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Logical Reasoning based on Arrangements

Arrangement questions are one of the most common question types in logical reasoning. As the name suggests, questions on arrangements typically involve arranging people or objects in straight lines or around circles/squares or other geometrical shapes.

The key skills involved in solving questions on arrangements include but are not limited to:

- (i) the ability to visualise the geometrical shape of the arrangement situation.
- (ii) the ability to order the clues in the correct order of usage (as explained in the theory of logical reasoning).
- (iii) the ability to perceive what indirect clues are talking about – and how to use them.
- (iv) the ability to convert clues written in language form into visual cues so that you do not need to read the text again and again. Also, converting the language clues to visual cues is critical for the purpose of being able to ‘see’ all the clues at one go.

Illustrated below are the solutions to a few typical questions on arrangements. We would advise you to first have a look at the question and try to solve the same on your own before looking at the step by step process of solving the same – illustrated through the revolutionary “Reaction Tracker” mechanism which is an integral part of this section of the book.

Note: The Reaction tracker is a blow by blow account of exactly what reaction should go on in your mind as you solve an individual question in reasoning.

Look at the following questions and try to solve them:

Example 1 Question at an easy level of difficulty

Directions: Study the information given below to answer these questions.

- (i) Arnold’s fitness schedule consists of cycling, rowing, gymnasium, jogging and boxing from Monday to Saturday, each workout is on one day, one day being a rest day.
- (ii) Gymnasium workout is done neither on the first nor on the last day but is done earlier than rowing.
- (iii) Jogging is done on the immediate next day of the rowing day.

- (iv) Cycling is done on the immediate previous day of the rest day.
- (v) Jogging and boxing were done with a two-day gap between them.
- (vi) Boxing was done on the following day the rest day.

1. Which of the following is a rest day?
 - (a) Wednesday
 - (b) Tuesday
 - (c) Friday
 - (d) Thursday
2. Cycling and jogging days have a gap of how many days between them?
 - (a) Nil
 - (b) Two
 - (c) Three
 - (d) Four
3. On which day is boxing done?
 - (a) Thursday
 - (b) Friday
 - (c) Monday
 - (d) Wednesday
4. Which of the following is a wrong statement?
 - (a) Gymnasium workout is done on the immediate previous day of rowing.
 - (b) Jogging is done three days after the day on which boxing was done.
 - (c) There is a gap of three days between the days on which cycling and rowing are done.
 - (d) There is a two days' gap between the rest day and the day on which gymnasium workout is done.
5. Which of the following is the correct statement?
 - (a) Jogging competition is done after rowing.
 - (b) Cycling is done on Thursday.
 - (c) No workout is done on Wednesday.
 - (d) Rowing is done earlier than cycling.

REACTION TRACKER

The starting figure we start with when we read the first statement is:

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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Workouts are cycling, rowing, gymnasium, jogging and boxing.

From the second and third clues (gymnasium workout is done neither on the first nor on the last day but was done earlier than rowing and jogging was done on the day immediately following the rowing day), we know that rowing and jogging should be together and also that gymnasium has to be somewhere before this.

Visually this can be represented as:



From the fourth and sixth clues we have:

C-Rest day-B

Note: Putting it in a box signifies that there is no break between the items in the box.

Once we have these two visual representations we can go back to our original figure and think as follows:

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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Since gymnasium has to precede rowing and jogging, and gymnasium is not on the first day we can have 3 possibilities for placing gymnasium—viz: Tuesday, Wednesday or Thursday.

Possibility 1:

Monday	Gymnasium
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

This case is rejected because, once we place gymnasium we would need to place rowing and boxing in either **Wednesday-Thursday** or **Thursday-Friday** or **Friday-Saturday**. In each of these cases, we would also need to place a 3 day period having **Cycling-Rest day-Boxing**. It can be easily seen that in any of these 3 situations under Possibility 1, we do not have a completely free 3 day period anywhere in the week. Thus, we can reject Possibility 1.

Possibility 2:

Monday	Gymnasium
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

Rejected on the same logic as Possibility 1. There is no availability of a 3 day window to place **Cycling-Rest day-Boxing**.

Possibility 3:

Monday	Gymnasium
Tuesday	
Wednesday	
Thursday	
Friday	

This is the only possibility that would work as in this case, the respective work outs ordering would be

Monday	Cycling
Tuesday	Rest Day
Wednesday	Boxing
Thursday	Gymnasium
Friday	Rowing
Saturday	Jogging

Thus, the answers are:

1. (b); Tuesday is the rest day.
2. (d); 4 days
3. (d); Boxing is done on Wednesday.
4. (d); The statement in option (d) is incorrect.
5. (a); Only the statement in option (a) is correct.

Example 2

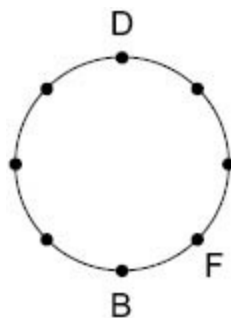
Directions: Study the following information to answer these questions.

- (i) Alex, Betsy, Chloe, Dennis, Edward, Fiona, Giles and Herbert are gamblers sitting around a round table facing the centre.
- (ii) Dennis is the neighbour of Alex but not of Herbert.
- (iii) Betsy is the neighbour of Fiona and 4th to the left of Dennis.
- (iv) Edward is the neighbour of Herbert and 3rd to the right of Fiona.
- (v) Chloe is neither the neighbour of Alex nor of Giles.

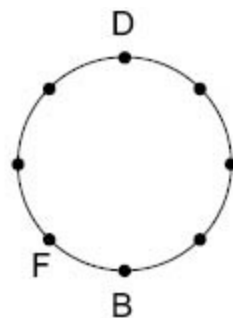
1. Which of the following is wrong?
 - (a) Betsy is to the immediate left of Herbert.
 - (b) Herbert is to the immediate left of Edward.
 - (c) Dennis is 4th to the right of Fiona.
 - (d) All are correct.
2. Which of the following is correct?
 - (a) Dennis is to the immediate left of Giles.
 - (b) Alex is between Chloe and Dennis.
 - (c) Fiona is 3rd to the right of Dennis.
 - (d) Edward is between Herbert and Betsy.
3. Which of the following groups has the 2nd person sitting between the 1st and the 3rd?
 - (a) Alex-Fiona-Chloe

- (b) Giles-Alex-Dennis
 (c) Betsy-Edward-Herbert
 (d) Herbert-Fiona-Betsy
4. Which of the following pairs has the 1st person sitting to the immediate right of the second?
 (a) Betsy-Herbert (b) Fiona-Betsy
 (c) Edwards-Giles (d) Alex-Dennis
5. Which of the following pairs are fourth to one another?
 (a) Chloe-Edwards (b) Fiona-Herbert
 (c) Dennis-Chloe (d) Dennis-Betsy
6. If Chloe and Giles interchange their positions, which of the following will indicate Alex's position?
 (a) To the immediate right of Giles
 (b) 4th to the right of Chloe
 (c) 2nd to the left of Giles
 (d) To the immediate left of Chloe

6-11 : From clues (i) and (iii), we get following two possibilities:

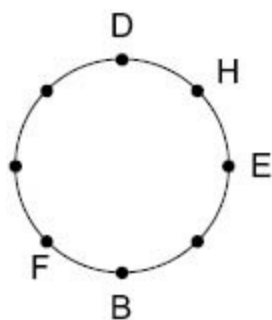


Case I

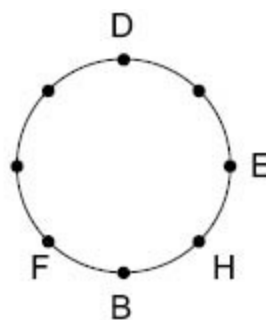


Case II

Now, read clue (iv): Edward is third to the right of Fiona. This information rejects Case I. Using clue (iv), we get the following two possibilities, i.e. Case II (a) and Case II (b).

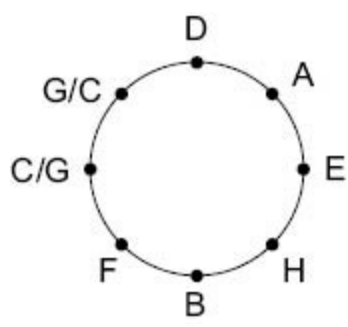


Case II (a)

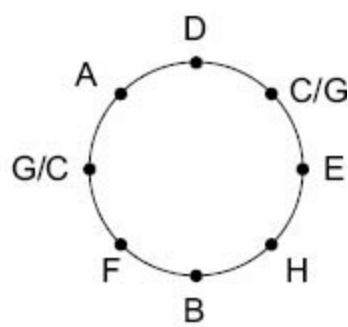


Case II (b)

Now, from clue (ii), we come to know that Dennis is not the neighbour of Herbert. Hence, reject Case II(a). From clue (ii) we get the following two possibilities:



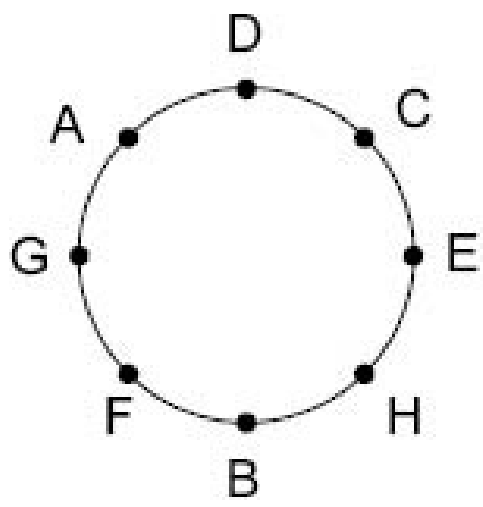
Case II (c)



Case II (d)

Now, from clue (v), Chloe can't be the neighbour of Giles. Therefore, reject Case II (c).

Again, since Chloe can't be the neighbour of Alex, the final seating arrangement will be as follows:



The answers then become pretty straight forward

1. (c) 2. (c) 3. (b) 4. (d) 5. (d) 6. (d)

Example 3

Directions: These questions are based on the information that follows.

In a row of soldiers facing North, (i) Lambert is 8th to the right of Khurusheva; (ii) Mickey is 16th from the left end; (iii) Lambert is 16th to the right of Jackson, who is 27th from the right end of the row; (iv) Khurusheva is nearer than Mickey to the right end of the row; (v) there are 5 boys between Mickey and Khurusheva.

1. How many soldiers are there between Jackson and Mickey?
 - (a) One
 - (b) Two
 - (c) Three
 - (d) Data inadequate
2. How far away is Khurusheva from the right end of the row?
 - (a) 30th
 - (b) 10th
 - (c) 19th
 - (d) 18th
3. How many soldiers are there in the row?
 - (a) 50
 - (b) 40

(c) 36

(d) Data inadequate

4. How far away is Jackson from the right end of the row?

(a) Data inadequate

(b) 24th

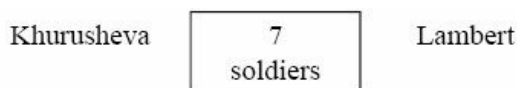
(c) 25th

(d) 27th

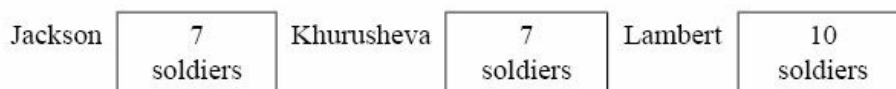
REACTION TRACKER

Let us arrange the whole information.

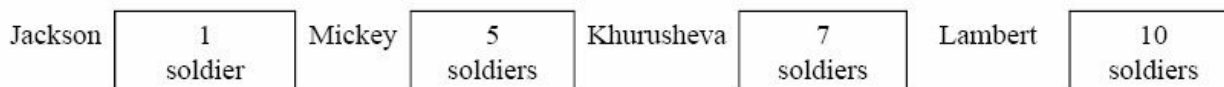
From clue (i), we get



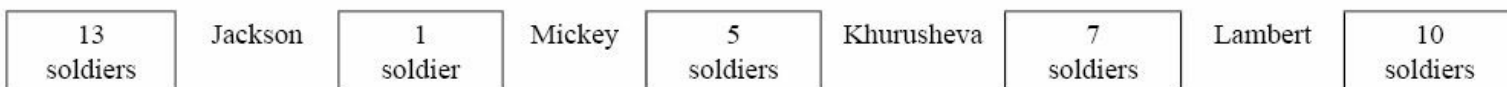
Now, using clue (iii), we get



Now, using clue (iv) and clue (v), we get



Now, from clue (ii), we get the complete information as following:



Hence the answers are:

1. (a)
2. (c) From the above information it is obvious that occupies 19th position from the right end of the row.
3. (b) Total numbers of soldiers = 13 + 3 + 5 + 1 + 7 + 1 + 10 = 40
4. (d)

EXERCISE ON ARRANGEMENTS

Directions for Questions 1–5: (Question Category: Matching Puzzle) Study the following information and answer the questions that follow:

- i. Six picture cards P, Q, R, S, T and U are framed in six different colours – blue, red green grey yellow and brown and are arranged from left to right (not necessarily in the same order).
 - ii. The pictures are of king, princess, queen, palace, joker and prince.
 - iii. The picture of the palace is in the blue colour frame but is not on card S and card P which is of the queen, is in the brown frame and is placed at the extreme right.
 - iv. The picture of the princess is neither on card S nor on card T and is not in either the green or the yellow frame. Card R has a picture of the king in a grey frame and it is fifth from right and next to card Q having the picture of the prince.
1. If the princess's card is immediately between the cards of the palace and the prince, then at

- what number is the joker's card placed from left?
- (a) Fifth (b) Second
(c) First (d) Data inadequate
2. Which is the correct combination of card and frame colours?
- (a) T-Yellow (b) U-Red
(c) Q-Green (d) Data inadequate
3. The picture of the joker is in which colour frame?
- (a) Yellow (b) Green
(c) Blue (d) Data inadequate
4. The picture of the palace is printed on which card?
- (a) S (b) T
(c) U (d) None of these
5. If the photo frame of the prince and joker is interchanged, then the colour of frame of the prince is:
- (a) Green (b) Yellow
(c) Blue (d) Data inadequate

Directions for Questions 6 to 8: Study the following information and answer the questions that follow:

A company is planning to organise 8 lectures—A, B, C, D, E, F, G and H for 3 subjects—Quants, D.I. and English.

The lectures are spread over three days.

Quants is to be covered first in 3 lectures followed by English and then D.I. in 2 lectures. Lectures A, C and D have to be different days. (Lectures B and F have to be on the same day), but lecture E cannot be clubbed with A or G or D. Lecture G and H should come on the same day. Lecture A is a lecture on Quants and Lecture C cannot be on the last day. It is also known that there are at least 3 lectures on day 1.

6. Which of the following pairs of lectures can go along with lecture 'A' on Quants?
- (a) B, C (b) G, H
(c) D, E (d) Data inadequate
7. Which combination of lectures was arranged on the second day of the series?
- (a) D, E, F (b) B, C, E
(c) C, G, H (d) Data inadequate
8. Which of the following lectures were for D.I.?
- (a) D, F (b) B, C

(c) G, H

(d) Data inadequate

Directions for Questions 9 to 11: Five courses — A, B, C, D and E, each of one month duration are to be taught from January to May one after the other though not necessarily in the same order by lecturers P, Q, R, S and T. P teaches course 'B' but not in the month of April or May. Q teaches course 'A' in the month of March. R teaches in the month of January but does not teach course 'C' or 'D'.

9. Which course is taught by S?

- (a) C (b) E
(c) Either C or D (d) D

10. Which lecturer's course immediately follows course B?

- (a) Q (b) P
(c) S (d) T

11. Which course is taught in the month of January?

- (a) C (b) D
(c) E (d) Data inadequate

Directions for Questions 12 to 15: The annual gathering of a college was organised on a day. Six different programmes—drama, singing, mimicry, speech, story-telling and dance are to be performed by six students A, B, C, D, E and F, not necessarily in the same order. The programme begins with a song not sung by B and ends with a dance. C performs mimicry immediately after the speech. E performs drama just before the dance. D or F are not available for the last performance. The speech is not given by A. An interval of 30 minutes is given immediately after mimicry with three more items remaining to be performed. D performs immediately after the interval.

12. Which item is performed by F?

- (a) Song (b) Dance
(c) Speech (d) Data inadequate

13. Who performed the dance?

- (a) A (b) B
(c) Either A or B (d) F

14. Who was the first performer?

- (a) D (b) E
(c) A (d) Data inadequate

15. Who was the last performer?

- (a) A (b) B
(c) F (d) Data inadequate

Directions for Questions 16 to 18: Six persons—Akshay, Bobby, Celina, Dimple, Esha and Faisal took up a job with XYZ Consultants in a week from Monday to Saturday. Each of them joined for different posts on different days. The posts were of Clerk, Officer, Technician, Manager, Supervisor and Sales Executive, though not in the same order.

Faisal joined as a Manager on the first day. Bobby joined as a Supervisor but neither on Wednesday nor Friday. Dimple joined as a Technician on Thursday. The officer joined the firm on Wednesday. Esha joined as a clerk on Tuesday. Akshay joined as a Sales Executive.

16. Who joined the firm on Wednesday?
- (a) Bobby (b) Celina
(c) Esha (d) Data inadequate
17. Who was the last to join the firm?
- (a) Esha (b) Faisal
(c) Bobby (d) Akshay
18. On which of the following days did the Sales Executive join?
- (a) Thursday (b) Friday
(c) Saturday (d) None of these

Directions for Questions 19 to 21:

- i. Six friends A, B, C, D, E and F are sitting along the sides of a hexagonal table for playing a game, though not necessarily in the same order.
- ii. F, who is sitting exactly opposite A, is to the immediate right of B.
- iii. D is between A and B and is exactly opposite to C.
19. Who are the people sitting next to A?
- (a) D & E (b) D & F
(c) C & E (d) B & D
20. Who is sitting opposite B?
- (a) E (b) F
(c) A (d) C
21. Three of the following are alike in a certain way on the basis of sitting positions and so form a group. Which is the one that does not belong to the group?
- (a) B, C (b) A, D
(c) B, F (d) E, A

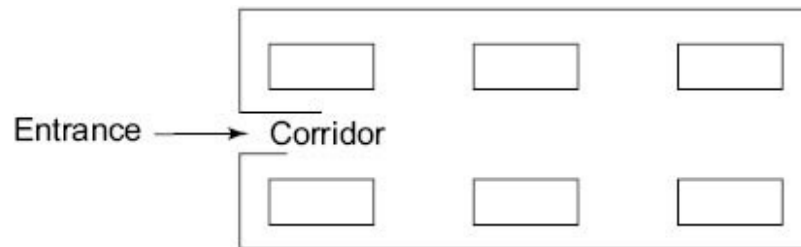
Directions for Questions 22 to 25: A group of five boys—Abdul, Bony, Chandan, Devdas and Eram, and a group of five girls—Paro, Queen, Reena, Saifali and Tulika are standing in rows facing each other (not in the same order). The group of girls is facing north.

Eram is not at any of the ends. Chandan is to the immediate right of Bony and Devdas is to the

immediate left of Abdul, who is facing Paro. There are as many girls between Paro and Queen as between Reena and Saifali. Abdul is second to the left of Bony. Saifali and Reena are not facing either Bony or Devdas.

22. Which pair of boys is standing at the ends of the row?
 (a) Chandan & Devdas
 (b) Chandan & Bony
 (c) Devdas & Bony
 (d) Data inadequate
23. Which of the following is definitely true?
 (a) Chandan is third to the right of Devdas.
 (b) Devdas is facing Paro.
 (c) Chandan is facing Saifali.
 (d) None of these
24. Who is standing to the immediate right of Abdul?
 (a) Eram (b) Chandan
 (c) Devdas (d) Data inadequate
25. Who is facing Bony?
 (a) Reena (b) Saifali
 (c) Queen (d) Data inadequate

Directions for Questions 26 to 29:



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, on the same side.

26. If E sits in his office and faces the corridor, whose office is to his left?
 (a) A (b) B
 (c) C (d) D
27. Whose office faces A's office?

- (a) B (b) C
(c) (e) D
28. Who is/are F's neighbour(s)?
(a) A only (b) A & D
(c) C (d) B & C
29. 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 30 to 34: Four families decided to go for a picnic to Jhumri Talaiya and agreed to meet at a place called Rani ka Talab before moving for the picnic. One family has no kid, while the others have at least one kid each. Amongst each family with kids, at least one kid goes to the picnic. Following is the information about the families.

- i. The family with two kids came just before the family with no kids.
- ii. D who does not have any kids reached just before C's family.
- iii. P and his wife reached last with their only kid.
- iv. Q is not B's husband.
- v. Q and S are fathers.
- vi. C's and A's daughters go to the same school.
- vii. B came before D and met A when she reached the fixed place.
- viii. R stays farthest from the place and he is a good singer.
- ix. S explained that his son could not come because of exams.

30. Who amongst the females arrived third?
(a) A (b) B
(c) C (d) D
31. Which is the correct pair of husband and wife?
(a) S and D (b) P and C
(c) Q and C (d) S and A
32. Whose daughters go to the same school?
(a) Q and R (b) P and R
(c) P and Q (d) Q and S
33. Whose family has definitely more than one kid?
(a) R's (b) S's
(c) Q's (d) P's

34. Among the males, who arrived second?

(a) P

(b) Q

(c) R

(d) S

Directions for Questions 35 to 38: In a bar, there are seven frequent visitors who visit the bar daily. On being asked about their visit to the bar the preceding Sunday, the following were the answers:

Jai Chand: I came in first and the next two persons to enter were Sohan Singh and Shail Munshi. When I left the bar, Jai Prakash and Vinod Rai were present in the bar. Deepak Garg left with me.

Jai Prakash: When I entered the bar with Vinod Rai, Jai Chand was sitting there. There was someone else also, but I was not in a position to recognise him.

Shail Munshi: I went to the bar for a short while last Sunday and met Jai Chand, Sohan Singh and Deepak Garg there.

Sohan Singh: I left immediately after Shail Munshi left.

Deepak Garg: I met Jai Chand, Sohan Singh, Shail Munshi, Jai Prakash and Vinod Rai during my first visit to the bar. But I got an urgent call and came out of the bar with Jai Chand. When I went to the bar the second time, Jai Prakash and Vinod Rai were there.

Pradeep Kumar: I had some urgent work, so I did not sit in the bar for a long time. Jai Prakash and Deepak Garg were the only people in the bar while I was there.

Vinod Rai: I was drunk and I don't remember anything.

35. Who among Jai Prakash and Deepak Garg, entered the bar first?

(a) Jai Prakash

(b) Deepak Garg

(c) Both entered

(d) Cannot be determined

36. Who was sitting with Jai Chand when Jai Prakash entered the bar?

(a) Sohan Singh

(b) Shail Munshi

(c) Deepak Garg

(d) Pradeep Kumar

37. How many of the seven members did Vinod Rai meet on Sunday in the bar?

(a) 2

(b) 3

(c) 4

(d) 5

38. Who were the last two persons to leave the bar?

(a) Jai Chand & Deepak Garg

(b) Pradeep Kumar & Deepak Garg

(c) Jai Prakash & Pradeep Kumar

(d) Jai Prakash & Deepak Garg

Directions for Questions 39 to 42: Seven sports awardees—A, B, C, D, E, F and G are to be honoured at a special luncheon. The players will be seated on the dias in a row. A and G have to catch the flight for their One Day International cricket match and so must be seated at the extreme

right. B, the Rajiv Gandhi Khel Ratna recipient must be in the centre. C and D are bitter rivals and therefore must be seated as far apart as possible.

39. Which of the following cannot be seated at either end?
- (a) C (b) D
(c) F (d) Cannot be determined
40. Which of the following pairs cannot be seated together?
- (a) B & D (b) C & F
(c) D & G (d) E & A
41. Which of the following pairs cannot occupy the seats on either side of B?
- (a) F & D (b) E & G
(c) D & E (d) None of these
42. What can be the position of C from the right side?
- (a) Third (b) Seventh
(c) Third or Seventh (d) Cannot be determined

Directions for Questions 43 to 47: Study the following information carefully and answer the questions that follow:

Six friends—Alok, Bheem, Chandar, Devdas, Earl and Ferguson are sitting on a bench facing in the same direction. Chandar is sitting between Alok and Earl; Devdas is not at the end. Bheem is sitting to the immediate right of Earl. Ferguson is not at the right end.

43. Who is to the immediate right of Ferguson?
- (a) Devdas (b) Alok
(c) Either Devdas or Alok
(d) Cannot be determined
44. How many persons are there to the left of Chandar?
- (a) One (b) Two
(c) Three (d) Four
45. Who is fourth from the left end?
- (a) Alok (b) Chandar
(c) Bheem (d) Cannot be determined
46. Who is at the left end?
- (a) Ferguson (b) Alok
(c) Bheem (d) Cannot be determined
47. Which of the following is sitting to one side of Devdas?

(a) Ferguson-Earl

(b) Ferguson-Bheem

(c) Ferguson-Chandar

(d) None of these

Answer Key

- | | | | |
|---------|---------|---------|---------|
| 1. (c) | 2. (b) | 3. (d) | 4. (b) |
| 5. (d) | 6. (b) | 7. (d) | 8. (d) |
| 9. (c) | 10. (a) | 11. (c) | 12. (d) |
| 13. (c) | 14. (d) | 15. (d) | 16. (b) |
| 17. (c) | 18. (b) | 19. (a) | 20. (a) |
| 21. (a) | 22. (a) | 23. (d) | 24. (a) |
| 25. (c) | 26. (c) | 27. (d) | 28. (a) |
| 29. (b) | 30. (d) | 31. (b) | 32. (c) |
| 33. (b) | 34. (d) | 35. (b) | 36. (c) |
| 37. (b) | 38. (d) | 39. (c) | 40. (d) |
| 41. (b) | 42. (c) | 43. (a) | 44. (c) |
| 45. (b) | 46. (a) | 47. (d) | |

Solutions

SET 1 Questions 1 to 5 For this question, start by using the direct clues first. We know that there are six cards P, Q, R, S, T, U; six colours—blue, red, green, grey, yellow and brown and, six pictures—King, Princess, Queen, Palace, Joker and Prince. The following set of deductions gives us the entire solution of the problem.

The second part of the third statement is the most directly usable → P-Brown-Queen-Extreme right. We also know that R-King-Grey-Fifth from Right (ivth statement).

Also Q being next to R, the following arrangements are possible

Possibility Table 1:

Q	R	--	--	--	P
	King				Queen
	Grey				Brown

And Possibility Table 2:

--	R	Q	--	--	P
	King				Queen

From this point we start using the indirect clues.

From statement (iii), Palace-Blue-Not S \rightarrow Hence T or U Further, from statement (iv), Princess – Not S and not T, \rightarrow Not Green or Yellow \rightarrow Hence, Red and U. This further gives us Palace – T-Blue.

Hence, S must be the joker (only pair left). Also, green and yellow must be shared between Q and S.

Thus, the following pairings emerge:

P — Brown — Queen

Q — Green/Yellow — Prince

R — Grey — King

S — Yellow/Green — Joker

T — Blue — Palace

U — Red — Princess

At this point we have used all the statements. Hence go straight into the questions.

For Question 1: for the Princess card (U) to be immediately between the Palace (T) and the Prince (Q), Possibility Table 2 must emerge to be the correct one. In such a case, the arrangement of cards becomes:

S R Q U T P.

Hence the Joker's cards must be at the extreme left. Option (c) is correct.

The remaining 4 questions can be directly answered from what is available.

2. U-Red is correct. Option (b) is correct.
3. Data inadequate since we don't know whether the Joker is yellow or green. Option (d) is correct.
4. The Palace is on Card T. Option (b) is correct.
5. Data remains inadequate since we do not know which colour is for which card. Option (d) is correct.

SET 2 Questions 6 to 8: Given that A, C and D have to be separate and that A is Quants, and C cannot be on the last day. Also that there are 3 lectures (at least) on day 1, the order of A, C and D must be

Day 1	Day 2	Day 3
A	C	D

Further B cannot be clubbed with A or D, hence must be on the second day. Thus F must also be on the same day. This gives us the following table.

Day 1	Day 2	Day 3
A	C	D
	B	
	F	

This leaves us with G, H and E. Since, Day 1 has to have at least 3 lectures, G and H must be on day 1. This leaves us with E, which can be placed on either day 1 or 2 or 3.

Thus, the final table is:

Day 1	Day 2	Day 3
A, G, H, E?	C, B, F, E?	D, E?

Hence the answers are:

- G, H. Option (b) is correct.
- The data is inadequate since we do not know whether E was on Day 2 or not. Option (d) is correct.
- Again, the data is inadequate since we do not know for sure which the last 2 lectures were. Option (d) is correct.

SET 3 Questions 9 to 11: Using the three clues we get the following pairings:

P — B — Not April or May

Q — A — March

R — Not C or D — January

Put them together to get the following table.

A	B	C	D	E
Q	P			R
March	February			January

This leaves S and T to be teaching either C or D and either in April or May.

- We do not know who teaches C or D (between S & T). Hence Option (c) is correct.
- Course B occurs in February. Hence, we need to look for who is teaching in March. The answer to the question is Lecturer Q. Option (a) is correct.
- In January, Course E is taught. Option (c) is correct.

SET 4 Questions 12 to 15: The first two statements are just introductions to the situation. Going ahead from third statement onwards, the following chain of thoughts should arise.

REACTION TRACKER

Statement	Reaction
3	<u>Song</u> _ _ _ _ _ <u>Dance</u>
4	Song Not B → To be used later
5	To be used later
6	<u>Song</u> _ _ _ Drama/E Dance
7	D or F not dance. To be used later (since it is an indirect clue)
8	To be used later
9	Song – Mimicry/C – Drama/E Dance
	Song – <u>Mimicry</u> _ _ <u>Drama</u> _ _ _ Dance
	C C D E

At this stage, use Statement 4 to get the following figure. Since speech comes before mimicry, storytelling comes after mimicry.



The unused clues at this stage are (B not song): (F not last), (A not speech).

Using them does not give a definite placement for any of A, B or F.

Hence,

- 12. Data inadequate, since F can be either song or speech. Option (d) is correct.
- 13. Either A or B. Option (c) is correct.
- 14. Can be either A or F. Hence, data inadequate. Option (d) is correct.
- 15. Again could be A or B. Hence, data inadequate. Option (d) is correct.

SET 5 Questions 16 to 18: Basic information:

Six persons A, B, C, D, E & F on six days, Monday to Saturday; six posts — Clerk (C), Officer (O), Technician (T), Manager (M), Supervisor (S) and Sales Executive (SE).

The second paragraph gives the clues directly to fit in the following table:

A → Sales Executive	
B →	X Wed, X Friday
C →	
D → Technician	Thursday
E → Clerk	Tuesday
F → Manager	Monday

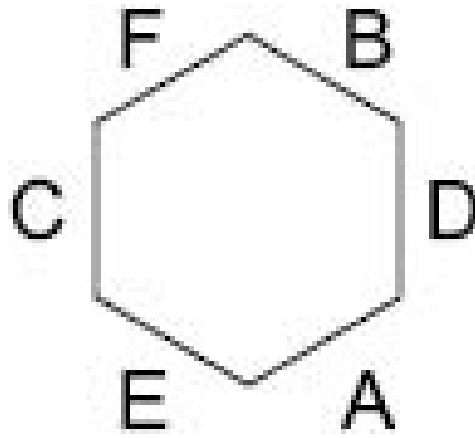
We also know that the officer joined on Wednesday. It can only be Celina (C). Thus, the table will look like:

A → Sales Executive	Friday
B → Supervisor	Saturday
C → Officer	Wednesday
D → Technician	Thursday
E → Clerk	Tuesday
F → Manager	Monday

Thus the answers are:

- 16. Celina (b)
- 17. Bobby (c)
- 18. Friday (b)

SET 6 Questions 19 to 21: The arrangement is:



Hence,

- 19. (a) D & E
- 20. (a) E
- 21. (a) B, C

SET 7 Questions 22 to 25: Since Chandan-Bony (C-B) and Abdul-Devdas (A-D) are definitely next to each other in that order (note: C is to the right of B will be represented by C-B when they are facing South), Eram (E) will definitely be in the centre place (as he is not at the end).

This gives us two possible arrangements for the men:

- (1) C B E A D or (2) A D E C B
- (2) is not possible since Abdul has to be second to Bony's left.

Thus the arrangement is:

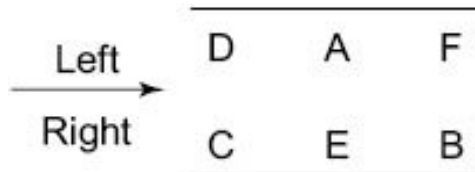
<u>C</u>	<u>B</u>	<u>E</u>	<u>A</u>	D
<u>R/S</u>	Q	<u>S/R</u>	<u>P</u>	T

(Where Paro, Queen, Reena, Saifali and Tulika are represented by P, Q, R, S, T respectively)

The answer is:

- 22. Chandan and Devdas (a)
- 23. (d)
- 24. Eram (a)
- 25. Queen (c)

SET 8 Questions 26 to 29:



From the last sentence, we get that F is also on the left side, so E will be on the right side. D will be on the left side. E does not have a corner office so he must be in the middle. E and F do not face each other and F's office is further down the corridor, so F occupies the last office on the left side. Office of C and D face each other, so C will have the first office on the right side and D will have the first office on the left side.

The answers are:

26. (c) C's office is on E's left.
27. (d) E's office faces A's office.
28. (a) Only A is F's neighbour.
29. (b) He was giving directions to reach B's office.

SET 9 Questions 30 to 34: The following reaction tracker table would help you solve this question set.

REACTION TRACKER TABLE

Opening Paragraph 4 families, one with no kid and others with at least one kid each.

Statement (i) (Family with 2 kids-Family with no kids)

At this point, we just make a visual representation of this clue. It is not directly usable as it gives many possibilities.

Further, it is also now known to us that we are trying to create a structure of the order in which the respective families come in. Mentally, we picture this as:

--	--	--	--

Statement (ii) D just before C. Not usable at this point. Also D has no kids.

Statement (iii) Usable at this point

			P & Wife
			Only kid

Statement (iv) Q is not the husband of B (means B is female). Again this clue is not directly usable.

Statement (v) Q and S are fathers. Hence males. Not usable at this point.

Statement (vi) A & C have daughters. Not usable at this point.

Statement (vii) A – B – D. Add the reaction of C coming after D (Statement ii) and we get the entire structure for the 4 women's arrival. The table now becomes.

A	B	D	C
		No kids	1 kid

Add Statement (i)'s reaction and the table further evolves to:

A	B	D	C
Daughter	2 kids	No kids	1 kid

Now concentrate on the husbands (Q, R & S)

Statement (viii) No information

Statement (ix) S must have 2 kids. Since his son has not come and it is known that every family which has kids has at least 1 kid coming to the picnic. Thus the table now evolves to the following:

Q-A	S – B	R – D	P & C
Daughter	2 kids	No kids	1 kid

Note: Since Q is a father he cannot be D's husband and only R is D's only possible husband.

Hence the answers are:

30. (d)
31. (b)
32. (c)
33. (b)
34. (d)

SET 10 Questions 35 to 38: This question looks extremely complicated due to the multiple statements, but the main issue required to be resolved while solving this question is the structure of the diagram. While solving this question concentrate mainly on who is present in the bar at different times of the day and correlate this information to the statements. Also try to number the events so as to give order to the various going-ins and coming-outs of the people. The following reaction tracker table gives the step by step reactions to the clues in the question.

REACTION TRACKER TABLE

Statement of	Reaction
Jai Chand (JC)	Event 1: JC comes in Event 2: Sohan Singh (SS) comes in. Event 3: Shail Munshi (SM) comes in. Constraint: JC leaves with Deepak Garg (DG) leaving Jai Prakash (JP) and Vinod Rai (VR) in the bar.
Jai Prakash (JP)	Event (Number not known): JP and VR enter. Constraint: JC and someone else was there.
Shail Munshi (SM)	Event: SM enters Constraint: Meets JC, SS and DG
Sohan Singh (SS)	Event x: SM leaves Event (x + 1): SS leaves
Deepak Garg (DG)	Event: DG enters. Constraints: Meets SS, SM, JP and VR during his first visit. Event: DG and JC leave. Event: DG enters for second time. Constraint: JP and VR are there when DG enters again. (No one else present)
Pradeep Kumar (PK)	Event: PK enters Constraint: Only JP and DG are present at this time.
Vinod Rai (VR)	No info. Deductions: When JP and VR enter only 2 people are there. We also know the first 3 events—JC enters, SS enters and SM enters. Also, DG meets SC, SS, SM, JR & VR in his first visit. This gives us that:

- Event 4: DG enters
- Event 5: SM leaves
- Event 6: SS leaves
- Event 7: JP and VR enter (at this time only JC and DG are there)
- Event 8: JC and DG leave (Now only JP and VR are present)
- Event 9: DG comes back again (now JP, VR and DG are inside)
- Event 10: VR leaves (Since when PK enters only JP and DG are there)
- Event 11: PK enters
- Event 12: PK leaves

Hence the answers are:

- 35. DG enters before JP. Hence (b).
- 36. DG was sitting there (Event 7). Hence (c).
- 37. VR meets JC, DG and JP. He comes in after SM and SS have left and leaves before P enters. Hence, he meets only 3 people. Hence (b).
- 38. JP and DG must be leaving last since they are there when PK leaves. Hence (d).

SET 11 Questions 39 to 42:

REACTION TRACKER

Statement	Reaction
Statement 1	----, ----, ----, ----, ----, ---- A, B, C, D, E, F and G
Statement 2 and 3	----, ----, ----, B, ---- A, G OR ----, ----, ----, B, ---G, A.
Statement 4	1 st and 5 th places must be occupied by C and D in any order.

Hence the answer are:

- 39. The end seats have to be occupied by either A, G, C or D. F cannot occupy any end seat Hence, option (c) is correct.
- 40. For E and A to be together, the only way is to put E on the 5th seat. But this is not possible since the 5th seat has to have either C or D. Hence, option (d) is the correct answer.
- 41. One of the seats adjacent to B has to be taken by either C or D. Hence, option (b) is the correct answer.
- 42. C can be third or seventh. Hence, option (c) is correct.

SET 12 Questions 43 to 47: From the clues it is evident that ACEB should be 4 people in that order and should be sitting together with no one in between. This means that they can be seated in one of the following 3 ways:

- Possibility 1: A C E B _ _
- Possibility 2: _ A C E B _
- Possibility 3: _ _ A C E B

This leaves us to place two people—D and F. Since, Devdas is not at the end and Ferguson is not a

the right end, we know that Possibility 1 and Possibility 2 get rejected. This leaves us with Possibility 3 and the final placement would be:

F D A C E B

The answers are:

43. (a)

44. (c)

45. (b)

46. (a)

47. (d)