

## CHAPTER – 2

# CIRCULAR ARRANGEMENT

### Circular Arrangement:

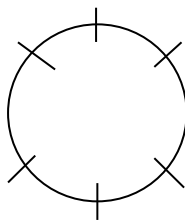
Questions on circular arrangement involve seating of people around a table or arrangement of things in a circular manner (for example, different coloured beads strung to form a necklace).

In case of people sitting around a table, the table could be of any shape – rectangular, square, circular or any other.

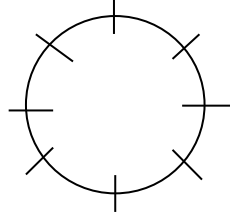
The data given in such sets of questions specify the positions of some or all of the individuals (or things) in the arrangement. The positions are specified through conditions involving specified persons sitting (or not sitting) opposite each other or a particular person sitting to the right or left of another person, etc.

Once you read the data, first draw the shape specified in the data and then draw the slots in the seating arrangement.

Six people  
around a circular table



Eight people  
around a circular table



Statements like “A and B are sitting farthest from each other” or “A and B sit across the table” imply that A and B sit opposite each other.

On the other hand, you should remember that, unlike in straight-line arrangement, the words “immediately” and “directly” do not play any role in circular arrangement. In general, there is no left side or right side (unless we are talking of ‘immediate right’ or ‘immediate left’).

So if it is given that C sits to right of B, then it is clear that C must be to the immediate right of B. Go “anti-clockwise” if anybody’s right has to be located, and go “clockwise” if somebody’s left has to be located. Let us take some examples.

**Directions for questions 1 to 5:** Read the following information and answer the questions that follow.

P, Q, R, S and T sit around a table.

P sits two seats to the left of R and Q sits two seats to the right of R.

- If S sits in between Q and R, who sits to the immediate right of P?  
(A) T (B) S (C) Q (D) R
- Which of the following cannot be the correct seating arrangement of the five persons in either the clockwise direction or the anti-clockwise direction?  
(A) P, Q, R, S, T (B) P, S, R, T, Q  
(C) P, Q, S, R, T (D) P, T, R, S, Q

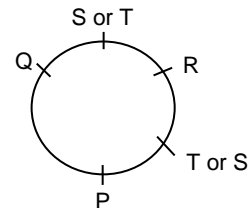
- If S is not sitting next to Q, who is sitting between Q and S?  
(A) R (B) P  
(C) T (D) Both R and P

- If a new person U joins the group such that the initial conditions for the seating arrangement should be observed and also a new condition that U does not sit next to R be satisfied, then which of the following statements is true?  
(A) U sits to the immediate right of S.  
(B) U sits to the immediate left of T.  
(C) U sits to the immediate left of P.  
(D) Either (A) or (B)

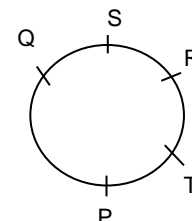
- If a new person U joins the group such that the initial conditions for the seating arrangement should be observed and also a new condition that U does not sit next to P, S or T be satisfied, then who will be the neighbours of P (one on either side)?  
(A) S and T (B) S and Q  
(C) T and R (D) R and Q

### Solutions for questions 1 to 5:

P sits two seats to the left of R, and Q sits two seats to the right of R. We can represent this information in the diagram below.

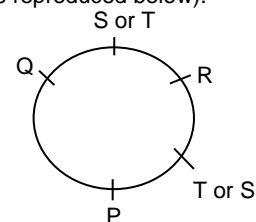


- If S sits between Q and R, then the arrangement is as follows.



As can be seen from the diagram, T is to the immediate right of P. Choice (A)

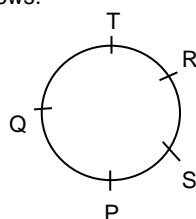
- We will take each choice and see whether it fits in the arrangement that we represented through a diagram in the analysis of the data (the same diagram is reproduced below).



We can see that the arrangement given in choice (A) is not possible and hence the answer choice is (A).

Choice (A)

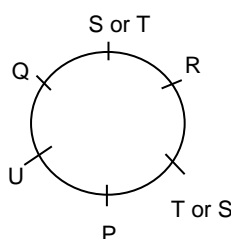
3. If S is not next to Q, then the seating arrangement is fixed as follows.



Now P is between Q and S.

Choice (B)

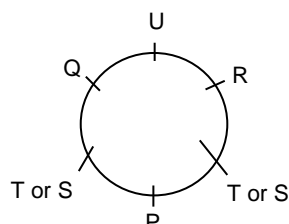
4. On the basis of the diagram that we drew, we find that to accommodate U we have to create a new slot between P and Q.



Hence, choice (C) is the correct answer.

Choice (C)

5. We create a new slot for the sixth person. But since U will not sit next to P, S or T, he will have to sit between R and Q. The arrangement will then look as follows:



As we can see from the diagram, the neighbours of P will be T and S.

Choice (A)

**Directions for questions 6 to 10:** Read the following information and answer the questions that follow.

There are 10 persons at a round table conference, consisting of a Professor, a Lawyer, a Doctor, a Scientist, an Accountant, a Grocer, two Computer Specialists and two Marketing Executives. The Professor sits opposite to the Lawyer. The Scientist and the Doctor sit opposite each other. The two Marketing Executives sit opposite each other with one of them sitting to the immediate left of the scientist. The Professor sits to the immediate right of the Scientist.

6. If the two Computer Specialists sit opposite each other but neither of them is immediately next to any Marketing Executive, who sits to the immediate right of the professor?
- (A) Computer Specialist  
(B) Marketing Executive  
(C) Grocer  
(D) Accountant

7. If the Grocer and Accountant do not sit opposite each other, then which of the following must be TRUE?

- (A) The Computer Specialist cannot sit beside the Lawyer.  
(B) One of the Computer Specialists is next to a Marketing Executive.  
(C) The Professor cannot have the Scientist and a Computer Specialist on his either side.  
(D) The Computer Specialists must sit next to one another.

8. If the Grocer and the Accountant each have a Marketing Executive as his immediate neighbour, then which of the following is definitely FALSE?

- (A) The two Computer Specialists are opposite each other.  
(B) A Computer Specialist is an immediate neighbour of the Scientist.  
(C) The Grocer is next to a Computer Specialist.  
(D) A Computer Specialist is an immediate neighbour of the Lawyer.

9. If a Computer Specialist is the immediate neighbour of a Marketing Executive and the Grocer is the immediate neighbour of the Lawyer, how many different kinds of seating arrangements are possible? (Assume that the two Computer Specialists are indistinguishable from each other and the two Marketing Executives are indistinguishable from each other.)

- (A) 3 (B) 6  
(C) 16 (D) 8

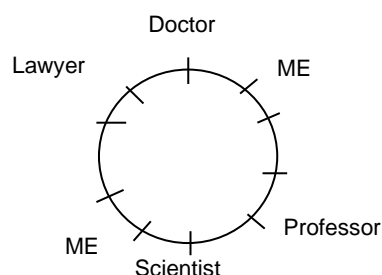
10. The maximum number of persons you can count if you start counting with the Scientist and end with a Marketing Executive (excluding both) is

- (A) 0 (B) 8  
(C) 5 (D) 6

**Solutions for questions 6 to 10:**

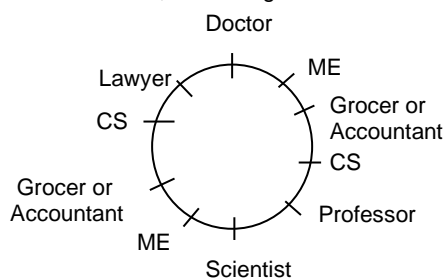
The Professor sits to the immediate right of the Scientist and opposite to the Lawyer. The Scientist sits opposite to the Doctor and one Marketing Executive is to the immediate left of the Scientist.

Choosing to place the Scientist in one of the 10 seats, we have the arrangement as follows.



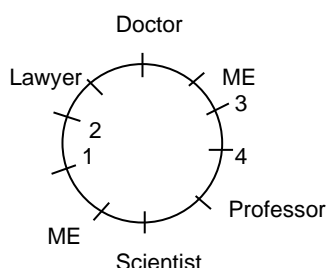
The vacant seats are one each for the two Computer Specialists, one for the Grocer and one for the Accountant.

6. The two Computer Specialists sit opposite each other. Neither of them is next to any Marketing Executive. So, the arrangement must be as follows



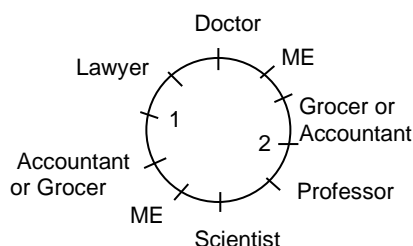
So, a Computer Specialist sits to the immediate right of the professor. Choice (A)

7. The Grocer and the Accountant do not sit opposite each other. Then the arrangements can be as follows:



The Grocer and the Accountant can occupy the following pairs of seats: 3 & 4, 1 & 4, 1 & 2 or 2 & 3. Then, the two computer specialists may occupy one of the pairs of seats 1 & 2, 2 & 3, 3 & 4 or 4 & 1. We check for the choices given in the question, one by one, and find that whichever combination is taken, there is a Computer Specialist in seat 1 or seat 3, both of, which are next to the Marketing Executives seats. So, choice (B), which states that one of the Computer Specialists is next to a Marketing Executive, is true. Choice (B)

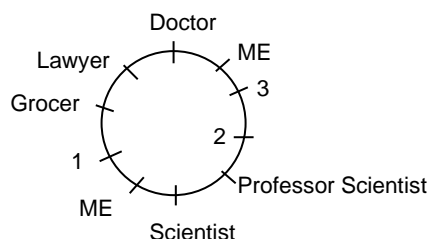
8. The Grocer and the Accountant have one each of the Marketing Executives on their immediate side. So, the arrangement must be as follows.



Now the Computer Specialists must sit in chairs 1 and 2 only. But no Computer Specialist can be the immediate neighbour of the Scientist. Choice (B) is definitely FALSE. (Note that choices (A), (C) and (D) are true). Hence, choice (B) is the correct answer. Choice (B)

9. Given that the Grocer is the immediate neighbour of the Lawyer, we have the three slots numbered 1, 2 and 3 (in the following diagram) free for the two Computer Specialists and the Accountant.

Since a Computer Specialist has to be next to a Marketing Executive, he should be in slot 1 or 3. By fixing the Accountant in any one of the three slots 1, 2 or 3, we can ensure that there is a Computer Specialist next to a Marketing Executive. Hence, there are three possible seating arrangements.



Choice (A)

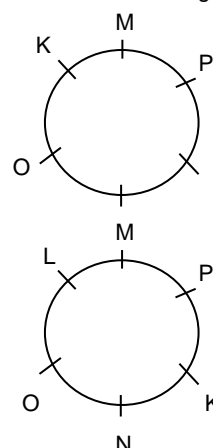
10. Based on the seating arrangement that we discussed, the number of persons between the Scientist and a Marketing Executive can be 3 or 8 (counted clockwise) or 0 or 5 (counted anti-clockwise). Maximum number that can be counted is 8. Choice (B)

**Directions for question 11:** Select the correct alternative from the given choices.

11. Six persons K, L, M, N, O and P are sitting around a table. K and L do not sit next to each other. O and P are opposite each other. M is sitting to the immediate right of P. If K is not between O and M, then N is not next to P. Which of the following is not an arrangement (in clockwise direction) satisfying the conditions given above?  
(A) NKOLMP (B) PKNOLM  
(C) LNOKMP (D) KMPNLO

**Solution for question 11:**

11. O and P are opposite to each other. M is to the right of P. Then we have two possible arrangements. In one case, when K is between O and M, the other two slots can be occupied by N and L - we cannot uniquely determine the slots of L and N. In the second case, if K is not between O and M (then, L has to be between O and M), then N is not next to P. This means that K has to be next to P and the only slot left is for N which is to the right of O.



From the choices, we can clearly see that choice (A) is the correct answer because that arrangement is not possible. Choice (A)

### Exercise – 2(a)

**Directions for questions 1 to 5:** Select the correct alternative from the given choices.

1. Payal, Akhil, Rahul, Sahil and Tanuj are five persons who sit around a circular table. Tanuj is to the immediate right of Payal. Akhil and Rahul are on either side of Sahil. Who sits between Rahul and Tanuj, assuming that there is only one person between them?  
(A) Akhil (B) Payal  
(C) Sahil (D) None of these
2. P, Q, R, S and T are five seats placed round a pentagonal table to seat John, Liz, Vimal, Rob and Bobby, who participate in a conference about a charity programme. Chair T is placed between chairs Q and P. Chair S is placed to the immediate left of chair Q. John is in chair R with Vimal and Liz on either side of him. Bobby is to the immediate right of Liz. Which of the following is FALSE?  
(A) Liz is in chair S.  
(B) Rob is in chair T.  
(C) Vimal is not in chair P.  
(D) Bobby is sitting beside Rob.
3. M, N, O, P, Q, R, S, T, U, V, W and X are twelve persons seated at six tables placed in a hexagonal form and all the persons are facing towards the centre of the hexagon. Each table accommodates only one pair among M, N; O, P; Q, R; S, T; U, V; and W, X. The pair M, N sits opposite to the pair W, X. The pair O, P sits opposite to the pair U, V. W sits to the immediate left of P. U sits to the immediate right of N. S is not seated in any of the two seats between V and X. Who are the only three persons seated between M and P?  
(A) S, Q, O (B) S, T, O  
(C) R, Q, S (D) O, Q, R
4. Prashant, Rocky, Lewis, Khan, Bill and Matt arrive to attend a meeting and sit round a hexagonal table. They wear six suits of six different colours – green, red, blue, white, orange, yellow – each of them wearing a different colour suit out of the six suits available. Matt and Bill sit opposite each other. Bill sits to the immediate left of the person who is in red suit and Matt sits to the immediate right of the person in blue suit. Prashant sits to the immediate right of Matt. Lewis is in a red suit and Bill has the yellow suit. The person in blue suit is not next to the person who is in green suit, but sits opposite to the person who is in orange suit. Which of the following is FALSE?  
(A) Khan and Rocky do not sit opposite each other.  
(B) Persons wearing yellow and green suits are not opposite each other.  
(C) Prashant does not wear a white suit and is not next to Lewis.  
(D) Khan wears either a blue or an orange suit.
5. A circular table has four seats A, B, C and D inside it and four chairs P, Q, R and S outside it along the circumference. Though not in the same circle, each of the chairs P, Q, R and S is somewhere in between chairs A, B, C and D inside the circular space. P and Q are opposite each other. R and S

are opposite each other. A and D are opposite each other and B and C are opposite each other. Which of the following is helpful in determining the arrangement of the chairs completely?

- (A) The position of P must be given accurately.
- (B) The exact position of P and that of A must be clearly given.
- (C) The exact order of P, Q and R must be given.
- (D) S is to the right of P and D is to the left of C between P and R.

**Directions for questions 6 to 10:** Read the information given below and answer the questions that follow.

Four men A, B, C, D and four women P, Q, R, S are dancing on a floor, in such a way that they face the centre and form a circle. No two women and no two men are next to each other. A is to the immediate left of R, who is opposite Q. P and Q have only C dancing between them. P is dancing opposite S, who is dancing to the immediate right of B.

6. If B is the only person dancing between R and S, then who is opposite him?  
(A) A (B) Q (C) C (D) D
7. Which of the following is an acceptable arrangement of the dancers in clockwise direction?  
(A) C, Q, P, D, S, B, A, R.  
(B) Q, C, P, D, R, A, S, B.  
(C) A, R, D, P, C, Q, B, S.  
(D) D, R, A, S, B, Q, P, C.
8. Which of the following persons are opposite each other?  
(A) Q and R (B) B and Q  
(C) C and D (D) A and B
9. Who is the only person dancing between P and R?  
(A) B or C (B) S or A  
(C) A or D (D) D or C
10. If S is to the immediate left of A, then who is opposite C?  
(A) A (B) B (C) D (D) M

**Directions for questions 11 to 15:** These questions are based on the following data.

Puja, Kajal, Raj, Sanju, Teena and Uday sit round a hexagonal table in such a way that neither Puja nor Raj sits opposite Kajal and neither Teena nor Uday sits opposite Sanju, whereas Raj sits to the immediate left of Sanju.

11. If Kajal sits to the immediate right of Sanju, then who sits opposite Sanju?  
(A) Teena (B) Puja  
(C) Uday (D) None of these
12. If Teena sits opposite Raj, then which of the following must be TRUE?  
(A) Puja is opposite Sanju.  
(B) Kajal and Uday sit opposite each other.  
(C) Puja and Uday sit opposite each other.  
(D) None of these

13. If Teena sits opposite to Kajal, then which of the following is definitely false?  
 (A) Uday and Puja sit next to each other.  
 (B) Uday sits opposite Raj.  
 (C) Puja sits opposite Sanju.  
 (D) Puja and Uday have only one person between them.
14. If Puja sits to the immediate left of Raj, then  
 (A) Kajal sits opposite Raj.  
 (B) Puja sits opposite Sanju.  
 (C) Kajal sits opposite Sanju.  
 (D) Teena is opposite Raj.
15. Which of the following additional pieces of information will determine the seating arrangement completely?  
 (A) Teena is opposite Sanju.  
 (B) Puja is opposite Sanju.  
 (C) Teena and Uday are next to each other.  
 (D) None of these

**Directions for questions 16 to 20:** Read the information given below and then answer the questions that follow.

Eight delegates at a conference sit around a rectangular table with three seats on each of the longer sides and one each on the other two smaller sides. The delegates are Prashant, Karan, Rohit, Sagar, Tradip, Usman, Vaibhav and Wasim. Vaibhav and Wasim sit opposite to each other, but not at any extreme end of the longer sides nor in the single seats on the smaller sides. Tradip is the head of the conference and is seated on one of the smaller sides, opposite another leading delegate. Usman sits to the immediate left of Karan but not on the same side of the table. Prashant is in the same row as Vaibhav and Sagar. Rohit is sitting opposite Prashant and to the immediate right of Tradip.

16. Who sits opposite to Usman?  
 (A) Karan (B) Rohit  
 (C) Sagar (D) Tradip
17. Which of the following persons are seated diagonally opposite each other?  
 (A) Vaibhav and Usman  
 (B) Sagar and Rohit  
 (C) Prashant and Wasim  
 (D) None of these
18. Who is sitting to the immediate right of Sagar?  
 (A) Vaibhav (B) Prashant  
 (C) Usman (D) Wasim
19. Who is sitting between Karan and Wasim?  
 (A) Prashant (B) Vaibhav  
 (C) Sagar (D) Usman
20. What is the minimum number of persons seated between Rohit and Sagar?  
 (A) 5 (B) 3 (C) 4 (D) 6

**Directions for questions 21 to 23:** These questions are based on the following information.

Eight persons – A through H – sit around a circular table. Some persons are facing the centre and the remaining are facing away from the centre.

A sits third to the left of H, who sits adjacent to neither C nor E. E faces the centre and sits three places away to the left of G, who is not adjacent to H. G and H face different directions. B sits third to the left of C but is not a neighbour of E. Neighbours of D do not face the centre. No three persons sitting in consecutive positions face the same direction.

21. How many persons sit between G and H, when counted from the right of G?  
 (A) One (B) Two  
 (C) Three (D) None of these
22. Who sits third to the right of A?  
 (A) H (B) D  
 (C) F (D) Cannot be determined
23. Four of the following five are alike in a certain way based on the given information and so form a group. Find the one which does not belong to that group.  
 (A) A, E (B) B, H  
 (C) G, D (D) C, B

**Directions for questions 24 to 26:** These questions are based on the following information.

Eight Presidents A, B, C, D, U, V, W, and Y of eight countries France, Russia, China, India, Brazil, Germany, USA, and South Africa sit around a circular conference table, facing the centre, not necessarily in the same order. The following information is known about them.

- (i) A sits opposite to the President of France, who is second to the left of V.  
 (ii) The president of Brazil is two places away to the left of B. B is not the President of China.  
 (iii) A is not the President of Brazil. C, the President of Russia sits opposite the President of Brazil and is not adjacent to A.  
 (iv) Neither W nor Y is the President of Brazil.  
 (v) D, the President of Germany, is adjacent to both the Presidents of USA and India.  
 (vi) W is not the President of China and the President of USA is opposite the President of China.
24. To which of the following countries is V the President?  
 (A) USA (B) China  
 (C) Germany (D) South Africa
25. Who sits third to the right of Russia's President?  
 (A) U (B) Y (C) B (D) A
26. Which among the following is 'definitely true'?  
 (A) 'C' is second to the left of Brazil's President.  
 (B) France's President is opposite 'Y'.  
 (C) W and A are opposite each other.  
 (D) None of these

**Directions for questions 27 to 30:** These questions are based on the following information.

G, H, I, J, O, P, Q and S – are a group of eight family members. All are having dinner, sitting around a circular table, facing towards the centre of the table. Among them there are four males and four females. No two females are adjacent to each other. Each married couple, except one, has at least one child and there are two unmarried persons.

P is the son-in-law of G, who is four places away from J. I is two places away to the left of his/ her only daughter. H is the sister-in-law of Q. P and O are seated on either side of J. G is the grandmother of S who is the nephew of H. No married person is seated adjacent to his/her spouse.

27. How is J related to O?

- (A) Granddaughter
- (B) Daughter
- (C) Grandson
- (D) Cannot be determined

28. Who is sitting three places away to the right of P?

- (A) H
- (B) Q
- (C) S
- (D) Cannot be determined

29. How is Q related to O?

- (A) Brother-in-law
- (B) Son-in-law
- (C) Daughter-in-law
- (D) Father-in-law

30. Which of the following alternatives, does not fit into the group where the second person in a pair is to the left of the first person?

- (A) GQ
- (B) HO
- (C) JP
- (D) SI

### Exercise – 2(b)

**Directions for questions 1 to 3:** These questions are based on the following information.

Eight persons P, Q, R, S, T, U, V and W are sitting around a circular table not necessarily in the same order. We know the following additional information.

- (1) Neither P nor T is adjacent to either R or V.
- (2) U and Q are opposite each other.
- (3) S is three places away to the right of T.
- (4) U is to the immediate left of R.
- (5) W is three places away to the right of P.

1. Who is sitting opposite W?

- (A) R
- (B) S
- (C) T
- (D) Cannot be determined

2. Who is sitting to the immediate right of T?

- (A) Q
- (B) U
- (C) P
- (D) Cannot be determined

3. If R is sitting to the immediate left of W, then who is sitting to the immediate left of V?

- (A) U
- (B) W
- (C) S
- (D) Q

**Directions for questions 4 to 7:** These questions are based on the following information.

Eight persons – A, B, C, D, E, F, G and H from eight cities – P, Q, R, S, T, U, V and W not necessarily in the same order are sitting around a circular table. We know the following additional information.

- (1) Among A, E, G and F, no two persons are adjacent to each other.
- (2) Among the persons from P, T, V and W, no two persons are opposite each other.
- (3) A is to the immediate left of B, who is two places away to the right of the person from Q.
- (4) The person from S is opposite D, who is adjacent to E.
- (5) The person from P is to the immediate left of G, who is from T.
- (6) C, who is from W, is adjacent to the persons from R and V.

4. Who is from R?

- (A) A
- (B) B
- (C) E
- (D) F

5. Who is to the immediate right of H?

- (A) G
- (B) E
- (C) A
- (D) Cannot be determined

6. Who is opposite to the person from V?

- (A) A
- (B) G
- (C) F
- (D) Cannot be determined

7. Who is sitting three places away to the right of G?

- (A) B
- (B) C
- (C) D
- (D) Cannot be determined

**Directions for questions 8 to 10:** These questions are based on the following data.

Eight chairs are arranged in a room. Four of them are exactly at the four corners while the remaining four are placed against the walls on the four sides in between each pair of chairs in the corners. P, Q, R and S are four boys and A, B, C and D are four girls who occupy the chairs all of which are facing the centre of the room. Q is in a corner chair and R is in a chair which is not along the same wall as either of the walls adjoining Q. A and C are seated at corners, diagonally opposite to each other. B does not sit along any wall which is adjacent to the corner where A sits and is opposite P. C sits to the immediate right of R, who is between C and D.

8. S must be seated between

- (A) C and Q
- (B) A and D
- (C) A and Q
- (D) C and A

9. If S and P interchange their seats, then who is to the immediate left of D?

- (A) A
- (B) P
- (C) R or C
- (D) S

10. Which of the following is not one of the correct arrangements of the corner seat occupants, either in clockwise direction or in anti-clockwise direction consecutively?

- (A) Q, A, D and C
- (B) A, Q, C and D
- (C) D, A, Q and C
- (D) D, Q, A and C

**Directions for questions 11 to 13:** These questions are based on the following data.

Four teachers Ranjan, Rajan, Raman and Raj and four doctors Puneet, Piyush, Pratham and Pratima are sitting around a table. No two teachers sit adjacent to each other. Raj is two places to the right of Ranjan and adjacent to Pratima, who is two places to the left of Puneet, who is adjacent to Rajan.

11. If Raman is not opposite Ranjan, then who is seated two places to the left of Ranjan?

- (A) Raman
- (B) Rajan
- (C) Raj
- (D) Cannot be determined

12. If Pratima is adjacent to Raman, then who is seated opposite Raj?  
 (A) Pratima (B) Raman  
 (C) Rajan (D) Ranjan
13. If Pratham is not opposite Puneet, then who is seated opposite Pratima?  
 (A) Puneet (B) Pratham  
 (C) Raman (D) Cannot be determined

**Directions for questions 14 to 16:** These questions are based on the following data.

Six persons Amit, Amitabh, Arnold, Aakash, Abhinav and Atul, each of a different profession, among Doctor, Lawyer, Teacher, Manager, Business Analyst and Accountant, are seated around a table in six equi-spaced chairs. Atul is opposite the Lawyer. Arnold is to the right of the Doctor and is opposite the person who is the Business Analyst. Aakash is opposite the Accountant. Abhinav is between the Manager and the Accountant and is not the Business Analyst. Amitabh is opposite the Manager, who is to the left of Aakash.

14. Who is between the Lawyer and the Business Analyst?  
 (A) Amit (B) Amitabh  
 (C) Aakash (D) Cannot be determined
15. If Atul is not the Teacher, then who is the Doctor?  
 (A) Abhinav (B) Amitabh  
 (C) Aakash (D) Amit
16. If Amitabh is the Business Analyst, then who is opposite Amitabh?  
 (A) Amit (B) Atul  
 (C) Arnold (D) Cannot be determined

**Directions for questions 17 to 20:** These questions are based on the following data.

A librarian wishes to sit at the centre of his circular library hall with eight shelves arranged around him in a circle. There are books on eight subjects English, Physics, Sociology, Chemistry, Mathematics, French, German and History which are placed in the shelves, books of one subject in only one shelf. The books on French, German and English should be in three shelves placed side by side. The books on History should be in a shelf opposite the shelf containing French books. The books on Physics and those on Chemistry should be on shelves opposite each other.

17. If the books on German are opposite the shelf with Mathematics books, and between the shelves containing books on Physics and French, then which of the following should be opposite each other?  
 (A) English and Sociology shelves  
 (B) English and Physics books  
 (C) English and History books  
 (D) Sociology and Mathematics books
18. If the books on Sociology are between the shelves with Physics and History books, then the books on Mathematics would be between the shelves containing books on  
 (A) History and French.  
 (B) History and Chemistry.

- (C) French and Chemistry.  
 (D) French and Physics.

19. If the English books are to the immediate left of the shelf with Physics books, then the shelf with German books is to the immediate right of shelf containing books of which subject?  
 (A) Only Physics  
 (B) Chemistry or French  
 (C) Only French  
 (D) French or German
20. Which of the following is definitely TRUE?  
 (A) The language books are on either side of Physics books.  
 (B) None of the language books can be adjacent to any of the books on History, Mathematics and Sociology.  
 (C) The shelves containing language books can be arranged alternately with books on other subjects.  
 (D) The shelf with Mathematics books cannot be next to the shelf with History books.

**Directions for questions 21 to 23:** These questions are based on the following information.

Eight persons – K, L, M, N, O, P, Q, and R – sit around a circular table not necessarily in the same order. Some of them are facing the centre and the remaining are facing away from the centre.

- (i) P sits to the immediate left of K.  
 (ii) M and R are sitting in the opposite places.  
 (iii) Either 'Q' or 'O' sits next to L but not both.  
 (iv) No two persons sitting next to each other face the same direction.  
 (v) R is the neighbour of both N and Q.  
 (vi) L sits opposite K and faces away from the centre.

21. Three of the following are alike in a certain way and so form a group. Which is the one that does not belong to that group?  
 (A) KM (B) ML  
 (C) NO (D) PO
22. Which among the following is 'definitely true'?  
 (A) P is facing away from the centre.  
 (B) O and N are opposite each other.  
 (C) K sits to the immediate right of P.  
 (D) L sits to the immediate right of O.

23. If M and N interchange their places, then who among the following sits to the immediate left of M?  
 (A) O (B) P  
 (C) L (D) None of these

**Directions for questions 24 to 26:** These questions are based on the following information.

Eight persons of the same family sit around a rectangular table in such a way that four persons – A, B, C and D – sit along one of the longer sides of the table, facing north and the other four persons – P, Q, R and S – sit along the other longer side of the table facing south, not necessarily in that order. Each person faces exactly one person who sits on the opposite side. The following information is known about them.

P is the brother of Q, who is not adjacent to either P or S. A is the daughter of P and sits to the immediate right of B's husband. D is opposite to neither P nor S. C is the niece of P but is not opposite to either P or S. B is not opposite S, but is opposite her brother. D has only one child who is a male. Q is the daughter of C's grand father, who is not R.

24. Who is to the immediate right of P?  
 (A) R's father (B) P's sister  
 (C) D's father-in-law (D) R
25. Which of the following persons sits at an end?  
 (A) A (B) R  
 (C) Q's daughter (D) B's father
26. Which of the following statements is true?  
 (A) Q is at the left end (B) B is at the right end  
 (C) R is the brother of A (D) All the above

**Directions for questions 27 to 30:** These questions are based on the following information.

Eight persons – P, Q, R, S, T, U, V, and W – belong to the same family and they sit around a circular table facing the centre (not necessarily in the same order). The following information is known about them.

- (1) P sits second the right of his nephew, whose neighbors are females.  
 (2) V is the wife of P and sits to the immediate right of her daughter T.  
 (3) U sits second to the right of his brother-in-law and opposite his son Q.

- (4) S sits third to the right of her sister-in-law and second to the left of her father R.  
 (5) W is the mother-in-law of U and is adjacent to her grandson.

27. Who among the following is the wife of U?  
 (A) S  
 (B) The one who is opposite T.  
 (C) The one who sits second to the right of R.  
 (D) Both (A) and (B)
28. Who among the following is the niece of S?  
 (A) The one who sits opposite S.  
 (B) The one who sits to the immediate right of S's husband.  
 (C) T  
 (D) All the above
29. Which among the following is 'definitely true'?  
 (A) R and V sit adjacent to each other.  
 (B) T and her mother sit opposite to each other.  
 (C) W sits third to the right of her son.  
 (D) None of these
30. Four of the following are alike in a certain way and hence form a group. Which is the one that does not belong to that group?  
 (A) TU (B) RS (C) VW (D) QT

## Key

### Exercise – 2(a)

- |      |       |       |       |       |       |
|------|-------|-------|-------|-------|-------|
| 1. B | 6. C  | 11. B | 16. C | 21. B | 26. C |
| 2. C | 7. B  | 12. D | 17. B | 22. B | 27. A |
| 3. B | 8. A  | 13. D | 18. A | 23. D | 28. A |
| 4. A | 9. C  | 14. C | 19. D | 24. A | 29. B |
| 5. D | 10. A | 15. D | 20. B | 25. D | 30. D |

### Exercise – 2(b)

- |      |       |       |       |       |       |
|------|-------|-------|-------|-------|-------|
| 1. B | 6. A  | 11. A | 16. C | 21. D | 26. B |
| 2. D | 7. A  | 12. C | 17. A | 22. D | 27. D |
| 3. D | 8. C  | 13. B | 18. B | 23. C | 28. D |
| 4. D | 9. D  | 14. A | 19. B | 24. C | 29. D |
| 5. C | 10. D | 15. A | 20. B | 25. C | 30. C |