.** (b)	**210.** (a)
211. 4	**212.** (d)	**213.** 2	**214.** (c)	**215.** (b)	**216.** (a)	**217.** (c)	**218.** (a)	**219.** (d)	**220.** (a)
221. (b)	**222.** (b)	**223.** (b)	**224.** 3	**225.** 0	**226.** (c)				

DATA SUFFICIENCY

1. (c)	**2.** (a)	**3.** (a)	**4.** (a)	**5.** (d)	**6.** (d)	**7.** (c)	**8.** (b)	**9.** (c)	**10.** (b)
11. (a)	**12.** (c)	**13.** (b)	**14.** (d)	**15.** (d)	**16.** (b)	**17.** (b)	**18.** (b)	**19.** (a)	**20.** (c)
21. (d)	**22.** (d)	**23.** (b)	**24.** (a)	**25.** (c)	**26.** (b)	**27.** (a)	**28.** (a)	**29.** (b)	**30.** (b)
31. (a)	**32.** (d)	**33.** (c)	**34.** (a)	**35.** (b)	**36.** (c)				

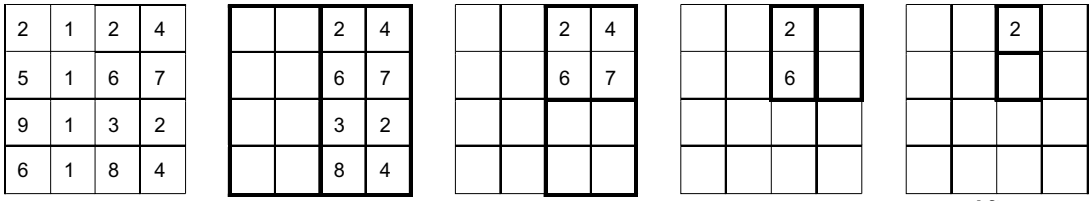
EXPLANATIONS

ANALYTICAL REASONING

1. d X > Y, Z < W and V > Y. If we were to look at all of them we can say that, X,V > Y & W > Z. The first statement gives a uncertain situation using "may", hence we cannot definitely say about the answer. The second statement says, V > W and hence V > Z. This again does not say anything because we do not know whether X>Z or X<Z. Hence, the answer is (d)

For question 2 to 4:

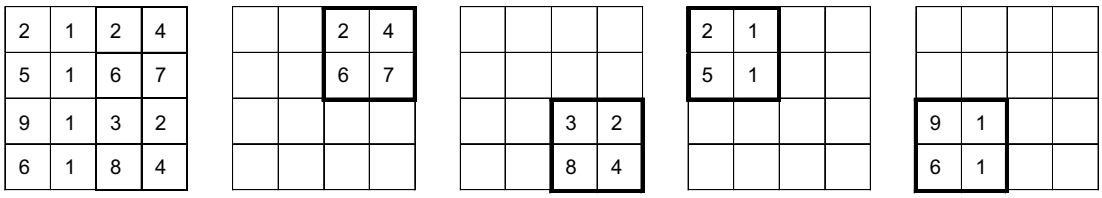
2. c



Since you choose to retain right and then left in your next move, the cells that would hence be retained contain 2,6,3,8. (look at the second grid) Hence, to reduce your gain to minimum, your friend has to retain 2 at the end. So his strategy has to be retain upper and retain upper.

3. b If both of you select the moves intelligently, you would both go for maximising your earnings.

In your first move you have to select either left or right and your friend has to then select either upper or lower. Hence the possibilities could be :



You Move	Your Friend Moves	Integers left for your 2nd move	Minimum gain ensured
(Retain Right)	(Retain Upper)	2, 4, 6, 7	4 (after you move retain right)
	(Retain Lower)	3, 2, 8, 4	3 (after you move retain left)
(Retain Left)	(Retain Upper)	2, 1, 5, 1	2 (after you move retain left)
	(Retain Lower)	9, 1, 6, 1	6 (after you move retain left)

So, if you move (retain right) you ensure a minimum gain of Rs.3 and if you move (retain left) you ensure a minimum gain of Rs.2. Hence if both of you play intelligently, you would first move retain right and ensure a minimum win of Rs.3, irrespective of what your friend moves.

4. a If your first move is (retain right) then the grid will look the same as in Q82. Your friend may hence choose either (retain upper), which will leave you to choose from 2,4,6,7 or he may choose (retain lower), which will leave you to choose from 3,2,8,4. In case he takes the former move, you can then move (retain right) and hence force a minimum gain of 4. But in case he chooses the latter move, you can then move (retain move) and force a minimum gain of 3. In either case you can force a minimum gain of Rs.3

5. b If statement (I) is true, the other 2 should be false. In other words it implies that both Saira and Mumtaz have the ball. This is not possible.

If statement (II) is true, then statements (I) and (III) are false, then Saira and Mumtaz does not have the ball and even Zeenat does not have the ball as she has the pen. This is contradictory.

Hence, the only possibility that is statement (III) is true and (I) and (II) are false. This implies that Mumtaz has the ball, Zeenat has the pencil and Saira has the pen.

6. b The equations can be expressed as :

$J < T$

$J + T = A + D$

$A + T < D + J$

Comparing (i) and (iii), we can see that $D > A$.

If we rearrange the statement (ii) we get : $(T - J) < (D - A)$. In other words the difference between J and T is less than that between D and A. Using this relationship and statement (ii), we can say that the right order is $D > T > J > A$. Hence, the answer is (b).

7. b As Bhanu's total was less than Akila's, Bhanu cannot be the winner. As Ela's and Divya's marks are the same, none of them could be winners. The winner could hence be either Bhanu or Charulata. Now, Akhila got 13 in Coherence. Even if she gets 19 in all of the remaining (as no one got 20 in any 1 head), her total would only be 89. But the winner's total is 90. So Charulata is the winner.

8. c From statement I alone no conclusion can be drawn.

From statement II following sequence of stations is possible

A	C/D	E	C/D	B

But, from I, Mr. Rahman boards the station at D which is possible at fourth position only because Mr. Thomas and Mr. Rahman have no common station.

For questions 9 to 12: If we were to number the houses 1-2-3-4 from left to right, the information given in the question can be depicted as:

Nationality	House Colour	Favourite Drink	House Number
English	Red	Milk	3
Italian	Blue	Tea	2
Norwegian	Yellow	Cocoa	1
Spaniard	White	Fruit Juice	4

Knowing this, we can answer all the questions.

9. a The colour of the Norwegian's house is yellow.

10. b Milk is drunk by the Englishman.

11. b The Norwegian drinks Cocoa.

12. d The only statement that is not true is (d), as the Italian lives in house no. 2 and the Spaniard lives in house no. 4, which are not next to each other.

For questions 13 to 16: The best way to solve these kinds of questions is to assume that one of the statements is either true or false and thus figure out whether there is consistency in what everyone is saying.

13. b Let us assume that John's first statement is true. So his second statement must be false. This implies that Mathew did it. This makes Mathew's first statement false. So the second statement has to be true. This implies that Krishna didn't do it. So Krishna's first statement is true and his second statement is false. Since all the statements are consistent with each other, the assumption made by us should be the correct one. So it is Mathew who stole the boat.

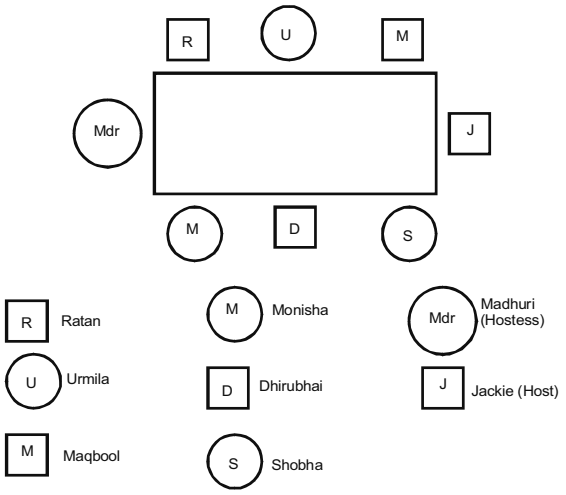
14. b The key here are the statements made by Koik. Since we know that he is wearing a cap, if his first statement is false, then his second statement cannot be true. So his first statement is true and his second statement is false. This implies that Koik is the priest. This makes Lony's second statement false and so his first statement is true. So Lony is Koik's son. This makes Mirna's second statement false and so his first statement is true. So Lony's father is a pilot. Thus, Koik is the pilot. (**Note:** Koik is also the priest).

15. a The first statement of Ram is obviously false, as he is saying that he never speaks to a stranger, when he actually is. So he must be new to those parts. This makes the second statement of Lila false. So she should be married to Ram. This makes the first statement of Ram false. So the left road should take you to the village.

16. b If you observe Charle's statement carefully, you will figure out that his first statement is true and second statement is false. For instance, if his first statement is false, then his second statement cannot be true. There would be inconsistency in what he is talking. So Charles is not the chief. This makes Bobby's second statement false and first statement true. So Bobby is Amar's father and hence, Amar's first statement is false. So his second statement must be true. This implies that the chief is wearing the red shirt. So Bobby is the chief.

17. b Since Akbar likes rain, he cannot be a frisbee player (as no frisbee player likes rain). And since every boy in the school does one of the two, Akbar has to be a fisherman.

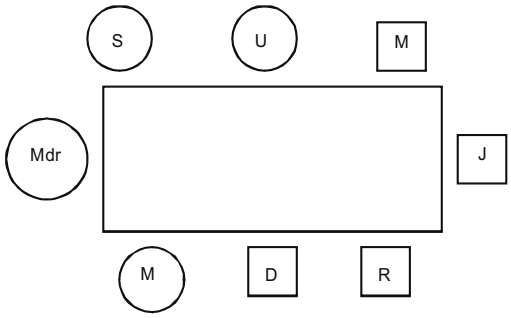
For questions 18 to 21: The correct seating arrangement can be depicted as shown below:



18. c Jackie is the host and also sitting on Shobha's right. Hence (c) is the correct answer.

19. d Shobha is sitting next to Jackie and Dhirubhai. So she is the only person who is not seated next to a person of the same sex.

20. a If Ratan would have exchanged seat with a person four places to his left, which is Shobha, the following arrangement would exist.



The first statement is hence true, since no man is sitting between two woman and no woman is sitting between two man. However statements II and III are not true. Hence the answer is (a).

21. a Among the given choices, only Ratan & Monisha are sitting opposite to each other and hence they must be married.

For questions 22 to 24:

From the given conditions the only arrangements that are possible is

Left Right

Sushmita	Manpreet	Aishwarya	Rachel	Anu
1	2	3	4	5

Left Right

Aishwarya	Manpreet	Sushmita	Rachel	Anu
1	2	3	4	5

22. b If Aishwarya is standing at the extreme left, the latter arrangement holds good. Hence it is Sushmita who is standing in the middle.

23. d Again the latter arrangement holds good. So the girl who is standing second from left is Manpreet.

24. d Under the given condition, following arrangement is possible:

Left Right

Sushmita	Anu	Rachel	Aishwarya	Manpreet
1	2	3	4	5

Hence Rachel is standing on the extreme right.

For questions 25 to 28 :

The first statement suggests : B is now as old as C was in the past. Therefore, B < C. Also sometime in the past, A was twice as old as D. So A > D. C will be as old as E in future. Hence C < E.

The second statement suggests : A > F. A was as old as G in the past. Therefore, A > G. D will be as old as F in future. So F > D. F will be as old as G now in future. This implies G > F. G was as old as B, when A was as old as G. Hence, A = B.

Combining both the results, we get :

E > C > B = A > G > F > D (Note by A = B, it is meant that they are of similar age group, not necessarily the same).

25. b It could be figured out that E is the eldest brother.

26. b D is the youngest brother.

27. c Only A and B could probably be twins.

28. c It could be figured out that only statement (c) is false as B has only 2 elder brothers and not 3.

29. b All the sentences are possible except (b) as Grumbs have to be used with Ihavitoo and Grumbs cannot be used in any other type but Bingoes.

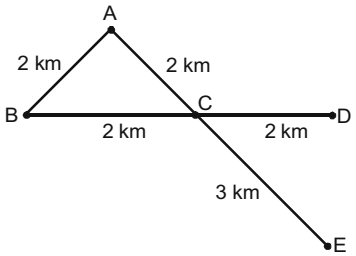
30. d Since Grumbs and Harrumphs are the Bingoes and Grumbs has to always go with Ihavitoo, so we will have to use Ihavitoo as the Cingo. Since statement I is true, the answer can only be (a) or (d). So we will only evaluate the option (d). Since we have not used Koolodo as Cingo, we can use either Lovitoo or Metoo or both as Dingos. Hence, statement III is also true, so the answer is (d).

31. a Option (b) uses two Cingo's instead of one, hence grammatically incorrect. Option (c) violates the same rule again and in addition it uses ihavitoo without using Grumbs. Option (d) again uses two Cingo's instead of one. Hence, the only option that is grammatically correct is (a).

32. b If Grumps is the Bingo, then Ihavitoo must also be used. And since Ihavitoo is common to Bingo and Cingo, Ihavitoo must be used as a Cingo . Also no other Cingo can be used. So obviously Harrumphs

must also be used as a Bingo. And since we are not using Koolodo as Cingo, we can use Lovitoo as Dingo. So (a), (c) and (d) can all be true. So (b) cannot be true.

For questions 33 and 34:



33. a If there is a shop at C, all A, B, C and D are within 2 km range. Another shop is needed for E. Hence, 2 shops are required.

34. a If there is a shop at C; all A, B, D and E are within 3 km range. Hence, 1 shop is required.

35. d P says he can see one black and one white hat. So either Q is wearing white and R is wearing black, or Q is wearing black and R is wearing white. Q also makes same statement. Still we cannot say the colour of the hat which P is wearing.

36. a If P is true, then both Q and R have to be true. For S to be true, either Q or R must be false. Hence, if P is true, S cannot be true.

37. a Since C and D cannot be together, they can occupy either of the following seats: (1st and 3rd), (1st and 4th) or (2nd and 4th). In the last two cases, since B cannot be in the 3rd place, A will have to be there. Thus, we can see that A can never be in the 1st place. Hence, statement (a) is false.

38. c Since neither A nor B can be at 3rd place, this place has to be occupied by either D or C. And if either of them occupies this place, the other one has to occupy the 1st place (since D and C cannot be together). Hence, C can only occupy either 1st or 3rd place.

39. b If A and B are together, but C and D are not, then the only places that A and B can occupy are 2nd and 3rd. And since B cannot be at 3rd place, A has to be at 3rd place.

40. a Amar does not wear red shirt.

Akbar does not wear green shirt.

Anthony does not wear blue shirt.

Since Akbar and Anthony wear same colour, it can neither be green nor blue.

Hence, option (a) is false.

41. b If two of them wear the same colour, the following six combinations will exist: since Amar does not wear red, he can either wear blue or green. In either case, the remaining two will have to wear red, Akbar does not wear green, and Anthony does not wear blue. This gives the combinations 1 and 2 below. Similarly, the other combinations can be worked out.

42. b Ms Maharashtra was wearing white. Since Ms West Bengal was not the runner-up, she was not wearing green and neither was Ms Andhra Pradesh. Hence, it was Ms Uttar Pradesh who was wearing green saree. So red could have either be worn by Ms West Bengal or by Ms Andhra Pradesh. Now participants wearing yellow saree and white saree were at the ends, but Ms West Bengal did not occupy any of these positions. Hence, it can be concluded that Ms Andhra Pradesh sat at one of the ends and wore yellow, while Ms West Bengal wore red.

43. c From the previous answer it can be concluded that Ms Maharashtra and Ms Andhra Pradesh occupied the seats at the end. So Ms West Bengal and Ms Uttar Pradesh, should occupy middle two seats. So the answers could be either (b) or (c). It can further be concluded that since Ms Andhra Pradesh wore yellow, she was the winner and since Ms Uttar Pradesh wore green, she was the runner-up. So these two cannot sit together. Option (b) would contradict this. Hence, (c) is the only option left.

44. a From answer to question 43, it can be seen that Ms Andhra Pradesh had worn the yellow saree.

45. c From answer to question 43, it can be seen that Ms Uttar Pradesh was the runner-up.

46. a It can be seen that each of the 26 players played 25 matches. Since none of the matches ended in a draw, the scores for each of the players has to be even (since a win gives 2 points). So the highest score possible for a player would be 50 and the lowest would be 0. Since all 26 of them had different scores varying between 0 and 50, the scores should indeed be all the even numbers between 0 and 50. And since the ranks obtained by players are in alphabetical order, it can be concluded that A scored 50, B scored 48, C scored 46 and so on and Z scored 0. Now the only way A can score 50 is, if he wins all his matches, i.e. he defeats all other players. Now B has scored 48. So he has lost only one of his matches, which incidentally is against A. He must have defeated all other players. Similarly, C has scored 46 matches. So he must have lost two matches, (i.e. to A and B) and defeated all other players. So we conclude that a player whose name appears alphabetically higher up in the order has defeated all the players whose name appear alphabetically lower down.

Hence, M should win over N.

47. a The issue at hand is to make C_2 identify in which envelope is the letter L_2. The first statement actually tells him this. Hence, it alone is sufficient to answer the question. The second statement only implies that his letter would be in either E_1, E_2 or E_4 and hence is not sufficient to answer the question.

48. a From the question itself, we can figure out that book 4 can either be in rack 1 or rack 3. The first statement says that book 2 has been kept in rack 3. Hence, book 4 has to be kept in rack 1. So this statement is sufficient to answer the question. The second statement, however, does not add any additional information to what we already know. As books 3 in rack 2 would still imply book 4 can be in rack 1 or 3.

49. c Test the boxes labelled — Red and White.

Now if the ball is Red, label the box — Red

Now the box which has the label White is either Red or Red and White.

However, it cannot be Red.

Hence, it is Red and White.

The last box is White.

50. d According to the given conditions, either Mrs Border or Mrs Dennis can sit to the right of Mr Abraham. It can't be Mrs. Elmer as she sat two places to the right of Mrs. Border.

For questions 51 and 52:

D, a lawyer is married to A, a housewife.

C, an accountant is married to F, a lecturer.

E is not a housewife.

Hence, E is an architect and B is a housewife.

Also, any lady is neither an architect nor an accountant

A	Lawyer	Male
B	Housewife	Female
C	Accountant	Male
D	Housewife	Female
E	Architect	Male
F	Lecturer	Female

For questions 53 and 54:

If the positions from left to right are 1 to 7

A and G take up positions 6 and 7

B takes up position 4

C and D are in places 1 and 5, so that they are as far as possible.

E and F are in positions 2 and 3.

1	2	3	4	5	6	7
C/D	E/F	F/E	B	D/C	A/G	G/A

55. d

A	B	C
1 + 1	1 + 1 + 2	1 + 1
3	3	2

Statement I: As C added up two numbers correctly, he is not a mathematician. However, from the given information, it is not necessary that any person who adds up two numbers incorrectly is a mathematician. Therefore, A or B may or may not be mathematicians.

Hence, statement I alone is not sufficient.

Statement II: If a mathematician makes a mistake in a sum, the error is +1 or -1. But it doesn't implies that if a person makes an error of +1 or -1, he is a mathematician.

Hence, statement II alone is not sufficient.

Even on combining the two statements, we cannot conclude anything concrete.

56. c From I, we know A and B passed the examination.

From II, we know the condition that among C and D at least one passed (or both passed) is false.

Therefore, it is obvious that both C and D have failed. Thus, both statements are necessary to find the answer.

57. d Statement I gives us the number of white flowers. But we know that a white seed gives both red or white flowers. Thus, proving statement II, gives the number of red flowers. But both black and white seeds give red flowers, again providing no solutions.

58. b The initial water in bottles A, B and C are 5 L, 0 L and 0 L respectively.

First instruction. FILL (C, A) means that 2 litres is transferred from A to C (leaving 3 litres A, and C is full)

Third instruction FILL (C, A) again means some water is transferred from A to C.

After the third instruction, 1 litre of water is left in bottle A.

Option (a) is not possible because if it were executed, there would not be any water left in A for executing the third instruction of FILL(C,A).

Option (b) is possible because C is emptied out and when third instruction is followed, of the 3 litres left in A (at the end of first instruction), two litres are transferred to C leaving only 1 litre in A.

Option (c) can be eliminated because, there was no water in B.

Option (d) is not possible because had it been executed, there would not be any water left in A for executing the third instruction.

59. c The first four instructions are:

1st : FILL (C, A)

2nd : EMPTY (C, B)

3rd : FILL (C, A)

4th : DRAIN (A)

Fourth instruction drains off 1 liter from A and the quantities with A, B and C at the end of 3rd instruction is 1 L, 2 L and 2 L respectively.

Amount of water in the system after 4th instruction = 5 – 1 = 4 L

If at the end of the 6th instruction, all the 4 L are in A, then B and C will definitely be empty.

60. d Shift 1, 2, 3 to the second table. Bring back 2, 3 to the first table. Take 3 only to the second table and finally shift 2 to the second table.

61. c There shall be 8 teams in each group. Each team in a group shall be playing with every other team. Hence, total number of matches shall be $\frac{(7\times 8)}{2} = 28$ in one group. Hence, in both the groups, there shall be 56 matches. This is for the first stage. Thereafter, there are 8 teams in knockout rounds from which one winner emerges, or 7 losers are identified.

Hence, 7 more matches, i.e. in all 63 matches.

62. b In the first stage, there are 28 matches to be played by each group of 8 teams and eventually 4 from each group moved into second stage.

7 teams can win 4 matches each. Then, three of them will be eliminated on the basis of tiebreak rules. This doesn't assure any team a place in the second stage.

5 teams can win 5 matches each and there can be 3 more matches won by the remaining teams. Then, one of the teams winning 5 matches will be eliminated on the basis of tiebreak rules. This also doesn't assure any team a place in the second stage.

4 teams can win 6 matches and there can be 4 matches won by the remaining teams. This will guarantee a place for each team winning 6 matches a place in the second round.

63. * In order to maximize the number of wins of a team which would be eliminated at the end of first stage, we minimize the number of wins in the bottom 3 teams. The bottom 3 teams will play ${}^3C_2 = 3$ matches among themselves (i.e. there will be 3 wins). So the remaining wins (28 – 3) = 25 must be divided among top 5 teams, such that the 5th ranked team wins the maximum and yet fail to qualify for the second round. This is possible if each of the top 5 teams win an equal number of matches, i.e. $\frac{25}{5} = 5$. Hence, the 5th ranked team can win a maximum of 5 matches and would get eliminated at the end of first stage on the basis of tiebreak rules.

*** Note:** The answer given in the answer key of 'CAT 2001 Bulletin' is incorrect. Ideal answer should be 5 wins.

64. c There are 8 teams. Hence, there would be 7 matches in 3 rounds.

65. c Statement 1 is false. Consider a case where the points scored by the top three teams were 7, 6 and 5. Rest of the 10 points were distributed equally among the remaining five teams with 2 points to each. Any one of these five teams could have won the tournament with total of 5 wins.

Statement 2 is false, as only the top four teams were advanced to the stage II.

Statement 3 is true. Consider a case where five different teams of the same group got 5 points each. Also, a team with 2 points in the different group of stage I won could have won the tournament with total of 5 points.

Statement 4 is false as the number of teams with exactly one win in stage II is 2.

66. a Since yellow is between green and red, it should be house number 2 or 3. Also green is adjacent to blue house, it should have blue and yellow house on either side. Hence, the following table can be constructed.

House number	1	2	3	4
Colour	Blue	Green	Yellow	Red
Occupant	X		Z	

or

House number	1	2	3	4
Colour	Red	Yellow	Green	Blue
Occupant		Z		X

Since X does not live adjacent to Z, it has to live in blue house.

67. c The ratio of points for carrying books of various subjects is:

Management : Mathematics : Physics : Fiction = 4 : 3 : 2 : 1

Since the points are to be maximized, the number of books that Ramesh should carry in descending order is management, mathematics, physics and fiction.

The ratio which Ramesh has to maintain is:

Management : Fiction < 1 : 2,

Mathematics : Physics < 1 : 2.

This means that a combination of management and fiction books in the ratio of 1 : 2 will give 6 points while a combination of mathematics and physics books in the ratio of 1 : 2 will give 7 points, hence, Ramesh should carry the following combination of books to maximize the points; management 1, mathematics 2, physics 5 and fiction 2, a total of 22 points.

68. b The following table can be created using the data given.

Persons	P	M	U	T	X
Colour choice	Blue and Red	Yellow	Red and Blue	Black	
Stays in					Hotel
Does not stay in	Palace		Palace	Palace	

Since X stays in a hotel and P or U or T cannot stay in a palace, M stays in palace.

69. c The attendants of X, Y and Z are to be Mohan, Jack and Rita. The animals under Mohan's care is given in the data. Since Jack does not attend to deer, lion and bison, the following table can be created using the data given.

Attendants	Mohan	Jack	Rita
Animals	Lion and Panther	Bear and Panther	
Enclosure	X	Y	Z

Name	Mohan	Jack	Rita	Shalini	Suman
Animals	Lion and panther	Bear and panther	Deer and bison	Lion and bear	Deer and bison
Cage	X	Y	Z	Q	P

The data for Mohan and Jack can be filled directly. Similarly, X, Y, Z can be filled directly from data given. The key after filling in these animals is that Z and P have the same pair of animals, the only option is deer and bison.

70. b By trial and error, we can make different combinations and find the cost. Like 20 kg × 2 + 10 kg × 4, the cost would be Rs.180. The minimum cost comes in the case of 10 kg × 8, i.e. Rs.160.

71. d We can see that the flow from Vaishali to Jyotishmati is 300 whereas demand is 400, so the deficit 100 will be met by flow from Vidisha. Again, the demand of 700 in Panchal is to be met by flow from Jyotishmati which can get it from Vidisha.

Thus, the quantity moved from Avanti to Vidisha 200 + 100 + 700 = 1000

72. d Free capacity at Avanti-Vaishali pipeline is 300, since capacity of each pipeline is 1000 and demand at Vidisha is 400 and 300 flows to Jyotishmati.

Thus, free capacity = {1000 – (400 + 300)} = 300

73. d Free capacity in Avanti-Vidisha is zero. Explanation is similar as in previous answer.

74. c Sati-Savitri starts at the earliest.

So we view it first.

(1) Sati-Savitri — 9.00 a.m. to 10.00 a.m.

(2) Veer Abhimanu — 10.00 a.m. to 11.00 a.m.

(3) Jhansi Ki Rani/Sundar Kand — 11.00 a.m. to 11.30 a.m.

(4) Joru Ka Ghulam — 11.30 a.m. to 12.30 p.m.

Now lunch break from 12.30 p.m. to 1.30 p.m.

At 1.30 p.m. he can takes the show of only Jhansi Ki Rani so it cannot be viewed at 3rd.

(5) Jhansi Ki Rani — 1.30 p.m. to 2.00 p.m.

(6) Reshma aur Shera 2.00 p.m. to 3.00 p.m.

Hence, option (c) is best.

75. c Three children Vaibhav, Suprita and Anshuman.

Vaibhav > Suprita

↓

(Born in April)

One of children is born in September, but it is not Vaibhav, so it has to be Anshuman.

So Vaibhav is born in June and is 7-year-old. Vaibhav is 7-year-old and Anshuman is not 4-year-old.

So Suprita is 4-year-old.

Youngest child is 2-year-old and it has to be Anshuman.

Vaibhav > Suprita > Anshuman

(June, 7 years) (April, 4 years) (Sept., 2-year-old)

Hence, (c) is the answer.

76. c We can find out the time for lunch of respective families from the table below:

Family/Time	12:00	1:00	2:00
Sharma	✓		
Banerjee			✓
Pattabhiraman	✓		

Fried brinjal → Chinaware

Sambar → White Chinaware

Makkai-ki-roti → Red Chinaware

The family that eats at 1 o'clock serves fried brinjal, hence Pattabhiraman serves fried brinjal.

The family that eats last like makkai-ki-roti so Banaerjees like makkai-ki-roti. Sharmas are left with sambar.

Sharma - 12:00 - Sambar - White

Pattabhiraman - 1:00 - Fried brinjal - Blue

Bannerjees - 2:00 - Makkai-ki-roti - Red

Hence, (c) is the best option.

77. b We start making one true and other false.

Case I

	T	F
Shopkeeper 1:	Black hair	Long tail
	T	F
Shopkeeper 2:	Short tail	Wore a collar
	T	F
Shopkeeper 3:	White hair	No collar

Case II

	T	F
Shop keeper 1:	Black hair	Long tail
	T	F
Shop keeper 2:	Short tail	Wore a collar
	T	F
Shop keeper 3:	White hair	No collar

Both the cases are correct, and hence, we see only option (b) is correct.

78. b Elle is 3 times older than Yogesh and Zaheer is half the age of Wahida.

If Wahida is 2x-year-old, then Zaheer is x.

Now Yogesh > Zaheer

$\Rightarrow$ Yogesh > x

Elle is 3 times older than Yogesh.

This implies Elle is older than Wahida as 3x > 2x.

Alternative method:

$$E = 3y \quad ...(i)$$

$$z = \frac{w}{2}, \text{ or } 2z = w \quad ...(ii)$$

y > z , implies 2y > 2z implies 2y > w from (ii)

Now, if 2y > w

3y > w, i.e. E > w from (i)

Hence, Elle is older than Wahida.

79. c From (a) Zaheer is 10-year-old means Wahida is 20-year-old. From (b) Yogesh and Wahida are older than Zaheer by same number of years.

This means Yogesh is 20-year-old. Now Elle is 3 times older than Yogesh.

Elle is 20 × 3 = 60-year-old.

Hence, we see that both (a) and (b) statements are needed so the answer is (c).

80. b Checking from options,

(a) David, Rama and Rahim

Ram would like to be in the group only if Peter is there, so it is not feasible.

(b) Peter, Shyam and Rahim want to be selected together and none of them have problem or any conditions, hence feasible.

(c) Since Shyam is there, Rahim has to be but he is not also Fiza is not there which David insists so not feasible.

(d) Since Peter is not there Ram would not prefer that group, hence not feasible.

81. c Looking at options, we see (c) is best as Shyam and Rahim is selected and Fiza is there when David is selected.

In (a) we see Shyam is not there with Rahim.

In (b) Fiza is not there with David.

In (d) Peter and David cannot go together as David would not like Peter in the group.

82. d In Ist option — Kavita is in the group means David is there and David would not like Peter in the group, whereas Ram would like to be in the group if Peter is there so the statement cannot be true.

2nd option — If David is there, then only the group will have both women Kavita and Fiza, but in that case we see none of the rest could be the fourth person as Shyam and Rahim has to be together and Ram would be if Peter is there and David would not like Peter in the group, hence statement is false.

3rd option — It is not possible as Ram cannot go with Shyam and David with Peter.

So none of the above statements are true.

83. b Let S = spotted, NS = Non-spotted

There are 50 coloured leaves and is given as red and non-red.

We make the following table. Let 2n be number of red oak leaves where n is any natural number.

Oak				Maple			
Red		Non-red		Red		Non-red	
S	NS	S	NS	S	NS	S	NS
2n	x	10n	0	6	x	0	22

Now we have $2n + x + 10n + 6 + x + 22 = 50$

$\Rightarrow 12n + 2x = 22$

It is possible for only $n = 1, x = 5$

($\because$ n is not greater than 1)

Hence, number of oak leaves $= 2 \times 1 + 5 + 10 \times 1$

$= 17$

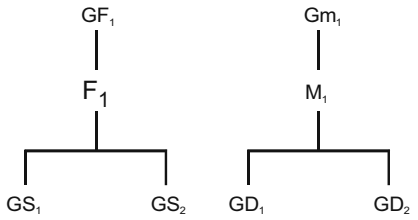
84. c O, P, Q and R carried on motorcycles M_1, M_2, M_3 and M_4 respectively. So

O	P	Q	R
M_1	M_2	M_3	M_4
F	E	A + G	C
B	D		H

Since B cannot be with R so it will go with O that is only left.

Hence, C and H will go together in M_4 with R.

85. b



Thus, we have 2 grandfathers: GF_1, GF_2

4 fathers: GF_1, GF_2, F_1 and F_2

2 grandmothers: GM_1, GM_2

4 mothers: GM_1, GM_2, M_1 and M_2

Hence, minimum number will be 12.

86. b We have packages as follows:

3 item (D + 2B) = Rs.40 + Rs.180 = Rs.220 ... (i)

2 item (A + C) = Rs.180 ... (ii)

4 item (E + 2D + B) = 45 + 50 + 90 = Rs.215 ... (iii)

The combinations of purchase possible are:

Case 1: 220 × 4 = Rs.880

Points: 12 × 1000 – 120 × 1500 = – 1,68,000

Case 2: 180 × 5 = Rs.900

Points: 10 × 1000 – 100 × 1500 = – 1,40,000

Case 3: 215 × 4 = Rs.860

Points:16 × 1000 – 140 × 1500 = – 1,94,000

Case 4: 2(220 + 180) + 180 = Rs.980

Points: 12 × 1000 – 20 × 1500 = – 18,000

Case 5: 2(220 + 215) = Rs.890

Points : 14 × 1000 – 110 × 1500 = – 1,51,000

Case 6: 2(215 + 180) + 180 = Rs.970

Points :14 × 1000 – 30 × 1500 = – 31,000

By seeing the above figure, we see that we maximize the point in last case when purchase is 14 item for Rs.970.

87. b Bashir < Chirag.

Now Chirag borrows Rs. 300 and Bashir Rs. 100 from Ashok. Ashok buys 3 shirt so he must have at least Rs. 1,000.

Bashir is left with no money after buying a sweater and he had to borrow Rs.100 from Ashok which means he had Rs. 500 with him.

Ashok must have less than Rs. 1,500 and he has three times the money with Deepak.

So Deepak cannot have Rs. 300 because Ashok must have Rs.1,000. Again, Deepak cannot have Rs. 500 because Ashok should have less than Rs.1,500.

So Deepak has Rs. 400 for which he can purchase the shawl which is the costliest.

88. b

W1			**W4**	
Rupa	**Radha**	**Renuka**	**Ruchika**	**Ritu**
Sonali		**Rupali**	**Somya**	**Tara**
Shalini		**Komal**	**Sweta**	
Shubhra			**Jyotika**	
Shahira				**Deepika**
Amita	**Elina**	**Chandrika**	**Babita**	

Hence, Elina is the instructor of Radha.

89. d

	Fishing	Smoking	Drinking	Gam-bling	Mount-aineer-ing
Likes	M_1 M_6	M_1 M_2 M_8	M_2 M_5	M_3 M_7 M_8	M_4 M_7
Dislikes	M_2 M_7	M_3 M_5 M_6	M_4	M_1	M_5 M_6 M_8

Going by options, we have:

(a) M does not hate at least one of the liking of any of the other 3 persons selected.

(b) None of person shares the liking of at least one of the other selected.

(c) None of the person shares a liking with at least one of the other three selected.

(d) M_1 shares liking with M_2 and vice versa.

M_4 shares liking with M_7 and vice versa.

M_1, M_2 dislikes M_7 liking.

M_4, M_7 dislikes M_2 liking.

Hence, the answer is option (d).

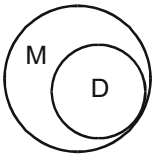
90. a $X = M.D = M \cap D$

$X = D$

$M \cap D = D$

$\Rightarrow D \subset M$

Thus, all dogs are mammals.



91. c $Y = F \cap (D \cap V)$ is not a null set means some F's are D's and sum D's are V's .

This implies some fish are dogs.

92. a $Z = (P \cap D) \cup M$

$P \cap D$ means Pluto, the dog.

$(P \cap D) \cup M$ means Pluto, the dog or any other mammal.

93. c $P.A = \phi$; $P \cup A = D$

$P \cap A = \phi$ means no alsatian is Pluto or Pluto is not an alsatian where dogs are composed of alsatian or Pluto or both.

94. c Statement I tells us that

(1) Ashish is not an engineer, (2) Ashish got more offers than the engineers.

Hence, Ashish did not have 0 offers.

After this the following table can be achieved.

Profession	Names		Offers			
		3	2	1	0	X Profession
CA	Ashish	×	×	✓	×	X Engineer
MD	Dhanraj	✓	×	×	×	X Engineer
Economist	Sameer	×	✓	×	×	
Engineer		×	×	×	✓	

From statement IV, Dhanraj is not at 0 and 1.

95. d Option (c) is ruled out by statement VII.

Option (a) is ruled out by statements VII and VIII.

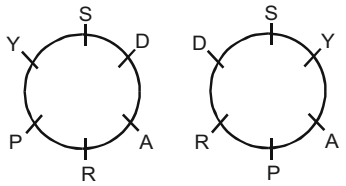
From statement IV, Sandeep had Rs. 30 to start and Daljeet Rs. 20.

From statement II, option (b) is not possible as Sandeep was left with Re 1, he spent Rs. 29. But according to (b) he spent Rs. 1.50 more than Daljeet. But Daljeet had only Rs. 20. Hence, option (d) is correct.

96. d Data insufficient, please check the question.

97. c Statements V and VI rule out options (a) and (b). Since contestants from Bangalore and Pune did not come first, school from Hyderabad can come first. Convent is not in Hyderabad which rules out option (c).

98. c



Suresh is sitting to the left of Dhiraj.

For questions 99 to 102:

The key to cracking this question is to follow the simple fundamentals in Analytical Reasoning of going 1 line at a time and making a simple table

Arrival Order	Husband	Wife	Kids
1		Joya	2
2		Shanthi	0
3		Sridevi	
4	Sunil		1

Sentence 1 – Family with 2 kids before no kids

Sentence 2 – Shanthi with no kids came before Sridevi

Sentence 3 – Sunil and wife came last with only kid

Sentence 4 – Anil and Joya not husband and wife

Sentence 5 – Anil and Raj are fathers – hence cannot be the family with no kids

Sentence 6 – Sridevi and Anita cannot be the persons with no kid

Sentence 7 – Anil and Joya not husband and wife

Sentence 8 – Joya before Shanti and Anita was already present.

Using the above informations, Anil and Raj cannot be married to Shanthi as Shanthi has no kids. Hence, Sunil has to be married to Sridevi (not with Joya already stated) and Raman with Shanthi.

Arrival Order	Husband	Wife	Kids
1	Anil	Anita	1
2	Raj	Joya	2
3	Raman	Shanthi	0
4	Sunil	Sridevi	1

For questions 103 to 106:

JC came in first and the next 2 people were SS and SM. When he left, DG left with him. JP and VR stayed behind.

Entry	Exit	Met
JC → SS → SM	JC and DG	JP and VR
JP and VR together		JC and one more person

SS left immediately after SM.

PK only met JP and DG.

The key to this question is that when JP and VR entered apart from JC there was only one other person. This could not have been SS or SM as they came and left together. Hence, this would have to be DG.

Hence, DG came 4th, before JP and is the answer to both 143 and 144.

Now for Qs 145, we need to see how many people VR met. Both SS and SM had already left and JC and DG were sitting. He entered with JP eliminating 2 and 5 from our answer choices. Since PK did not meet VR, the answer is 3 and not 4.

For questions 107 to 110:

	D	A	F
Entrance	Corridor		
	C	E	B

107. c If E faces the corridor, person to his left is C.

So the answer is (c).

108. d According to figure, E faces A's office.

So the answer is (d).

109. a According to figure, F's neighbour is A.

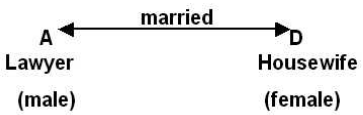
So the answer is (a).

110. b According to figure, B's room is last on the right.

So the answer is (b).

For questions 111 to 112:

Since the Housewife D is married to the Lawyer and A is married to a Housewife, D and A is the other married couple.



Since E is not the Housewife, it implies E is an Engineer and B is a Housewife. As no Engineer is female, E is a male. So the male members in the group are A, C and E and the female members are B, D and F.

111. d

112. a

113. b

For questions 114 and 115:

If D gets portfolio, F does not or vice-versa.

C wants only Home or Finance or none.

If D gets Power, B must get Telecom or if D gets Telecom, then B must get Power.

If A gets a portfolio, E should get the same.

114. b (a) gets eliminated because C can have either home or finance.

(c) gets eliminated because F and D cannot be in the same team.

(d) gets eliminated because C cannot have telecom portfolio.

Hence, (b) is correct.

115. d B-Defence, D - Telecom because if D gets Telcom then B must get Power.

116. b AVOCADO paint is mixture of ORANGE and PINK in equal quantities.

If ORANGE is made using RED and YELLOW, then the cost of ORANGE would be $\frac{20+25}{2} = 22.5$ which is greater than the cost of the ORANGE.

If we make PINK by RED and WHITE, the cost of PINK would be $\frac{20+15}{2} = 17.5$ which is less than the cost of the PINK paint.

Hence, the cost of the AVOCADO is $\frac{22+17.5}{2} = 19.75$

117. d Mixing equal amounts of ORANGE and WHITE can make WASHEDORANGE, ORANGE can be made by mixing equal amounts of RED and YELLOW. So the ratio of RED, YELLOW and WHITE is 1 : 1 : 2

118. b If cost of AVOCADO paint is Rs.19.75

The cost of the CREAM is $\frac{7\times 15+3\times 75}{10} = \text{Rs. } 18$

And cost of WASHEDORANGE is Rs.18.50

So CREAM is the most profitable.

For questions 119 to 121:

1	2	3	4	5	6	7
C			B	D	A	G
D			B	C	A	G
C			B	D	G	A
D			B	C	G	A

119. c From given options, F is the only possibility.

120. d If we look at the options, D and G can sit together. C and F can sit together B and D can sit together. Hence, E and A is the only option which is not possible.

121. c E and G is the only possibility.

For questions 122 to 125: For solving these questions make a table like this:

	Africa	America	Australasia	Europe	
L	0	1	1	1	**3**
H			1	1	**6**
P			2	1	**6**
R			1	1	**6**
	4	**8**	**5**	**4**	**21**

(i) As the labour expert is half of each of the other, so the only possible combination is:

L – 3
H
P] 6 each
R

(ii) Statement (d): If the number of Australasia expert is 1 less, i.e. total export are 20 American be twice as each of other. The only combined possible is Americas = 8.

Australasia = 4 + 1 = 5

Europe = 4

Africa = 4

Now, we need to workout the various options possible in the blank cells.

	Africa	America	Australasia	Europe	
L	0	1	1	1	**3**
H	2	2	1	1	**6**
P	1	2	2	1	**6**
R	1	3	1	1	**6**
	4	**8**	**5**	**4**	**21**

	Africa	America	Australasia	Europe	
L	0	1	1	1	**3**
H	1	3	1	1	**6**
P	1	2	2	1	**6**
R	2	2	1	1	**6**
	4	**8**	**5**	**4**	**21**

	Africa	America	Australasia	Europe	
L	0	1	1	1	**3**
H	1	3	1	1	**6**
P	2	1	2	1	**6**
R	1	3	1	1	**6**
	4	**8**	**5**	**4**	**21**

For questions 126 to 129:

Germany has won both their matches, so possible winning combinations in first two rounds is

R1 : Won 1 - 0 and R2: Won 2 - 1

Or

R1 : Won 2 - 1 and R2: Won 1 - 0.

Argentina must have won R1 and R2 by 1 - 0.

If Germany won by 2 - 1 in R1 vs Spain, Spain won in R2 by 4 - 0, and if Germany won 1 - 0 in R1, then Spain won 5 - 1 in R2.

Since only New Zealand and South Africa conceded 4 or more than 4 goals, then Spain must have played either one in R2.

If Spain won 4 - 0 in R2 vs South Africa, then South Africa must win R1 by 1 - 0, which is a contradiction to the fact that South Africa has lost both R1 and R2. Also, Spain can never win 5 -1 vs South Africa in R2 (goals conceded by South Africa is 4).

Therefore, Spain won against New Zealand in R2.

Germany:

R1	vs	Spain	Won 2 -1	or	1 - 0
R2	vs	SA/Pak	Won 1 - 0	or	2 - 1
R3	vs	Arg	Draw		

Spain:

R1	vs	Germany	Lost 1 - 2	or	0 - 1
R2	vs	NZ	Won 4 - 0	or	5 - 1
R3	vs	Pak	Draw		

New Zealand:

R1	vs	Arg/Pak	Lost 1 - 2	or	0 - 1
R2	vs	Spain	Lost 0 - 4	or	1 - 5
R3	vs	SA	Draw		

Looking at the table, the only possible outcomes for Pakistan in the first two rounds are 2 -0 win and 0 - 1 loss.

In R1, New Zealand cannot lose 1 - 2 since Argentina conceded no goals and Pakistan's only loss was by a margin 0 - 1.

Therefore, NZ lost R1 0 - 1. This score is possible only if its opponent is Argentina. Consequently, NZ lost 1 - 5 in R2 vs Spain. Hence, Spain must have lost 0 - 1 to Germany.

The above information can be finally summarised as:

Germany:	R1	vs	Spain	Won 1 - 0
	R2	vs	SA	Won 2 - 1
	R3	vs	Arg	Draw
Spain:	R1	vs	Germany	Lost 0 - 1
	R2	vs	NZ	Won 5 - 1
	R3	vs	Pak	Draw
New Zealand:	R1	vs	Arg	Lost 0 - 1
	R2	vs	Spain	Lost 1 - 5
	R3	vs	SA	Draw
Pakistan:	R1	vs	SA	Won 2 -0
	R2	vs	Arg	Lost 0 - 1
	R3	vs	Spain	Draw
Argentina:	R1	vs	NZ	Won 1 - 0
	R2	vs	Pak	Won 1 - 0
	R3	vs	Germany	Draw
South Africa:	R1	vs	Pak	Lost 0 - 2
	R2	vs	Germany	Lost 1 - 2
	R3	vs	NZ	Draw

126. d

127. b

Additional information for Q.128-129:

* The given data set for rounds 4 and 5 appears to be inconsistent because from statements (a), (b) and (c) it is evident that four teams namely Spain, Argentina, Germany and Pakistan won their fifth round matches whereas the maximum possible wins in any round is only 3.

128. d

129. d

For questions 130 to 134:

From statement one, team would include exactly one among P, R, S

$\Rightarrow$ P (or) R (or) S.

From statement two, team would include either M, or Q

$\Rightarrow$ M but not Q

(or) Q but not M

From statement three, if a team includes K, it will include L or vice versa.

$\Rightarrow$ K, L always accompany each other.

From statement four, if one of S, U, W is included, then the other two also have to be included.

$\Rightarrow$ S, U, W are always together.

From statement five, L and N cannot be included together

$\Rightarrow$ L, N are never together.

From statement six, L and U cannot be included together.

$\Rightarrow$ L, U are never together.

130. a From statements one and two;

one of P, R, S and

one of M, Q are to be selected. We require one more member.

But from statement three; (K, L) are always together.

Hence 'L' cannot be included in a team of 3 members.

131. c Again, from statement one;

one of P, R, S has to be selected.

To make a team of '5'

'S' will be chosen (which leaves out P and R)

$\Rightarrow$ If 'S' is chosen 'U' and 'W' have to be chosen (statement four)

$\Rightarrow$ If 'U' is chosen 'L' cannot be chosen (statement five)

$\Rightarrow$ K cannot be chosen (statement three)

And from statement two; one of M (or) Q has to be chosen.

132. d From statements one and two

Two members are to be selected.

Of the remaining seven;

To maximize the size of the team.

We would chose S,

$\Rightarrow$ U and W are included in the team (statement four)

We cannot include K (or) L because we would then have to leave out N and U (from statements five and six)

133. e If 'K' is included, 'L' has to be included (statement (3))

If 'L' is chosen, neither N nor U can be chosen (statements (5) and (6))

$\Rightarrow$ S, W are also not included because S, U, W have to be always together. (Statement (4))

Hence one of P (or) R would be selected (statement (1)) and one of M (or) Q would be selected (statement (2))

(K, L) and two of the above five have to be included.

134. e If a team includes N, it cannot include 'L',

and therefore, not even 'K'. (from statement five and three)

According to statement (1), one of P or R or S has to be included.

According to statement (2), one of M or Q has to be selected.

So the following cases are possible

P Q N,

R Q N

P M N,

R M N

If 'S' is selected, then S U W M N and S U W Q N are the only possible cases.

Hence, in all 4 + 2 = 6 teams can be constituted.

For questions 135 to 139:

As only Paul Erdös was having an Erdös number of zero, so the minimum Erdös number among A, B, C, D, E, F, G, H should be 1 or greater than one. At the end of the third day, F co-authored a paper with A and C. F had the minimum Erdös number among the 8 people. So if F's Erdös number is y, then A and C's Erdös number should change to (y + 1) after third day. As A and C decreased the average by maximum possible extent, it means C had the second-height Erdös number among all eight, as A had an Erdös number of infinity. Suppose Erdös numbers of A, B, C, D, E, F, G, H are y + 1, b, y + 1, c, d, e, y, g, h respectively at the end of third day.

$\therefore$ (y + 1 + b + y + 1 + c + d + e + y + g + h) = 24 = (3 × 8)

$\Rightarrow$ 3y + 2 + b + d + e + g + h = 24

When E co-authored with F, the average Erdös number reduced again, it means, E's Erdös number was not the same with A & C initially. As at the end of third day, 5 people had same Erdös number, they should be A, C and any 3 out of B, D, G, H. Suppose those 3 people are B, D, G. Then

(3y + 2 + y + 1 + y + 1 + y + 1 + e + h) = 24

$\Rightarrow$ 6y + h + e = 19 …(i)

On the fifth day, E co-authored a paper with F and hence, Erdös number of E changed to (y + 1). Also the average decreased by 0.5 which means the total decreased by 4.

Hence, e - (y + 1) = 4

$\Rightarrow$ e – y = 5

Putting the value of e in equation (i), we get

6y + h + (5 + y) = 19

$\Rightarrow$ 7y + h = 14

Only possible value of y = 1 as h cannot be zero.

So after 3rd round Erdös number of A, C, E, F were 2, 2, 6, 1 respectively.

135. d Only A, C, E changed their Erdös number, rest 5 did not change their Erdös number.

136. b At the end of conference 6 people including E were having an Erdös number of 2 and F was having 1 as Erdös number. So 8th person was having an Erdös number of [20 – (2 × 6 + 1)] = 7

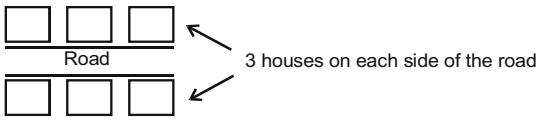
137. b At the end of 3rd round, 5 people were having same Erdös number. A and C changed their Erdös number after coauthoring with F. So, the other 3 will have same Erdös number in the beginning.

138. b 2

139. c After co-authoring with F, E was having Erdös number of 2, which was 4 less than initial Erdös number of E. So answer is 2 + 4 = 6.

For questions 140 to 142:

The given information can be depicted as follows.

(i) 

(ii) Six houses – P, Q, R, S, T, U

(iii) Colours – Red, Blue, Green, Orange, Yellow, White

(iv) Different heights

(v) T = tallest & opposite to Red

(vi) Shortest opposite to Green

(vii) U = orange & the position of U is: P/S U S/P

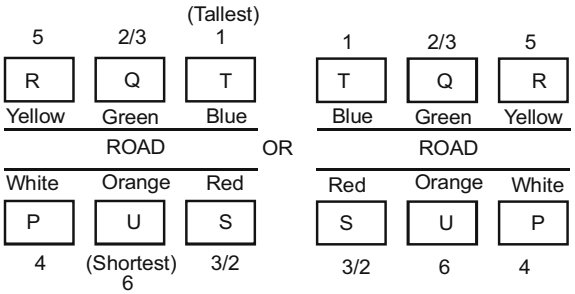
(viii) R = yellow & opposite to P

(ix) Q = Green & opposite to U

(x) P = White & (S, Q) > P > R (in height)

From (iv), (v), (vi), (ix) & (x), T > (S, Q) > P > R > U in terms of height

From (iv), (vii), (viii), (ix) & (x), we get the following two cases.



140. d Diagonally opposite to yellow is red.

141. e Second tallest house is either Q or S. So, we can not determine.

142. b Tallest house is T whose colour is Blue.

143. d A, D and F cannot be selected together as D doesn't hate any of the likings of A and F i.e. reading, travelling and fishing.

The rest two sets of people can be selected together.

144. b One team will have 3 members and the other will have 4 members. There are only two possible cases:

(i) 3-member team: Sajid, Salim, Sanjay

4-member team: Reeta, Sunil, Hasan, Govind

(ii) 3-member team: Reeta, Salim, Sanjay

4-member team: Sajid, Sunil, Hasan, Govind

Statement (1) is true in both the cases.

Statement (2) is true in case (i).

Statement (3) is false in both the cases.

145. c It's given that the winner gets a final score of 220 and no participants gets more than 45 marks from any of the judges.

Bali cannot be the winner because even if he gets 45 marks from each of the judges A, C, D and E, he would be able to reach a final score of 217 only.

Shonali cannot be the winner because even if she gets 45 marks from each of the judges A, B, D and E, she would be able to reach a final score of 219 only.

Gaurav cannot be the winner as his final score is less than that of Shonali.

Let the final scores of Angad, Gaurav, Monica and Shonali be 'a', 'g', 'm' and 's' respectively.

Therefore, as per the given condition $\frac{a+g}{2} > \frac{m+s}{2}$.

Since 's' is greater than 'g', 'a' would be greater than 'm'. So Angad is the winner.

146. c It can be concluded that nobody except Bhanu and Deepak likes Dancing as the number of children who like Dancing cannot be more than two. Also, Deepak doesn't like Rowing and Running, both of which are liked by Aman. SInce Deepak likes Sketching, it is not liked by both Aman and Bhanu. So Chaman and Elhan like Sketching. The conclusions made thus far can be tabulated as shown below.

	Rowing	Singing	Dancing	Sketching	Running
Aman	Yes		No	No	Yes
Bhanu			Yes	No	
Chaman			No	Yes	
Deepak	No		Yes	Yes	No
Elhan			No	Yes	

The two children who like exactly the same set of activities must be Chaman and Elhan (this can be seen from the table). Since at least three children like Running, Chaman and Elhan must be two of them. It cannot be determined whether Bhanu likes Running or not.

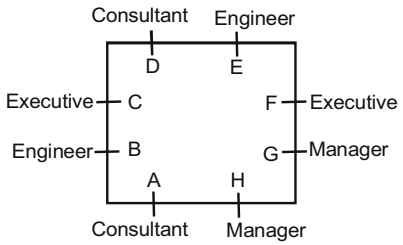
147.b From (iii), as Shama and Hema are in the same car, Radha must be in a different car. From (v), either Divya or Charu must be in the same car as Radha and the other must be in the same car as Kiran. As Vicky cannot be in the same car as Hema, Kiran or Charu, he must be in the same car as Radha and Divya. From (i), Hari and Naresh are in the same car with Shama and Hema.

Further analysis leads to the following table:

Case I
Car I:
Radha-Pankaj
Divya-Vicky
Car II:
Shama-Hari
Hema-Naresh
Car III:
Charu-Kartik
Kiran-Chetan

Case II
Car I:
Radha-Vicky
Divya-Pankaj
Car II:
Shama-Hari
Hema-Naresh
Car III:
Charu-Kartik
Kiran-Chetan

148. d Let Anu, Bindu, Candy, Dolly, Emran, Fiza, Gauri and Hemant be represented by A, B, C, D, E, F, G and H respectively. The only possible arrangement is shown below.



Hence, none of the statements is false.

For questions 149 to 151:

From statement (V), B and G cannot be together in the team. Therefore, there are three possible cases.

Case I: When B is selected.

F cannot be selected as F can only be selected when both G and N are selected. Thus, when B is selected, the team comprises exactly four bowlers. Also, J must be the wicketkeeper in the team, as selection of I ensures selection of F. Following table gives the possible compositions for the team.

Batsmen	Bowlers	Wicketkeeper
A, D, L, N, O, K/M	B, H, C, E	J

The number of ways in which the team can be formed

$= 2 \times 1 \times 1 = 2$

Case II: When G is selected.

H cannot be selected as H can only be selected when B is selected. Thus, when G is selected, then again the team comprises exactly four bowlers. Following table gives the possible compositions for the team.

Batsmen	Bowlers	Wicketkeeper
A, D, L, N, O, K/M	G, F, C, E	I/J

The number of ways in which the team can be formed

$= 2 \times 1 \times 2 = 4.$

Case III: When neither B nor G is selected.

When both B and G are not selected, then there is no possible composition for the team.

149. c If G is one of the bowlers in the team, then either of the two (i.e., I and J) can be selected as the wicketkeeper in the team.

150. c If H is selected, G cannot be selected.

151. c Options (a) and (b) are irrelevant. Loftus and Loftus found that the way in which questions were asked had a significant impact on what the subjects recalled. The implication of this is that when someone is asked to recall something, the phrasing/wording of the question may distort their recollections. Hence, option (c) is the correct answer.

For questions 152 to 154 :

The total number of different days of the week in January and February 2008 are as follows:

Mondays: 8 (4 each in January and February)

Tuesdays: 9 (5 in January and 4 in February)

Wednesdays: 9 (5 in January and 4 in February)

Thursdays: 9 (5 in January and 4 in February)

Fridays: 9 (4 in January and 5 in February)

Saturdays: 8 (4 each in January and February)

Sundays: 8 (4 each in January and February)

Total number of days in January and February 2008 = 60

Total number of days on which he drove the car of brand Honda

= 25 % of 60 = 15.

Total number of days on which he drove the car of brand BMW

= 15 % of 60 = 9.

Total number of days on which he drove the car of brand Hyundai

= 10 % of 60 = 6.

Given that HO > ME > CH > BM > HY > FE

So, we get that 15 > ME > CH > 9 > 6 > FE.

We also know that

ME + CH + FE = 60 – (15 + 9 + 6) = 30.

152. d Given that the number of days on which Mr. Alfonso drove the car of brand in January 2008 is the maximum.

Now, the car of brand Honda is only driven on either of the three days of any week, i.e. Monday, Tuesdays and Saturdays.

Total number of Mondays, Tuesdays and Saturdays in January 2008

= 4 + 5 + 4 = 13.

Total number of days in January and February 2008 on which he drove the car of brand Honda is equal to 15.

Required Answer = 15 – 13 = 2.

153. c Mr. Alfonso drove Chevrolet on all possible Saturdays in January 2008 i.e. 4 days and all possible Thursdays in January 2008 and February 2008 i.e. 9 days.

$\Rightarrow$ He drove Chevrolet on 13 days and Mercedes on 14 days as 15 > ME > CH

$\Rightarrow$ Number of days on which he drove Ferrari

= 30–(13 + 14) = 3 days.

154. d Maximum number of days on which Mr. Alfonso can drove the Mercedes in given two months = 14

To minimize the number of number of days when he drove Mercedes in the given two months, we will maximize the number of days on which he drove Ferrari and Chevrolet.

He could drove Ferrari for a maximum of 5 days as FE < 6.

$\Rightarrow$ ME + CH = 25 and ME > CH

$\Rightarrow$ The minimum value of ME = 13

Difference between maximum and minimum value of ME = 14 – 13 = 1.

155. b Alonso finished on podium in each of the first six races and scores 54 points.

He can score 54 points as

10, 10, 10, 8, 8, 8 [in any order]

10, 10, 10, 10, 8, 6

So, he can get 2nd rank in at most 3 races.

156. c Alonso finishes the next race on podium.

$\Rightarrow$ his total points are 60 or 62 or 64.

For finding lowest rank obtained by Schumacher, we take Alonso's score as 60 (lowest among 60, 62, 64)

To win the championship Schumacher needs 61 points.

$\Rightarrow$ in the last three races he has to score 61 – 39 = 22 points.

For lowest rank 22 can be scored as 10, 10, 2 (in any order).

Hence, the lowest rank obtained by Schumacher is 7th (corresponding to 2 points).

157. c If Fisichella finishes on podium in race 9 (or in any of the last 3 races), the points scored by Renault will be 87 (or more).

Hence, even if Honda drivers take top two ranks in all three races they will end up with 85 points.

i.e. 31 + 3 (8 + 10) = 31 + 54 = 85 points.

Hence, in this case Honda won't be able to win the 'Constructor's Championship'.

158. b After first six races Schumacher's total points are 39.

He didn't score any point in 1 race. Hence effectively, he scored 39 points in 5 races and 0 points in 1 race.

If in any of the 5 races he scores 7th rank or 2 points, then in other four races he has to score 37 points, which is not possible in any combination.

159. a A bus to Uttam Nagar departs after every 15 min.

One of the buses to Mehrauli leaves after every 10 min.

Other bus to Mehrauli can leave after every 12 min or 20 min

Let us assume bus on route no. 427 leaves after every 10 min between 9:00 a.m & 10:00 a.m i.e. at 9:00, 9:10, 9:20, 9:30, 9:40, 9:50 and 10:00 a.m.

12 min

If timings of buses plying after 12 & 10 min clash then the bus plying after every 12 min will go.

If timings of any of the buses plying after 12 min coincides with departure time of 427 then the next bus timings will clash only after 60 min(LCM of 12 & 10)

So maximum of 1 bus timings can clash with route no. 427 in a given hour.

Hence, a minimum 7 – 1= 6 buses on route 427 can depart in an hour.

20 min

If timings of buses plying after 20 & 10 min clash then the bus plying after every 20 min will go.

If timings of any of the bus plying after 20 min coincides with departure time of 427 then the next bus timings will clash again after 20 min(LCM of 20 & 10)

If the timings of two buses clash at 9:00 AM then timings will again clash at 9:20, 9:40 and 10:00

Hence, a minimum 7 – 4 = 3 buses on route 427 can depart in an hour.

160. c If frequency of all buses increases by 5 min then new time intervals become 5, 5, 7, 10, 15 and 25 min.

So now one of the bus to Mehrauli departs after every 5 min. The Other bus can depart after every 7 min or 15 min.

The minimum time difference between buses plying after 5 and 7 min can be 1 min (GCD of 5 and 7).

161. d The difference in time intervals between a particular bus to Mehrauli and Uttam Nagar is same as the difference in time intervals between two buses plying towards Uttam Nagar.

Hence, time intervals between Buses for Mehrauli and Uttam Nagar can only be:

Mehrauli – 10 and 12 / 20

Uttam Nagar – 15 and 10 / 20

So the time interval between two different routes to Uttam Nagar is always a multiple of 5.

162. a If condition (iii) is waved off then there can be possibility of 3 buses plying to Uttam Nagar. Then 3 buses to Uttam Nagar can ply between intervals 10,12 and 15 mins or between intervals of 10,15,20 mins.

So the minimum time interval can be in the first case i.e. when 3 buses ply after an interval of 10, 12, 15 mins.

Minimum difference between time interval

= 12 – 10 = 2 minute.

For questions 163 to 166:

After filling up the given data in a table, it can be concluded from statement (iv) that H3 could not have finished first, third or fourth in Race-II. Therefore, it must have finished second and so H4 and H1 must have finished third and fourth respectively in Race-II.

Now, H2 must have finished first in Race-III as it couldn't have finished at the same position in more than two races.

From statement (iii), Dablu's horse must be H3 and it must have finished second in Race-I.

Further analysis leads to the final tables as below.

Owner	Rahul	Dharma	Dablu	Ritesh
Horse	H1	H2	H3	H4

Rank / Race	1	2	3	4
Race-I	H4	H3	H2	H1
Race-II	H2	H3	H4	H1
Race-III	H2	H4	H1	H3
Race-IV	H4	H1	H2	H3

163. Dablu and Ritesh

164. Rahul

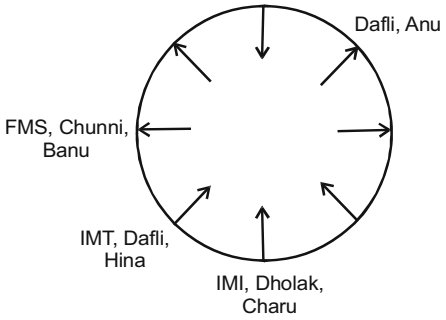
165. The sum of the ranks of H4 was the lowest and was equal to 7. Hence, H4 must have won the jackpot.

166. H4 finished third in Race-II. Hence, option (c) is the correct answer.

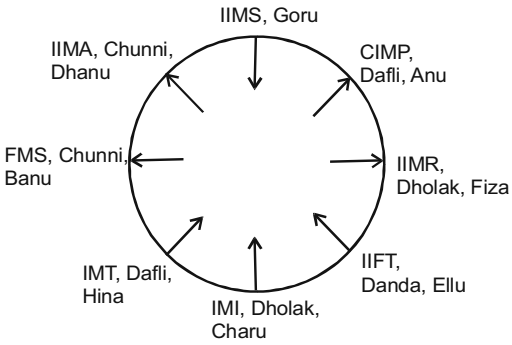
For questions 167 to 170:

From statement (iv), Charu and both her neighbours face inside. From statement (i), Hina sits to the immediate left of Charu as well as Banu; therefore, we can conclude that Banu must be facing outside. From statement (ii), the person sitting diametrically opposite Charu faces inside. Therefore, the rest of the persons must be facing outside.

Also, it is given that Anu sits diametrically opposite Hina and the two use the same prop i.e. Dafli. The conclusions made thus far can be shown with the help of a diagram.



From statement (iii), Goru sits to the immediate left of Anu and must be facing inside. From statement (v), the only vacant positions, that are diametrically opposite, must have been occupied by Dhanu and Ellu. Now, Fiza from IIMR must be sitting immediately to the right of Anu. Further analysis leads to the final arrangement shown below.



167. Fiza, Dholak

168. 3

169. Fiza is sitting opposite to the person who is from FMS.

Hence, the number of friends sitting between them is 3.

170. Goru is sitting opposite to Charu and thus the number of letters in the name of the friend sitting opposite to Charu is 4.

For questions 171 to 174:

From statements (ii) and (vi), Jason and Rahsaan were cycling in the lanes numbered 3 and 4 respectively. From statements (i) and (iv), Hilton was in the lane numbered 7. From statements (iii) and (v), either Alex or Fausto was in the lane numbered 8. But since Hilton was in the lane numbered 7, Alex could not have been in the lane numbered 8. Therefore, Fausto was in the lane numbered 8. Now two cases are possible:

Case I: Nathan and Alex were in the lanes numbered 1 and 2 respectively. Matt and Ryan were in the lanes numbered 5 and 6, in no particular order.

Lane No.	1	2	3	4	5	6	7	8
Rider	Nathan	Alex	Jason	Rahsaan	Matt/ Ryan	Ryan/ Matt	Hilton	Fausto

Case II: Nathan and Alex were in the lanes numbered 5 and 6 respectively. Matt and Ryan were in the lanes numbered 1 and 2, in no particular order.

Lane No.	1	2	3	4	5	6	7	8
Rider	Matt/ Ryan	Ryan/ Matt	Jason	Rahsaan	Nathan	Alex	Hilton	Fausto

171. Alex

172. Hilton and Fausto

173. The possible positions to which could have finished were 1, 2, 5 and 6.

Hence, the required sum = 1 + 2 + 5 + 6 = 14.

174. Either Nathan or Matt must have finished first in case Ryan did not finish first. Hence, the question cannot be answered.

For questions 175 to 178:

As he went to Bangkok in 2005, he must have gone to the USA and Europe respectively in either 2006 and 2007 or 2007 and 2008. But 2007 and 2008 is not possible as it violates statement (iv). From statement (iii), he spent 1 day on his vacation in 2004.

Let the number of days spent on vacation in Singapore and Nepal be x and y respectively. Therefore, he spent 'x + 1' and 'y + 1' days in Europe and the USA respectively. Let the number of days he spent in Bangkok be z.

Either x or y is equal to 1. Also, z as well as (x + 1) cannot be equal to 5 (from statements (iv) and (vi)); the only possibility is x = 1 and y = 4. Further analysis leads to the final table shown below.

Year	Destination	No. of days
2004	Singapore	1
2005	Bangkok	3
2006	USA	5
2007	Europe	2
2008	Nepal	4

175. None of these

176. 2

177. Neither I nor II

178. He visited Nepal in 2008

For questions 179 to 182:

Only two cups got even ratings

even numbers from 1–10

$\Rightarrow$ 2, 4, 6, 8, 10

Other 4 places got odd ratings

1, 3, 5, 7, 7

Since, smallest rating is even

and rating of cup 3

= 2 × rating of cup 5

∴ Possible combinations are (3, 6) (5, 10)

Out of which the only acceptable scenario is

minimum rating is 2 which is of cup 2

cup 3 rating is 6 and cup 5 rating is 3

Since only 2 cups have even ratings. Therefore, cup 1, cup 4, cup 6 have ratings 5, 7 and 9 not necessarily in this order.

Also, since cup 3 got higher rating than cup 1, the only possibility is cup 1 got the rating of 5.

Tea from Himachal is cup 6 and Tea from Ooty got the highest rating.

Therefore Ooty is cup 4 and got rating of 9 and cup 6 that is Himachal got rating of 7.

The final information is tabulated below.

Places	Cup no	Rating	Rank
	1	5	4
	2	2	6
	3	6	3
Ooty	4	9	1
	5	3	5
Himachal	6	7	2

183.

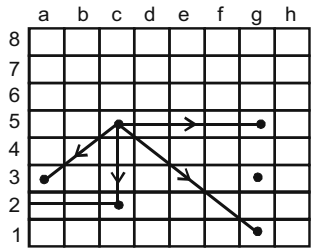


Figure 1

Directly from the diagram

184.

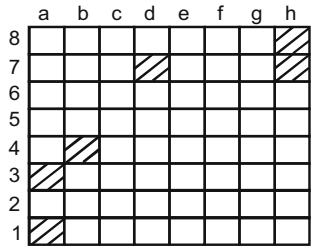


Figure 2

See the fgiure 2

If queen is at f8 then it can attack h8 and B4

Similarly, when queen is at a7 and c1 it can attack maximum of 2 piece

But when queen is at D3 then it can attack a3, d7 and h7.

185. Queen cannot attack 4 positions.

186. Another pieces can be at 36 positions.

For questions 187 to 190:

Since Jayanta, Ajit and Byomkesh are sitting in rows 10, 11, 12 respectively since only this combination of rows have 3 different consecutive amount for their choices of seat.

Possible combination

Aisle	Jayanta, 10 500	Ajit, 11 400	Byomkesh, 12 1000
Window	300	200	1000

Since, Manik is sitting next to Jayanta, so possible combinations for Manik is

Jayanta	Manik	Amount
Aisle, C	Auskem, D	500
Aisle, D	E, Middle	0
Window, A	Middle, B	0

Total amount = 4600

∴ Jayanta, Ajim, Byomkesh and Manik sits at Aisle seat, which costs them total of 24000.

Information gathered by details given:-

	Seat	**Row**	**Extra amount paid**
Ajit	Aisle	10	400
Byomkesh	Aisle	12	1000
Gargi	Middle	1/13	1000
Jayanta	Aisle	10	500
Kikira	Window	1/13	1000
Manik	Aisle	10	500
Prodosh	Window	20	200
Tapesh	Window	21	0
Total			4600

187. Since Jayanta is sitting in row 10, and Manik is next to Jayanta, therefore he is sitting in row 10.

188. Jayanta is sitting in row 10, seat C which is an Aisle seat, therefore she paid 500 extra.

189. Gargi was sitting at middle seat in either row 1 or 13, therefore she paid 1000 extra.

190. Tapesh sat in row 21, for which there extra amount.

191. 1 Let original sequence be abcde.

Therefore, possible combinations could be:

bacde			
cbade	acbde		
dbcae	adcbe	abdce	
ebcda	aecdb	abedc	abced

⇒ 11 sequences.

192. Let original sequence be abcde.

Therefore, possible combinations could be:

bacde			
badce	acbed		
baced	acbde	abdce	abced

$\Rightarrow$ 8 sequences.

193. 5 5 + 4 + 3 + 2 + 1

$\Rightarrow$ 15 sequences.

194. Let original sequence be LRLTIM.

Therefore, possible combinations could be:

RLLTIM				
RLTLIM				
RLTLMI	LLRTIM			
RLLITM	LLRITM	LRTLIM		
RLLTMI	LLRTMI	LRTLMI	LRLITM	LRLTMI

For questions 195 to 198:

By statement (2) and (6), Barun minor in Finance and by statement (3), Barun is the only male who major in Operations and three female students who did minor in Marketing are Adriano, Bandita & Chitra since Daisy did minors in operations.

By statement (1), (2) and (5) we get that Adriana and Deb are from same institute and does Daisy & Amit, therefore, the two girls that are form Z have to be Bandita and Chitra.

By statement (6) and (7) we get this initial table:

Gender	Students	Institute	Major	Minor
Female	Adriana	X/Y		Marketing
	Bandita	Z		Marketing
	Chitra	Z		Marketing
	Daisy	Y/X		Operations
Male	Amit	Y/X		
	Barun	Y	Operations	Finance
	Chetan	X	Finance	
	Deb	X/Y		

By statement (2), female student from Y that majors in Operations have to be Adriana, since, Daisy has her minor in Operations and cannot have the major in the same subject.

Therefore, by statement (5), we get, Adriana and Deb are from Y institute and Daisy and Amit are form X institute.

Gender	Students	Institute	Major	Minor
Female	Adriana	Y	Operations	Marketing
	Bandita	Z		Marketing
	Chitra	Z		Marketing
	Daisy	X		Operations
Male	Amit	X	Finance	
	Barun	Y	Operations	Finance
	Chetan	X	Finance	
	Deb	Y	Marketing	Finance

195. Students from the institute Z are Bandita and Chitra.

196. Deb minor in finance.

197. Amit major in finance.

198. If Chitra majors in Finance, then, Bandita major in Operations by statement (4).

199. To find: - Number of ways the ATM can serve a customer who gives 500 rupee notes as her preference.

Let number of 100, 200 and 500 rupee notes be a, b and c respectively, then

a100 + b200 + c500 = 5000 and,

$\Rightarrow$ a + 2b + 5c = 50.

c > a + b.

If c = 10, a + 2b = 0

implies a = 0 = b

If c = 9, a + 2b = 5 then possible combinations of (a, b) are (5, 0), (1, 2), (3, 1)

if c = 8, a + 2b = 10, then possible combinations of (a, b) are (2, 4), (4, 3), (0, 5).

200. If a customer gives 500 rupee notes as their preference, then, the possible cases are given in the previous question answer from all those cases we will pick the case which has least number of 500 rupee notes i.e when c = 8 to maximise the number of customers.

$\therefore$ No of customers who could give 500 rupee as their preference are 6 customers $(\because 6 \times 8 = 48)$

201. If a customer gives 500 rupee notes as their preference then the minimum possible number of 500 rupee notes a customer gets is 8, but since we have to maximise the number of customers therefore we have to keep the number of 500 rupee notes minimum.

Let analyse the options.

Let no of customers be 16,

$\therefore$ therefore, number of fifty 500 rupee notes distributed among 16 customers will be

$= \frac{50}{16} = 3.125 \approx 3$

a + 2b + 5c = 50

$\Rightarrow$ a + 2b = 35.

Also a + b + c $\leq$ 20

$\Rightarrow$ a + b $\leq$ 17

Let a + b = 17

a + 2b = 35 and a + b = 17

then b = 18, a = –1, is not possible therefore no value of (a, b) will satisfy for c = 3

Let number of customers be 13

$\therefore$ Number of fifty 500 rupee notes distributed among 13 customers will be

$\frac{50}{13} = 3.84 \approx 3$ notes, which we know will not satisfy.

Let number of customers be 12.

$\therefore$ Number of fifty 500 rupee notes distributed among 12 customers will be $\frac{50}{12} = 4.167 \approx 4$

$\therefore$ a + 2b = 30

$a + b \leq 16$

Let in particular a + b = 16.

solving, a + 2b = 30 and a + b = 16, we get

b = 14 and a = 2

$\therefore$ a + b + c = 20 which satisfies the condition.

202. Number of 500 rupee notes required to serve 50 customers with 500 rupee notes as their preference, given, that the total number of notes to be dispensed is the smallest possible.

If a + 2b + 5c = 50, then c = 10, a = 0, b = 0

(combinations are given in explanation of first answer)

Total number = 50 × 10 = 500

Number of 500 notes dispensed to serve 50 customers with 100 rupee notes as their preference, given, that the total number of notes dispensed is the smallest possible.

If a + 2b + 5c = 50 and a > b + c, then a = 10, b = 0 and c = 8 is only such combination where a + b + c = 18 is the least.

Total number of 500 rupee notes = 50 × 8 = 400

$\therefore$ Total = 500 + 400 = 900

For questions 203 to 206:

Let the number of pumps where low, medium and high contamination levels were recorded by a, b and c respectively.

Then by statement (5),

c = 2a

Since by statement (1), atleast three pumps were recorded as high, which has to be P1, P3 and P5. and by statement (2) and (4), there are atleast three pumps that were recorded as low.

So, possible combinations of (a, b, c) are (3, 11, 6), (4, 8, 8), (5, 5, 10), (6, 2, 12);

Maximum number of petrol pumps with concentration level as high could be only 8. Therefore, the possible combinations now are (3, 11, 6) and (4, 8, 8)

Petrol pumps.

P1	High
P2	Medium
P3	High
P4	Medium
P5	High
P6	Low
P7	Medium
P8	Medium
P9	High
P10	Medium
P11	High
P12	Medium
P13	High
P14	Medium
P15	Medium
P16	Medium
P17	Low
P18	Medium
P19	Low
P20	Medium

This case is not possible

Case II: - when (a, b, c) = (4, 8, 8)

	Concentration Level			
Petrol Pumps	**Case I**	**Case II**	**Case III**	**Case IV**
P1	High	High	High	High
P2	Medium	Medium	Medium	Medium
P3	High	High	High	High
P4	Medium	Medium	Medium	Medium
P5	High	High	High	High
P6	Low	Low	Low	Low
P7	High	High	High	High
P8	High	High	High	High
P9	Medium	Medium	Medium	Medium
P10	High	High	High	High
P11	Medium	Medium	Medium	Low
P12	High	High	Low	Medium
P13	Medium	Medium	High	High
P14	High	High	Medium	Medium
P15	Low	Medium	High	High
P16	Medium	Low	Medium	Medium
P17	Low	Medium	Low	Low
P18	Medium	Low	Medium	Medium
P19	Low	Medium	Low	Low

203. Following all the subcases of case II: the contamination level at P10 was recorded as high is true.

204. Exactly 8 petrol pumps were recorded as medium.

205. If the contamination level at P11 was recorded as low, then, the contamination level at P14 was recorded as Medium (Case II : Subcase IV)

206. If contamination level at P15 was recorded as medium then, contamination levels at P11 and P16 were not recorded as the same

207. Consider a 3 × 3 square matrix:-

0	1	0
2	3	2
0	1	0

Therefore minimum 4 different numbers can fill a 3 × 3 square matrix.

208. Consider a 5 × 5 square matrix:-

0	1	0	1	0
2	3	2	3	2
0	1	0	1	0
2	3	2	3	2
0	1	0	1	0

Therefore minimum 4 different numerals can fill a 5 × 5 square matrix

209. In order to make one mistake the numeral at the corner or the boundary could be changed in the matrix given in the answer of the previous question, and still the minimum numerals required to fill a 5 × 5 matrix would be 4.

For example:-

0	1	0	1	0
2	3	2	3	2
0	1	0	1	0
2	3	2	3	2
1	1	0	1	0

210. Consider a 5 × 5 matrix:-

6	7	5	6	1
3	1	2	3	8
4	8	0	4	7
5	7	6	5	1
1	2	3	8	2

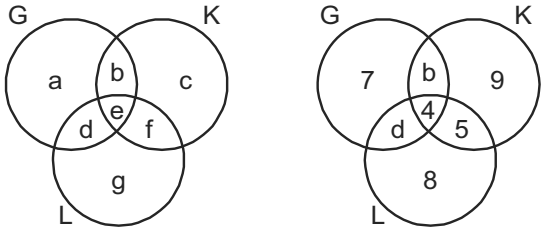
Therefore, a minimum of 9 different numerals can fill a 5 × 5 square matrix such that all the cells adjacent to any particular cell have different numerals.

Question Numbers: (211 to214):

Each of the 39 students is enrolled in at least one of the three sports.

A + B + C + D + E + F + G = 39 … (1)

G = 2 × E … (2)



According to 1st statement

A + B + D + E = 17 … (3)

According to 2nd statement

A = G – 1 … (4)

According to 3rd statement

C = F + E … (5)

According to 4th statement

B + D + E = 10 … (6)

According to 6th statement

Now, solving 3, 6, 4, 2, we get

A = 7, G = 8, E = 4.

From 1 and 5, C = 9, F = 5.

So B + D = 6.

211. Maximum number of students are enrolled in L.

If B = 1, D = 5, then total number of students enrolled in L is 18 and that in K is 23, which is against the condition.

Using similar methods, if B = 4, D = 2, the total number of students enrolled in L is 21 and that in K is 20. So this satisfies the condition.

Therefore, minimum number of students enrolled in both G and L but not in K is 4.

212. Now B + D = 6. … (1)

Number of students enrolled in K = 18 + B

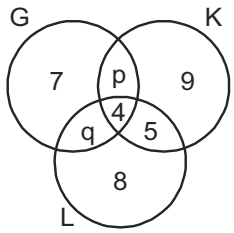
Number of students enrolled in L = 17 + D.

$$\frac{(18+B)}{(17+D)} = \frac{19}{22} \quad \ldots (2)$$

Solving 1 and 2, we get B = 1, D = 5.

Therefore, the total number of students enrolled in L = 22

213.



According to the given details, the venn diagram will be exactly like given above.

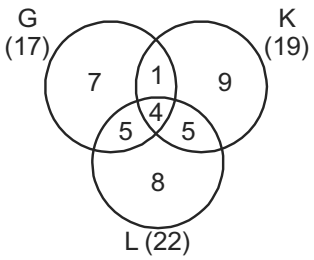
Now p + q = 6

As the maximum student enrollment is in L therefore,

q > p and $q \neq 0$

So, possible values of p and q are (0, 6), (1, 5) and (2, 4). But (0, 6) and (2, 4) will not satisfy the conditions given in the question.

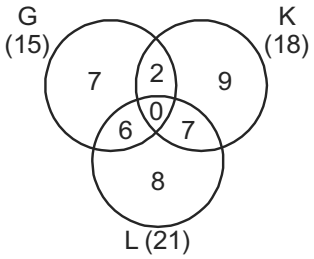
∴ Only p = 1 and q = 5 will satisfy the given conditions.



Now, it is given that the number of students who were enrolled in all three sports i.e. 4 students, were asked to withdraw from one of the three sports.

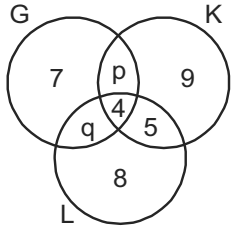
After withdrawal, the number of students enrolled in G was 6 less than the number of students enrolled in L, while the number of students enrolled in K went down by 1.

∴ Final diagram would be:



Clearly, 2 students were enrolled in both G and K.

214.



According to the directions, the venn diagram will be exactly like given above.

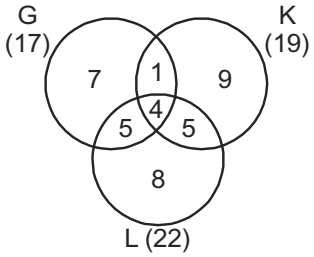
Now p + q = 6

As the maximum student enrollment is in L therefore,

q > p and $q \neq 0$

So, possible values of p and q are (0, 6), (1, 5) and (2, 4). But (0, 6) and (2, 4) will not satisfy the conditions given in the question.

∴ Only p = 1 and q = 5 will satisfy the given conditions.



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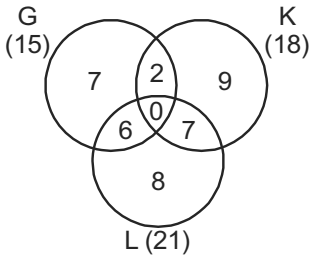


Clearly, 6 students were enrolled in both G and L.

Question Numbers: (215 to 218):

1. Through Balaram and Fatima's statements, it can be inferred that they were in a room having 4 candidates, and as Balaram was 3rd to enter room 101 so this room had 4 candidates.
2. Through Ganeshan's statement, it can be inferred that room 102 had 2 candidates.
3. Through Erina's statement, it can be inferred that Erina was in room 103 having only 1 candidate.
4. From Chitra's statement, it can be inferred that she was in room 102.
5. So, room 101 had Akil, Divya, Balaram and Fatima as 4 candidates.

From the given time table, following table can be filled as:

Timings / Room No	7:10 AM	7:15 AM	7:25 AM	7:30 AM	7:40 AM	7:45 AM
101	Akil				Fatima	
102				Chitra		
103						

215. From the above information provided, Divya was alloted room 101.

216. It is definite that Ganeshan and Chitra were the only two in room 102, and according to Chitra, she is the last one to enter the allotted room, so Ganeshan is the 1st one to enter room 102 and hence there was no one when Ganeshan entered.

217. In room 101, Fatima is the last one to enter and Balaram is the third one to enter. Therefore, David is either first or second person to enter room 101. In room 102, Ganeshan is the first one to enter.

David, Balaram, and Ganeshan must have entered before 7:30. So Erina must have entered at 7:45 am.

218. If Ganeshan reached before Divya, and Divya reaches before Balaram, then Ganeshan, Divya and Balaram must have reached at 7:10, 7:15 and 7:25 respectively.

Timings / Room No	7:10 AM	7:15 AM	7:25 AM	7:30 AM	7:40 AM	7:45 AM
101	Akil	Divya	Balaram		Fatima	
102	Ganeshan			Chitra		
103						Erina

Question Numbers: (219 to 222):

1. Looking at the code for words “is” and “as” it can be deduced that i = 3, s = 5, a = 6.
2. Now looking at the code for “Peacock”, digit 9 has only two letters according to statement 3 and 9 comes 3 times in Peacocks code. Since 9 cannot be associated with 3 individual letters, a letter associated with 9 must occur twice. Only “c” occurs twice. So c = 9.
3. Similarly, looking at the code for “National”, digit 6 occurs 4 times and code for i = 3. So 6 should be equal to two letters occurring twice respectively. Those digits are “a” and “n”.
4. Between “Peacock” and “National”, letter “o” and digits “8” and “9” are common. Since, a = 8. So o = 9.
5. Between “The” and “National”, letter “t” and digit “8” are common. So t = 8, l = 1.
6. Similarly, between “The" and “Peacock", only letter "e" is common. So e = 5, h = 4.
7. In the code for “Of”, o = 9, f = 7.
8. Looking at code for “Designated”, i = 3, n = 6, a = 6, t = 8, e = 5 and between “Designated” and “Bird”, letters “I” and “d” are common, digits “1” and “3” are common. Since i = 3, so d = 1.
9. In the code for “Designated”, g=7.

Check the following table for final codes for every letter.

1	D, L
2	
3	I
4	H
5	S, E
6	A, N
7	F, G
8	T, P, K
9	C, O

219. Code for L = 1 from the above table.

220. In the code “Bird”, i = 3, d = 1. So B can be either 3 or 4. Answer is 3 or 4.

221. For digits “8” and “9” can the complete list of letters be identified. So answer is 2.

222. For option 1, S and E have same code. So this can’t be the answer

For option 3, X, Y, Z can have same code. So this can’t be the answer.

For option 4, B can be 3 same as I. Again this is not the answer.

So only option is S, U, V. Since S and E are already associated with 5, and it can have a maximum of 3 letters. S, U, V cannot be associated to the same number.

Question Numbers: (223 to 226):

Let O, M, Y be the total number of Old, Middle-aged, and Young visitors respectively.

It is given that M = 2 × O, Y = 2 × M. So Y = 4 × O.

Total 140 tickets are sold. O + M + Y = 140.

Solving this we get O = 20, M = 40, Y = 80.

Total 55 Economy tickets were sold. Old visitors bought equal number of Gold and Economy tickets. Let this be x.

	Old (20)	Middle-aged (40)	Young (80)	Total
Platinum			P/2	P
Gold	x			G
Economy	x		38	55

223. Young visitors have half of the platinum tickets, thus old and middle aged will share equally the remaining half of Platinum tickets.

For values 34 and 38 the half is an odd number, and thus cannot be divided equally.

For value 36, Number of Old-aged buying Platinum will be 9, and the rest of the tickets bought by Old-aged visitors will be 11. But, Old-aged visitors buy Gold and Economy equally, which is not possible.

So only option remaining is 32.

224. Let number of Old visitors buying Platinum tickets be Y, then number of Middle aged visitors buying economy ticket is also Y.

According to the question,

Old-aged and Middle-aged visitors together buy 17 economy tickets.

So X + Y = 17 ...(1)

Also, 2 × X + Y = 20 ...(2)

Solving (1) and (2), we get

X = 3, Y = 14.

Therefore, number of Old visitors buying Gold tickets is 14.

225. Let the number of Gold, Platinum, and Economy tickets be equal to G, P, E respectively.

G + P + E = 140 … (1)

E = 55, G + P = 85 … (2)

Now, 38 Young visitors have bought Economy tickets. So let us assume that remaining 42 Young visitors have bought Platinum tickets.

As Number of Young visitors buying Platinum tickets is equal to the half of total Platinum tickets.

So P = 84. From (2), G = 1.

It is mentioned that number of Old visitors buying Gold tickets is strictly greater than the number of Young visitors. So number of middle aged visitors buying Gold tickets must be 0. Check from the following table.

	Old (20)	Middle-aged (40)	Young (80)	Total
Platinum	18	24	42	84
Gold	1	0	0	1
Economy	1	16	38	55

226. Number of Old and Middle-aged visitors buying Economy tickets together is equal to 17, which is an odd number.

So these two values cannot be equal to each other.

Therefore, statement saying The numbers of Old and Middle-aged visitors buying Economy tickets were equal" is false.

DATA SUFFICIENCY

1. c Statement I implies X > Y or X > Z or X > Y and Z
Statement II implies Y > X or Y > Z or Y > X and Z.

Combining both statements, we can get Y > X > Z or

X > Y > Z. Hence, Z is the smallest.

2. a S has 4 uncles and from statement A. F has two brothers. Hence, the other 2 uncles of S must be the brothers of M. Statement B does not give any additional information.

3. a Assume A, B, C, D gets score 10, 8, 6, 4 respectively.

A B C D

10 8 6 4

Statement A:

With the conditions, A will give vote to B

With the conditions, B will give vote to A

With the conditions, C will give vote to A

Even if D gives to A/B/C - 2 situation arises.

Either A will win or there will a tie when D gives vote to B.

Even then A will win.

So we are getting the answer.

Statement B: Nothing concrete can be derived.

4. a Statement A: Nothing can be said.

Statement B: Since there are 3 boys in the top 5 rank holders, the other two are girls and Rashmi is not one of them. As Kumar is ranked sixth, Rashmi is either seventh or below. Hence, statement II alone is sufficient.

5. d Statements A and B alone are not sufficient but if both are combined, then we can form the following sequence:

1	2	3	4	5
D	E	B	C	A

So the answer is (d).

6. d From statement A, both Aakash and Biplab have the same scores. But we cannot find the man of the match.

From statement B only, we cannot find the man of the match.

Combining both statements we can find the man of the match i.e. Aakash.

7. c From statement A, their ranks will be A - 4, B -1, C - 2, D - 3.

From statement B, also their ranks will be A - 4, B -1, C - 2, D - 3.

8.b **From Statement A:**

There are multiple possibilities:

6, 7, 8, 9, 10

5, 7, 8, 9, 11 etc.

So the answer cannot be determined using A alone.

From Statement B:

There are only two possible cases:

(i) 1, 2, 4, 5, 28

(ii) 1, 2, 3, 6, 28

In both the cases the answer will be 28.

9. c **From Statement A:**

Two cases are possible (x means x students):

(i) 14 Mukesh 5 Rakesh 22

This gives a total of 14 + 1 + 5 + 1 + 22 = 43 students.

(ii) 8 Rakesh 5 Mukesh 16.

This gives a total of 8 + 1 + 5 + 1 + 16 = 31 students.

From Statement B:

Three cases are possible:

(i) Rakesh 13 Mukesh 8

This gives a total of 1 + 13 + 1 + 8 = 23 students.

(ii) 6 Rakesh 7 Mukesh 14

This gives a total of 6 + 1 + 7 + 1 + 14 = 29 students.

(iii) 8 Rakesh 5 Mukesh 16

This gives a total of 8 + 1 + 5 + 1 + 16 = 31 students.

Combining Statement A and Statement B:

The answer has to be 31.

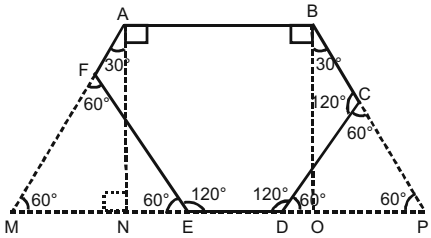
10. b Since all the interior angles are equal (given), each interior angle must be 120^0. Though ABCDEF is not a regular hexagon (as AB is not equal to DE), the opposite sides would still be parallel.

From Statement A:

The shortest distance, d, between parallel lines is given as 30cm.

However it can be observed that exact position of the points D and E are still not known w.r.t. AB.

Let us draw one of the possible hexagons ABCDEF:



Here AF and BC may or may not be equal.

AF, BC and ED are extended to meet at points M and P (see the figure).

Also, AN and BO are perpendiculars drawn from A and B on ED extended.

It can be observed that both the triangles FME and DCP are equilateral.

Hence, AF + FE = AF + FM = AM

$$= \frac{AN}{\cos 30^\circ} = \frac{d}{\cos 30^\circ}$$

Similarly, BC + CD = BC + CP = BP

$$= \frac{BO}{\cos 30^\circ} = \frac{d}{\cos 30^\circ}$$

It can be observed that 'AF + FE' and 'BC + DC' both are same and also unique for all possible hexagons ABCDEF.

Hence, despite having many possible hexagons ABCDEF, the perimeter:

$$= 20 + 10 + \frac{2d}{\cos 30^\circ} = 99.28 \text{ cm}$$

(will be constant)

Hence, Statement A alone is sufficient to answer.

From Statement B:

Since Statement B gives no information about the distance between AB and DE, it is insufficient to calculate the perimeter of the hexagon.

11. a **From Statement A:**

As the sum of the number of parking slots in Mohit's house and Pranab's house is an even number, the number of parking slots in each of Pavan, Pranab and Mohit's house is one and the number of parking slots in Santosh's house is two. Also, Santosh must be staying in the second largest house. Hence, this statement alone can answer the question.

From Statement B:

The houses of Pavan, Pranab, Mohit and Santosh have three, three, five and two parking slots respectively. It is also known that the largest house cannot have five parking slots. But we cannot deduce anything about the second largest house. Hence, this statement alone cannot answer the question.

12. c Let the number of shares sold by Sajid and Hasan on Day 1 be 36x each.

Investment made by Sajid

= 375 × 18x + 250 × 18x = Rs. 11,250x.

Profit made by Sajid

= 750 × 18x + 625 × 18x – 375 × 18x – 250 × 18x

= Rs. 13,500x.

Sajid's Margin on Day 1 ≈ 54.5%.

Investment made by Hasan

= 225 × 36x = Rs. 8,100x.

Profit made by Hasan

= 375 × 16x + 300 × 20x – 225 × 36x

= Rs. 3,900x.

Hasan's Margin on Day 1 = 32.5%.

13. b **For Hasan:**

As the share price at 11:00 a.m. and 12:00 noon was Rs. 500 and Rs. 400 respectively, the number of shares sold by Hasan at 11:00 a.m. and 12:00 noon must be in the ratio 4 : 5 respectively. Let the number of shares sold by Hasan at 11:00 a.m. and 12:00 noon be 4x and 5x respectively.

Total sales amount = 500 × 4x + 400 × 5x

= Rs. 4,000x

Total investment in purchase

= 750 × 9x = Rs. 6,750x

$$\text{Margin (loss)} = \frac{6750 - 4000}{4000} = 68.75\%$$

For Sajid:

Let the total number of shares sold by Sajid at 9 a.m. and 10 a.m. be 2y.

Total sales amount

= 200 × y + 300 × y = Rs. 500y

Total investment in purchase = 500 × y + 625y

= Rs. 1,125y

$$\text{Margin (loss)} = \frac{1125 - 500}{500} = 125\%$$

Required ratio = 68.75 : 125 = 11 : 20

14. d **From Statement A:**

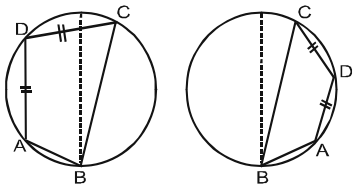
Since we do not know the angle between AB and BC, infinitely many cyclic quadrilaterals ABCD are possible, where AB = 8 cm, BC = 15 cm and AD = CD. Hence, this statement alone cannot answer the question.

From Statement B:

Circumcircle of BCD is also the circumcircle of ABCD. Since we do not know the lengths of AD and CD, infinitely many cyclic quadrilaterals ABCD are possible. Hence, this statement also cannot answer the question alone.

Combining Statements A and B:

In a circle of diameter 17 cm, construct a chord BC = 15 cm. This chord divides the circle into two unequal parts. On both these parts, chord AB of length 8 cm can be drawn. Even if AD = CD, we can arrive at two different quadrilaterals ABCD (see the figures given below). Hence, the question cannot be answered even by using both the statements together.



15. d **From Statement A:**

Statement A alone is clearly insufficient to answer the question.

From Statement B:

$$a^2 + b^2 + c^2 = 83$$

Case I:

(a, b, c) = (1, 1, 9)

Case II:

(a, b, c) = (3, 5, 7)

Statement B alone is also not sufficient to answer the question.

From Statements A and B:

The values of (a, b, c) are (3, 5, 7) and the sum of a, b and c is 15.

16. b **From Statement A:**

$$6q - p = 5$$
$$p = 6q - 5$$
$$p + q = 7q - 5$$

(7q – 5) when divided by 7 leaves remainder 2.

This statement alone is sufficient to answer the question.

From Statement B:

$$8q + p = 45$$
$$p = 45 - 8q$$
$$p + q = 45 - 7q$$

(45 – 7q) when divided by 7 leaves remainder 3.

This statement alone is sufficient to answer the question.

17. b The given information can be shown as:

Name	-	Ajay	-
Surname	Rathore/Agarwal	-	Agarwal/Rathore

Therefore, the surame of Ajay is either Yadav or Sharma.

From Statement A:

The surname of Chetan is Agarwal; but we still cannot conclude anything about the surname of Ajay. This statement alone is not sufficient to answer.

From Statement B:

The surname of Bikas is Yadav; therefore, the surname of Ajay is Sharma. This statement alone is sufficient to answer.

18. b Let the ages of the five people, from youngest to oldest, be represented by A1, A2, A3, A4 and A5 respectively. From the given information it can be concluded that the age of the Engineer is A1 and the age of the Professor is A2. As the age of the Lawyer is not A5 and he is standing between the Manager and the Doctor, the Manager must be standing at one of the ends of the row and the Professor must be standing at the other end of the row. The tables given below show the two possible cases.

Age	A2	A1	A5	-	-
Profession	Professor	Engineer	Doctor	Lawyer	Manager

or

Age	-	-	A5	A1	A2
Profession	Manager	Lawyer	Doctor	Engineer	Professor

From Statement A:

The given information is already present in the root of the question. This statement alone is not sufficient to answer.

From Statement B:

As the Manager is younger than the Lawyer, the age of the Manager must be A3. Hence, exactly two people are younger than him. This statement alone is sufficient to answer.

For questions 19 to 21 :

From statements (III) and (V), it can be concluded that both T2 and T3 ended up with either 2 or 4 points.

Case 1: When T2 and T3 scored 2 points each.

Since T3 won against T2, T3 must have lost its remaining matches and T4 must have won all its matches. Thus, T1 must have played on Monday against T3, but this was not the case as per the statement (IV). Hence, this case is invalid.

Case 2: When T2 and T3 scored 4 points each.

Since T2 lost against T3 on Tuesday, it must have won against T1 and T4. From statement (IV), T2 and T4 did not play on Wednesday and Saturday respectively. So T2 must have won its matches against T4 and T1 on Friday and Saturday respectively.

Further analysis leads to the following table.

Day	Match played between	Winner
Monday	T1 & T4	T1
Tuesday	T2 & T3	T3
Wednesday	T1 & T3	T3
Thursday	T3 & T4	T4
Friday	T2 & T4	T2
Saturday	T1 & T2	T2

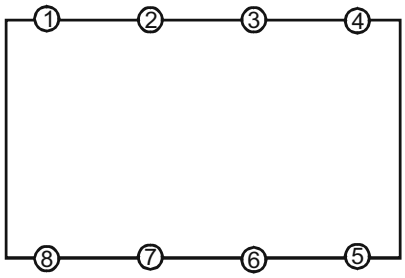
19. a T4 scored 2 points.

20. c T3 lost against T4.

21. d The match played on Friday was between T2 and T4.

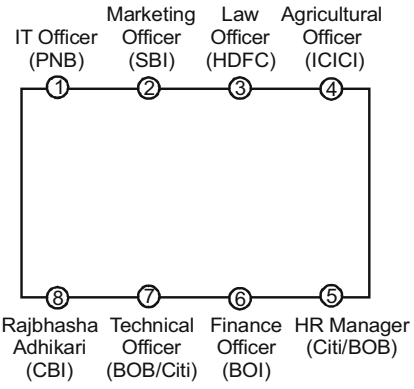
For questions 22 to 24 :

Consider the following table with marked positions.

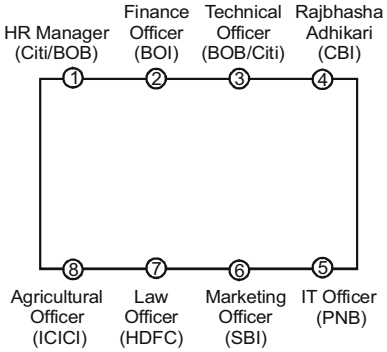


From statements (III) and (VI), Rajbhasa Adhikari is sitting on either chair 4 or chair 8. From statements (II), (IV) and (V), it can be deduced that the Law Officer, the Marketing Officer and the officer who works in PNB are sitting along the same side of the table. Now, from statements (I) and (III), it can be concluded that the Finance Officer, the HR Manager, the Technical Officer and the Rajbhasha Adhikari are sitting along the same side of the table. Therefore, IT Officer works in PNB.

Further analysis leads to the following arrangements.



OR



22. d HR Manager is sitting to the immediate right of Finance officer.

23. b For six persons, we can definitely determine the banks in which they work.

24. a The person who is sitting opposite the Law Officer works in BOI.

For questions 25 to 28 :

Number of eggs laid on each day

= Number of hens in the poultry farm

= 60.

Out of the eggs laid on each day, the number of eggs that got rotten is either 2 or 3 or 4.

Out of the eggs laid on each day, the number of eggs that got broken is either 4 or 5 or 6.

Maximum possible number of eggs taken to the market for sale on day 1

= 60 – (2 + 4)= 54.

Minimum possible number of eggs taken to the market for sale on day 1

= 60 – (4 + 6)= 50.

The minimum number of eggs that are left unsold each day must be 5, as the number of eggs that are rotten and broken among them needs to be an integer. It can be at max 10, since number of egg left unsold on any day is less than 20% of the number of eggs laid on each day, i.e. 20% of 60 = 12.

So, the number of eggs that are sold on day 1 ranges from (50 – 10 = 40) to (54 – 5 = 49), (both inclusive).

On the next day again 60 eggs are laid, so from the above logic the range of number of eggs sold should again come out to be from 42 to 49 (both inclusive), but there are eggs that remain unsold at the end of the previous day.

Minimum possible number of eggs that are left over from the previous day and are taken along with the eggs laid on a day to the market for sale

= 5 – (40% of 5) – (2% of 5) = 2.

Maximum possible number of eggs that are left over from the previous day and are taken along with the eggs laid on a day to the market for sale

= 10 – (40% of 10) – (20% of 10) = 4.

So, the range of number of eggs that are sold on day 2 varies from (40 + 2 = 42) to (49 + 4 = 53) (both inclusive) and this holds true for day 3, day 4 and day 5 also.

	Eggs Laid	Rotten	Broken	Sold	Unsold
Day 1	60	2 - 4	4 - 6	40 - 49	5 or 10
Day 2	60	2 - 4	4 - 6	42 - 53	5 or 10
Day 3	60	2 - 4	4 - 6	42 - 53	5 or 10
Day 4	60	2 - 4	4 - 6	42 - 53	5 or 10
Day 5	60	2 - 4	4 - 6	42 - 53	5 or 10

25. c The minimum possible number of eggs that were sold on day 4 can be 42.

42 eggs are sold in the scenorio when 10 eggs are left unsold.

So, the next day i.e. day 5, the minimum number of eggs that were sold can be calculated as

Out of the 60 eggs that were laid – maximum rotten and broken eggs can be removed which are 4 and 6 respectively. Thus, left with 50 eggs. Also, from the 10 eggs of the previous day maximum rotten and broken can be removed which are 4 and 2 respectively, thus left with 4 eggs only. So, out of the total 54 eggs, a maximum of only 10 eggs can be left unsold. Therefore, the minimum eggs that were sold on day 5 were 54 – 10 = 44.

Hence, aggregate sum of eggs is 42 + 44 = 86.

Note: Most of the students will make a mistake of considering 42 eggs for both the days but this is not possible on any two consecutive days simultaneously.

26. b Number of eggs that got rotten and broken is maximum possible.

So, assume that on each day 10 eggs remain unsold at the end of each day.

So, out of these 10 eggs that remain unsold at the end of each day, the number of eggs that get rotten and broken on the next day is 4 and 2 respectively.

The maximum number of eggs that got rotten and broken from among the eggs laid each day is 4 and 6 respectively.

So, the number of eggs that got broken across all the five days

= 6 × 5 + 2 × 4 = 38.

Number of eggs that got rotten across all the five days

= 4 × 5 + 4 × 4 = 36.

Required difference = 38 – 36 = 2.

27. a The maximum number of eggs that were left unsold at the end of the fifth day can be 10.

28. a The maximum number of eggs that were sold on day 1 can be 49, in a scenario when 5 eggs were left unsold. In this case, the maximum number of eggs that were sold on day 2 can be calculated as

60(laid on day 2) – 2 (minimum rotten out of 60) – 4 (minimum broken out of 60) + 5 (previous days unsold eggs) – 2(rotten out of 5) – 1(broken out of 5) – 5(minimum unsold) = 51

Since, on day 2 also, 5 eggs were left unsold the maximum number eggs sold on day 3 will again be 51. The same holds true for day 4 and day 5.

So, the maximum number of eggs that can be sold in the entire week can be 49 + 51 × 4 = 253.

Note: Most of the students will make a mistake of considering 53 eggs for any two consecutive days but this is not possible on any two consecutive days simultaneously.

For questions 29 to 32 :

Name	Wife	Place	Game
Gurvinder		Jaipur / Guntur	TT / Cricket
Surinder		Guntur / Jaipur	Cricket / TT
Mahinder	Sita	Ambala	Snooker
Bhupinder		Noida	Badminton
Harinder	Monica	Kapurthala	Volleyball
Joginder	Rama	Jammu	Football

29. b The man from Kapurthala is Harinder and is married to Monica.

30. b Mahinder plays Snooker and belongs to Ambala.

31. a Badminton is being played by Bhupinder.

32. d The wife of Surinder can be one of Dolly, Trisna or Kaveri, which cannot be determined.

For questions 33 to 36 :

According to the given conditions, the minimum score that a winning team can score in the first four sets is 25 and in the last set is 15.

From statements (iii) and (vi), it can be inferred that in one of the sets the score of Brazil and Russia were 12 and 25 respectively.

From statements (ii), (v) and (vi), there are two possibilities-

Case I: Russia scored the maximum score 30. In this case Russia cannot win any other set as it can win only two sets. In this scenario, Russia must lose a set with a score of either 25 or 30. With a score of 30 it cannot lose a set as 30 is the maximum score, thus it must have lost a set with a score of 25. In that case, Brazil must have scored 27.

Also, Russia scored 23 points in one of sets, which means Brazil must have scored 25 points (as Russia lost the set), Now, to make the total of Russia as 116, if must have scored 13 and to make the total of Brazil as 108, it must have scored 16 in the final set, which is not possible. Brazil can reach a score of 16 only when Russia scored 14 otherwise Brazil must have won at the score of 15. Thus, it can be said that Russia did not score 30 points.

	Brazil	Russia
Set 1	12	25
Set 2	28	30
Set 3	27	25
Set 4	25	23
Set 5	16	13
Total Score	108	116

(Not possible)

Case II: Brazil scored 30 points and Russia scored 28. Also, in one of the sets Russia scored 23 points. Now, there are again two possibilities - either Russia won the set as Brazil scored 21 points them it must be the fifth set or Russia lost the set as Brazil scored 25 points and it is one of the first four sets. If the first possibility is considered, in that case. Brazil must win the remaining two sets as Russia has already won two sets (12-25, 21-23) and to win two sets the minimum score of Brazil must be 25 in each set. But in this case, the total score of Brazil in all the five sets will become more than 108. Hence, Russia lost the set with the score of 23.
So the scores of three sets are tabulated below-

	Brazil	Russia
Set 1	12	25
Set 2	30	28
Set 3	25	23
Set 4		
Set 5		
Total Score	108	116

Now, the sum of the scores of Russia in the remaining two sets is 116 – (25 + 28 + 23) = 40.

Also, from statement (ii) one of the scores of the remaining two sets of Russia must be one of 23 or 25 or 28.

So, the possible scores of Russia in the remaining two sets are (23, 17), (25, 15) and (28, 12). Also, the sum of the scores of Brazil in the remaining two sets must be 108 – (12 + 30 + 25) = 41. The various possibilities are-

	Brazil	Russia
Set 4	23	25
Set 5 (NP)	18	15

	Brazil	Russia
Set 4	27	25
Set 5 (NP)	14	15

	Brazil	Russia
Set 4	21	23
Set 5 (NP)	20	17

	Brazil	Russia
Set 4	25	23
Set 5 (NP)	16	17

	Brazil	Russia
Set 4	30	28
Set 5 (NP)	11	12

	Brazil	Russia
Set 4	26	28
Set 5	15	12

* NP - Not Possible

33. c The maximum difference by which a team won a set is 13 points.

34. a The score of Russia in the fifth set is 12 points.

35. b In three of the sets the score of Brazil was an even number.

36. c The required common score was 25.

■■