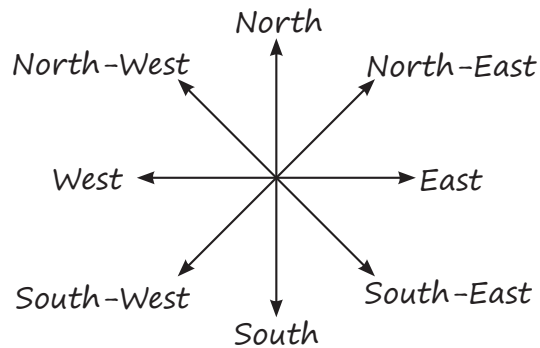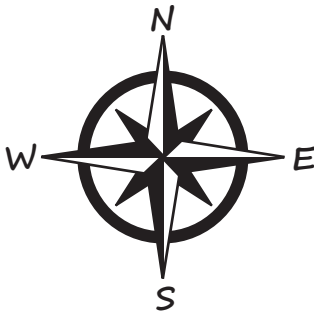# Direction Test

❑ Direction sense is a concept that we have been familiar with since childhood. It involves understanding and navigating the different directions in our surroundings. The four major directions that we commonly know are **North**, **South**, **East**, and **West**.

❑ In addition to these cardinal directions, we have also established four more directions in between them, known as the intermediate directions. These intermediate directions are **North-East**, **North-West**, **South-East**, and **South-West**.

❑ While questions related to direction sense are generally easy, they can sometimes be confusing if not approached systematically. One effective strategy is to visualize yourself moving in different directions and mentally picture the diagram of the directions mentioned above. By having a clear mental image of the diagram, you can easily determine the relationships and positions of different directions.

Example 1. Laxman went 15 km north then he turned west and covered 10 km. Then he turned south and covered 5 km, finally turning east he covered 10 km. In which direction he is moving now?
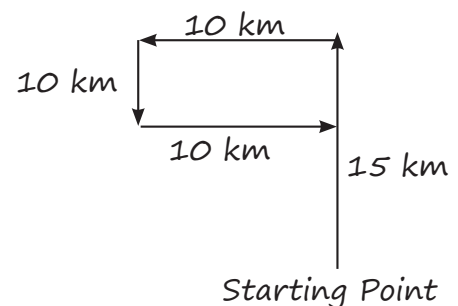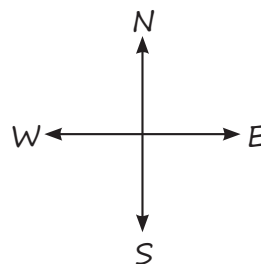
(a) East   (b) West   (c) North   (d) South   **(ICAI)**

Sol. (a)

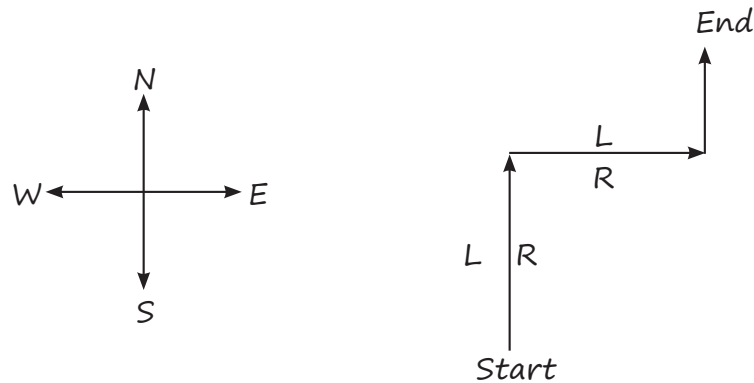Therefore, he is moving in the East direction.

Hence, the correct option is (a).

Example 2. You go north, turn right then go to the left. In which direction are you now?

(a) South   (b) West   (c) East   (d) North

Sol. (d) According to the information given, the directions are:

Therefore, he is traveling in the North direction now.

Hence, the correct option is (d).

Example 3. Rohit drove towards the North for 20 km. Then he turned left and drove another 30 km. After a while, he again turned left and drove 20 km and took some rest. Once more he turned left and drove 30 km to reach his town. In which direction is he driving now?

(a) West   (b) East   (c) North   (d) South

Sol. (b) Taking O as the starting point and following the instructions as per the question, we get
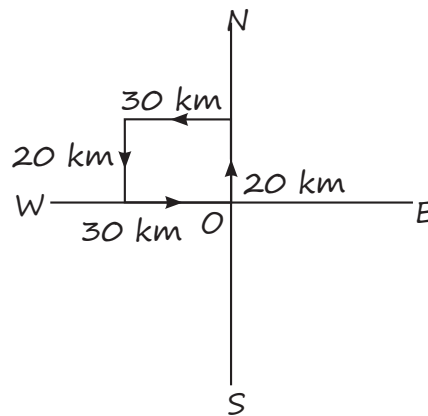
Clearly, he is driving in the East direction.

Hence, the correct answer is option (b) i.e. East.

Example 4. A man started to walk east, and after moving a certain distance, he turned to his right. After moving some distance, he turned to his right again. After moving a little, he turned in the end to his left. In which direction was he going now?

(a) East   (b) West   (c) North   (d) South   **(ICAI)**

Sol. (d) According to the given information
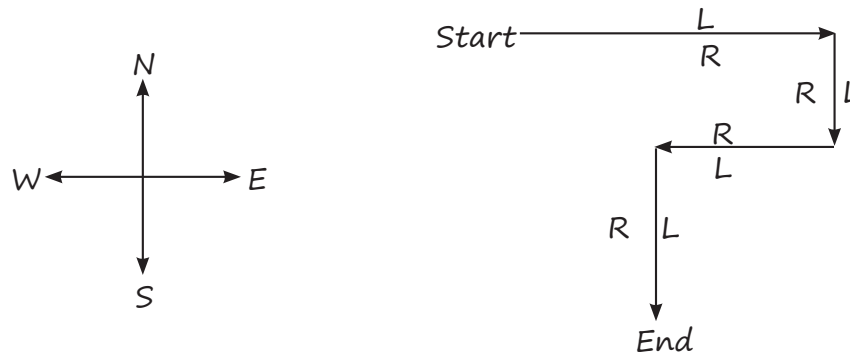
Currently, he is going in the South direction.

Hence, the correct option is (d).

Example 5. Rohan walked 8 km towards the East. Then he turned back and walked 13 km. Again, he turned to his left and walked 4 km. Now, he walked 5 km after turning left. At last, he turned to his left and walked 3 km. How far and in which direction is he from the starting point ?
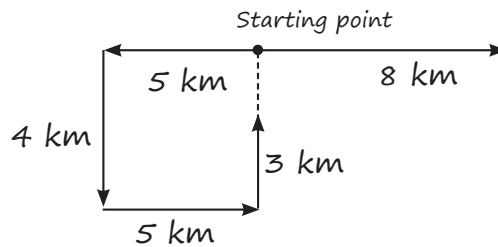
(a) 3 km West   (b) 1 km North   (c) 1 km South   (d) 4 km South

Sol. (c) Following the direction as per the question, we have

Therefore, he is at distance of (4–3) km =1 km in the South.

Hence, the correct option is (c) i.e., South.

Example 6. Five friends A, B, C, D and E are staying in the same locality. B's house is to the east of A's house and to the north of C's house C's house is to the west of D's house. D's house is in which direction with respect to A's house?   **(July 2021)**

(a) North–East   (b) South–East   (c) North–West   (d) South–West

Sol. (b) According to the given information, the location of D's house with respect to A's house is:
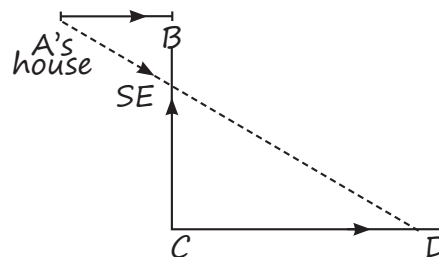
Therefore, D's house is in the South–East direction of A.

Hence, the correct option is (b).

Example 7. Kailash walks 3 km to the East and turns South and walks 4 km. After a while, he turns West and walks 6 km. How far is he from the starting point?

    (a) 7 km   (b) 5 km   (c) 6 km   (d) 3 km

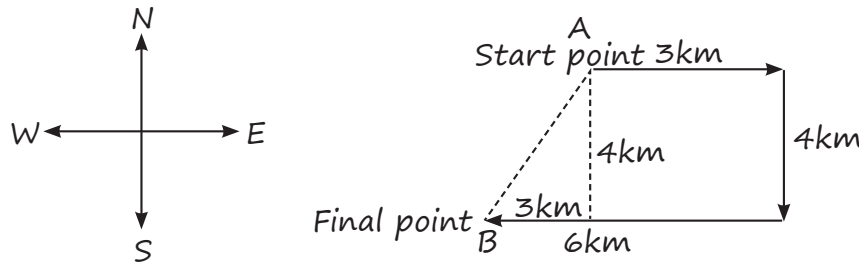**Sol.** (b) Following the directions as per the question, we get

Here, the initial point is A and the final point is B.

Thus, $AB^2 = 4^2 + 3^2$

$AB^2 = 16 + 9$

$AB^2 = 25$

$AB = 5$

Therefore, Kailash is 5 km away from the starting point.

Hence, the correct option is (b).

Example 8. A and B start moving towards each other from two places apart. After walking 60m, B turns left and goes then 20 m then he turns right and goes 40 m. He then turns right again and comes back to the road on which he had started walking. If A and B walk with the same speed, what is the distance between them now? **(July 2021)**

    (a) 80 m   (b) 70 m   (c) 40 m   (d) 60 m

Sol. (c) Distance travelled by A on road = 60 + 20 + 40 + 20 = 140 m

Distance traveled by B on road = 60 + 40 = 100 m
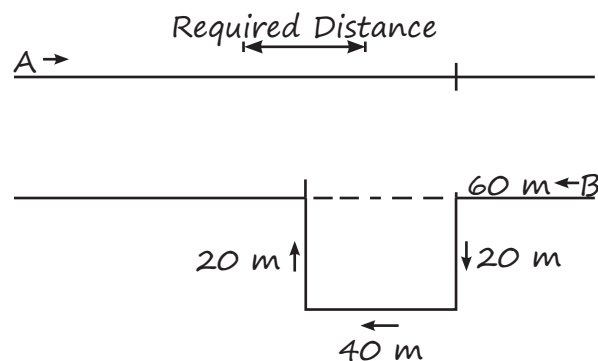
Required difference = 140 − 100 = 40m

Hence, option (c) is correct i.e 40m.

Example 9. Anand walked 20 m towards the north direction. After a while, he turned right and walked 30 m. Again, he turns to his right and walks 35 m. Then he turns left and walks 15 m. At last he turns to his left and walks 15 m. In which direction is Anand from the starting position?

    (a) East   (b) West   (c) North   (d) South

Sol. (a) Let the initial position of Anand is at A then following the directions as per the question, we have
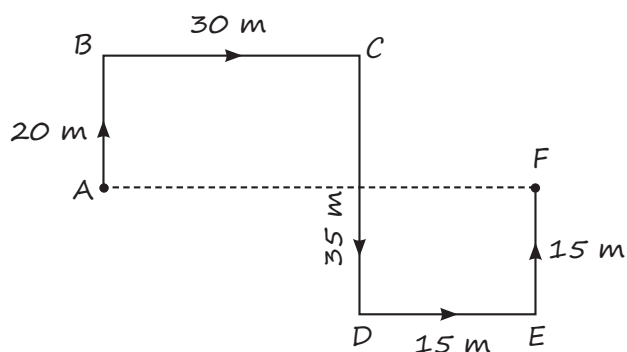
Therefore, the final position of Anand is at F which is the East direction from the starting point.

Hence, the correct option is (a) i.e., East.

Example 10. One morning, after sunrise, Vikram and Shailesh were standing in a lawn with their backs towards each other. Vikram's shadow fell exactly towards left hand side. Which direction was Shailesh facing? **(July 2021)**

(a) South-West   (b) West   (c) South   (d) South-East

Sol. (c) We know, Sun rises in the East.

It is given that "one morning after sunrise", therefore, we will mark the Sun in the East direction in the below diagram.

When the Sun is in the East direction, shadow of an object falls in the West.

It is given that Vikram's shadow falls towards left hand side.

This means Vikram's left hand side should be West direction.

Thus, according to the question, the required figure is:

Therefore, Shailesh is facing the South direction.

Hence, the correct option is (c) i.e. South.
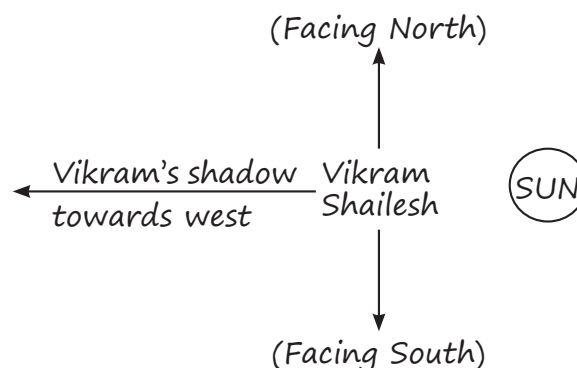
PRACTICE QUESTIONS (PART A)

1. From her home Prerna wishes to go to school. From home she goes towards North and then turns left and then turns right, and finally she turns left and reaches school. In which direction her school is situated with respect to her home? **(ICAI)**

(a) North-East   (b) North-West (c) South-East   (d) South-West

2. Anita travels 15 km to the North. After taking rest for some time, she turned to West and covered 10 km. Then she turned to the South and covered 5 km. At the end, she turned to East and covered 10 km. In which direction is she traveling now?

(a) East   (b) West   (c) North   (d) South

3. Starting from her home, Ankita wishes to go to the library. From her home, she goes towards the South and then turns left, followed by another right turn. Finally, she turns left and reaches the library. In which direction is the library situated with respect to her home?

(a) North   (b) North-West   (c) South-East   (d) South-West

4. Prerna walked 20 km from West towards East. After a while, she once again turned to her right and walked 10 km and again turned right and walked 9 km. Then, she turned to left and walked 5 km and again turned to her left and covered a distance of 12 km. Finally she turned to her left and walked 6 km. In what direction is she moving?

(a) East   (b) North   (c) West   (d) South

5. Karuna walked 10 feet from A to B in the East direction. Then she turned to her right and walked 3 feet. Now again she turned to her right and walked 14 feet. In which direction is she from her starting point A?

(a) North-East   (b) South-West   (c) South   (d) None of these

6. Aditya walks 2 km towards the North. Then he turns to the East and walks 10 km. After this he turns to the North and walks 3 km. Again he turns towards East and walks 2 km. In which direction is he from the starting point?

(a) North-East   (b) North-East   (c) East   (d) North

7. Raman left home one fine morning and cycled 8 km northwards, then he turns right and cycled 5 km straight. Now, he turns right and cycled 12 km and then he turns left and cycled 10 km. Now in which direction Raman is moving?

(a) East   (b) West   (c) North   (d) South

8. Anand ride his bicycle and travels meters towards the East direction. Then he turns to his left and travel meters and again turns to his right and travels some distance. Towards which direction is he now moving?

(a) North   (b) East   (c) West   (d) South

9. Radha moves towards South-East a distance of 7 km, then she moves towards West and travels a distance of 14 km. From here, she moves towards North–West a distance of 7 km and finally she moves a distance of 4 km towards east. How far is she now from the starting point?

(a) 3 km   (b) 4 km   (c) 10 km   (d) 11 km

10. There are four towns P, Q, R and T. Q is to the south-west of P, R is to the east of Q and south east of P, and T is to the north of R in line with QP. In which direction of P is T located?   **(July 2021)**
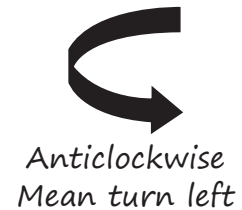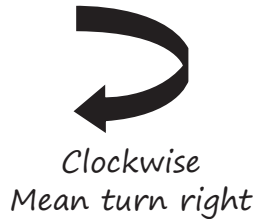
(a) North   (b) North-East   (c) East   (d) South-East

Answer Key

1. (b)	2. (a)	3. (b)	4. (b)	5. (b)	6. (a)	7. (a)	8. (b)	9. (c)	10. (b)

LET US UNDERSTAND THE CONCEPT OF ROTATION AND DEGREE

When we talk about rotation, it refers to the act of turning or revolving around a central point. In mathematics and geometry, rotations are usually measured in degrees or radians. A complete rotation or a full circle is equal to 360 degrees.

In the context of directions, we often encounter clockwise and anticlockwise rotations. Clockwise rotation refers to the movement or turn in the direction that follows the hands of a clock. It is a rightward or clockwise movement. On the other hand, anticlockwise rotation refers to the movement or turn in the opposite direction, counter clockwise or leftward.

Clockwise
Mean turn right

Anticlockwise
Mean turn left

Example 11. Mohit walked 25 m towards the west direction. After a while, he turned to the right and walked 10 m. Again, he then turned to the right and walked 15 m. Now, he turned 135° and walked 30 m. In which direction is he moving now?

    (a) South   (b) North-East   (c) South-West   (d) West

Sol. (c)

Therefore, he is moving in a South-west direction.

Hence, the correct option is (c) i.e., South-West.
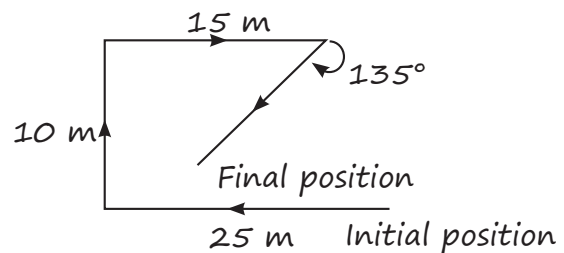
Example 12. Man is facing west. He turns 45° in the clockwise direction and then another 180° in the same direction and then 270° in the anti-clockwise direction. Which direction is he facing now?

    (a) South   (b) North—west   (c) West   (d) South-west

Sol. (d) Clockwise movement = 45° + 180° = 225°

Anticlockwise Movement = 270°

Now, 270° − 225° = 45° anticlockwise   (∵ 270° is greater than 225°)

Therefore, the final rotation will be 45° anticlockwise.
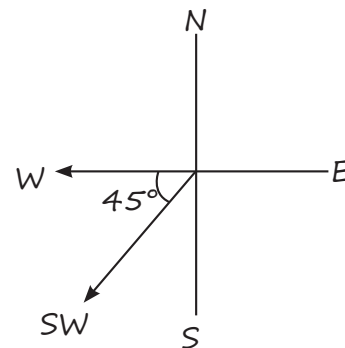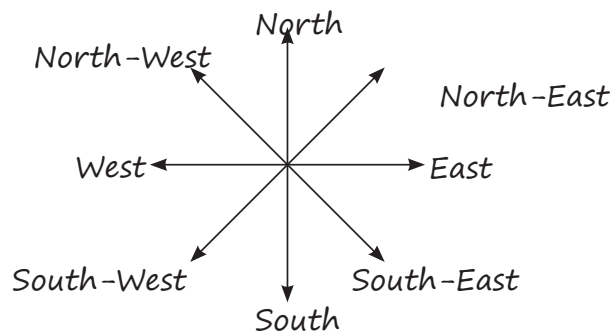
Therefore, he is facing South-West direction.

Hence, the correct option is (d).

Example 13. Ana is facing the north direction. She turns 90° in the clockwise direction, Again after a while she turns 180° in the anticlockwise direction and then another 90° in the same direction. Which direction is she facing now?

    (a) East   (b) West   (c) North   (d) South

Sol. (d)   The directions of Ana according to the question is as follow:
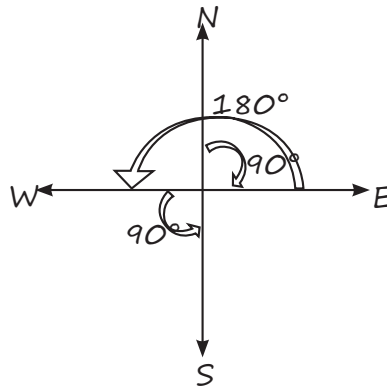
    Therefore, Ana is facing the South direction now.

    Hence, the correct option is (d) i.e., South.

Example 14. Maya starts at point T, and walks straight to point U which is 4 feet away. She turns left at 90° and walks to W which is 4 feet away, turn 90° right and goes 3 feet to P, turns 90° right and walks 1 feet to Q, turns left at 90° and goes to V, which is 1 feet away and once again turn 90° right and goes to R, 3 feet away. What is the distance between T and R?

    (a) 4 feet   (b) 5 feet   (c) 7 feet   (d) 8 feet

Sol. (d) According to the given information:
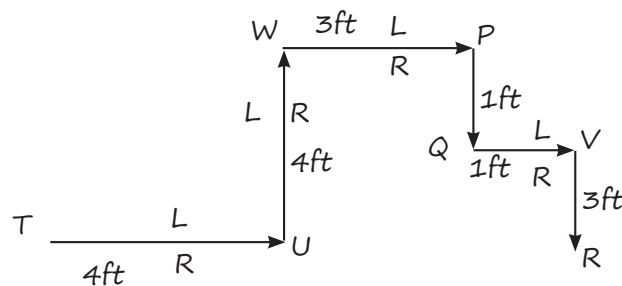
    Distance between T and R = 4 feet + 3 feet + 1 feet = 8 feet

    Hence, the correct option is (d).

PRACTICE QUESTIONS (PART B)

  1. Sahil started from his school towards the north. After walking a distance of 18 m, he turned to the left and walked 14 m. He then turned to the left again and walked 30 m. After this, he is to turn left at 180 degrees and to cover 12 m. In which direction is he now as per his initial position?

    (a) 14 m East   (b) 14 m West   (c) 14 m South   (d) 14 m North

2. Madhuri moved a distance of 75 m towards the north. She then turned to the left and walked for about 25 m, turned left again, and walked 80 m. Finally, she turned to the right at an angle of 45°. In which direction was she moving finally?   (June, 2019)

(a) South −East   (b) South −West (c) North-West   (d) North -East

3. A man is facing west. He turns 45 degree in the clockwise direction and then another 180 degrees in the same direction and then 270 degrees in the anticlockwise direction.

Find which direction he is facing now?   (Jan 2021, Dec 2022)

(a) South-East   (b) West   (c) South   (d) South-West

Answer Key

1. (b)   **2.** (b)   **3.** (d)

MORE TYPES OF QUESTION

Example 15. Ravi wants to go to the university. He starts from his home which is in the east and comes to a crossing. The road to the left ends in a theatre straight ahead is the hospital. In which direction is the university?

(a) North   (b) South   (c) East   (d) West

Sol. (a) Ravi moves westwards, after starting from his house in the East. Then, the theatre, which is to the left, will be in the South.

Then the hospital, which is straight ahead will be towards the West. The only direction left for university is North.
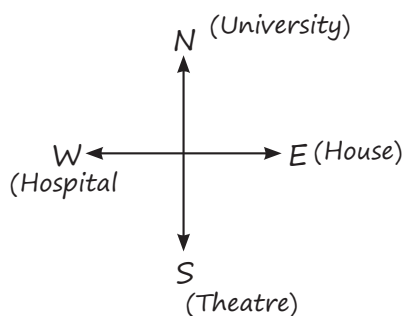
Therefore, the University will be to the North.

Hence, the correct option is (a).

Example 16. A man is performing yoga with his head down and legs up. His face is towards the west. In which direction will his left hand be?

(a) North   (b) South   (c) East   (d) West

Sol. (a) While doing Yoga in an upside−down position, if a man's face is in the west direction, then his head is in the East direction. The left hand will be in the North direction and the right hand will be in the South direction. Therefore, the man's left hand will be in the North direction.

Hence, the correct option is (a).

Example 17. Raman starts walking in the morning facing the sun. After some time, he turned to the left, and later again he turned to his left. In which direction is Raman moving now?

    (a) East   (b) West   (c) South   (d) North

Sol. (b) We know that the sun rises in the East. Thus, following the directions we get
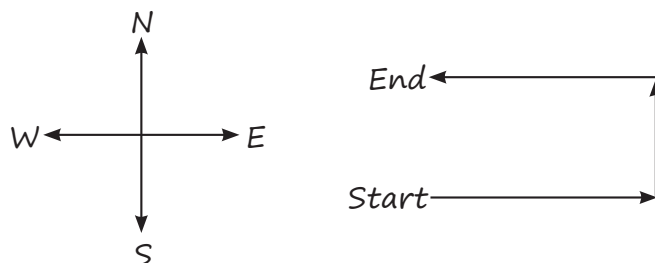
    Thus, Raman is moving in the West Direction.

    Therefore, the correct option is (b).

Example 18. Sunita rode her Scotty northwards, then turned left, and then again rode to her left 4 km. She found herself exactly 2 km west of her starting point. How far did she ride northwards initially?

    (a) 2 km   (b) 4 km   (c) 6 km   (d) 5 km

Sol. (b) Following the directions as per the question, we get
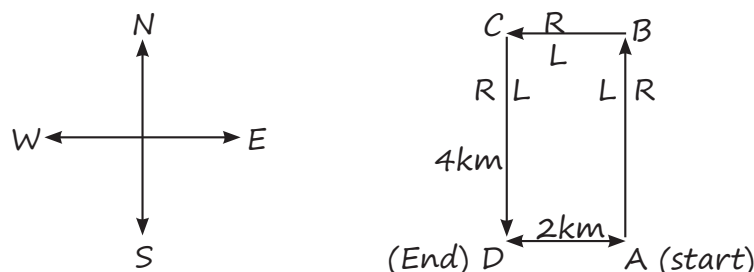
    Initial Northwards journey, AB = CD = 4 km.

    Hence, the correct option is (b).

Example 19. One evening A & B were standing under the sun talking face to face. The shadow of A fell exactly towards its left hand side. What direction does B face?

    (a) North   (b) South   (c) East   (d) West

Sol. (a) In the evening, the sun is in the west direction.
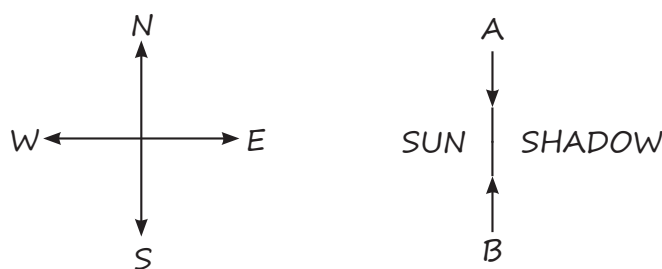
    Therefore, B is facing the North direction.

    Hence, the correct option is (a).

Example 20. A is located to the West of B. C is located to the North in between A and B. D is exactly to the south of B and also in line with B. In which direction of C is D located?

   (a) South   (b) South-East   (c) West   (d) South-West

Sol. (b)
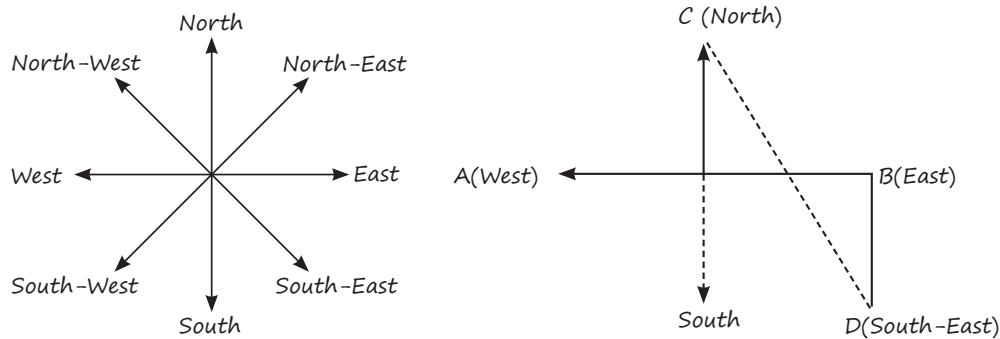
    Therefore, D is located in the South-East direction of C.

    Hence, the correct option is (b).

Example 21. It is 3 o'clock on a watch. If the minute hand points towards the North-East, then the hour hand will point towards the   **(Dec 2022)**

   (a) South   (b) South-West   (c) North-West   (d) South-East

Sol. (d) Following the directions as per the question, we get
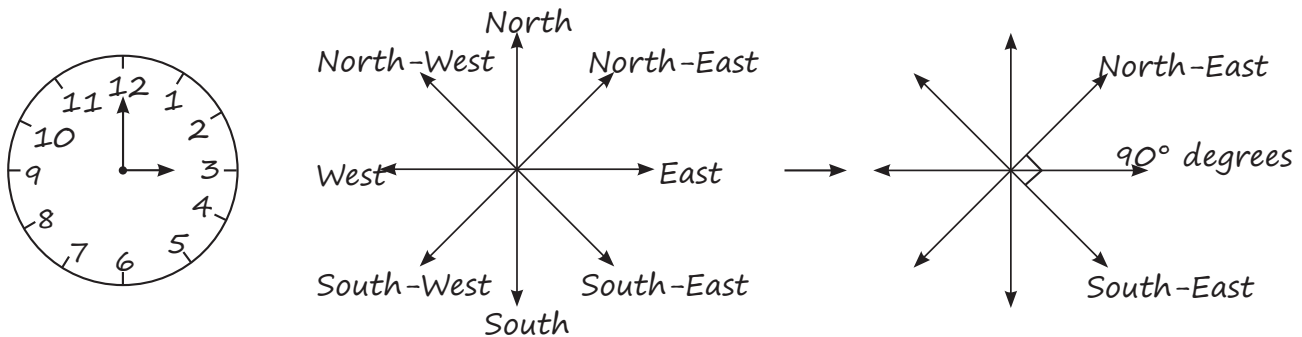
    At 3 o'clock, the angle between the minute and the hour hand is 90 degrees. Now, according to the question, the minute hand points towards the North-East.

    Therefor, when we move clockwise at an angle of 90 degrees, the hour hand will point towards the South-East direction.

    Hence, the correct option is (d).

Example 22. Rohan walks a distance of 3 km towards the north then turns to his left and walks for 2 km. He again turns left and walks 3 km. At this point, he turns to his left and walks for 3 km. How many kilometers is he from the starting point?

   (a) 1 km   (b) 2 km   (c) 3 km   (d) 5 km

Sol. (a) Following the directions as per the question, we get
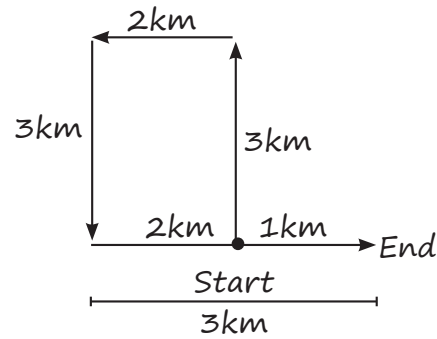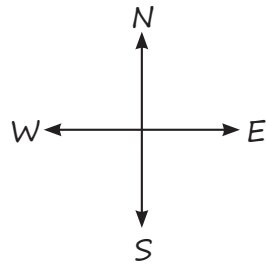
So, it is clear from the above figure that he is 1 km from the starting point.

Hence, the correct option is (a).

Example 23. Namita walks 14 km towards the west then turns to her right and walks 14 km and then turns to her left and walks 10 km. Again turning to her left she walks 14 km. What is the shortest distance (in km) between her starting point and the present position?

(a) 10km   (b) 24 km   (c) 28 km   (d) 38 km

Sol. (b) Following the directions as per the question, we get
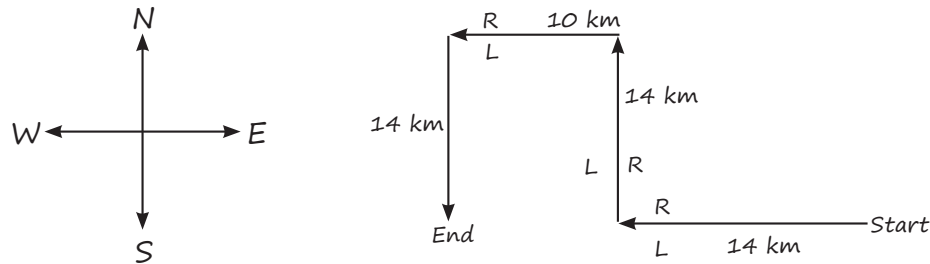
Therefore, the shortest distance between her starting point and end point i.e., present position is:

14 km + 10 km = 24 km

Hence, the correct option is (b).

Example 24. Amit walked 30 meters towards the east, took a right turn and walked 40 meters, then he took a left turn and walked 30 meters. In which direction is he now from the starting point?

(a) North – East   (b) East   (c) South – East   (d) South

Sol. (c)
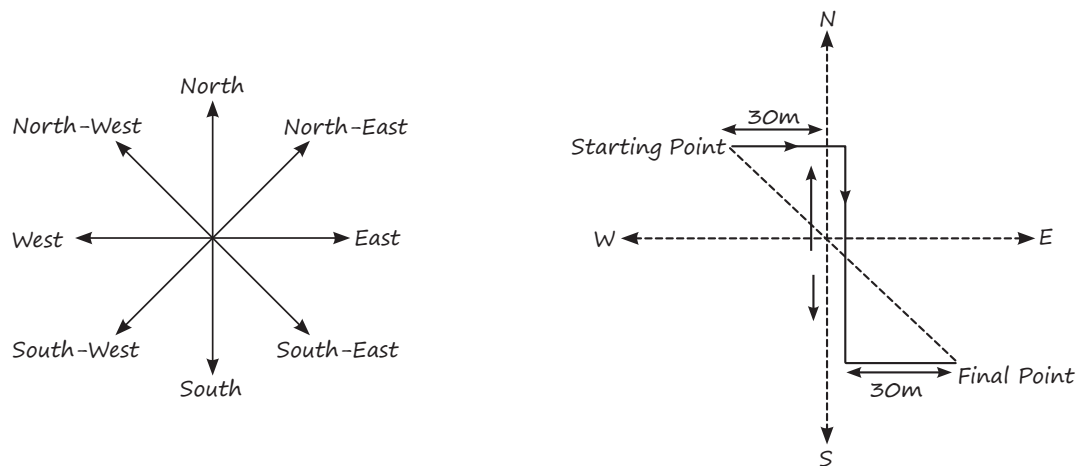
Clearly, the direction of the Amit with respect to the starting point is South East. Hence, the correct option is (c).

Example 25. A walks 10 meters in front and 10 meters to the right. Then every time turning to his left he walks 5, 15 and 15 meters respectively. How far is he now from his starting point?

(a) 5 meters   (b) 10 meters   (c) 15 meters   (d) 20 meters

Sol. (a) Let A is walking towards North then according to the information given, the directions are:
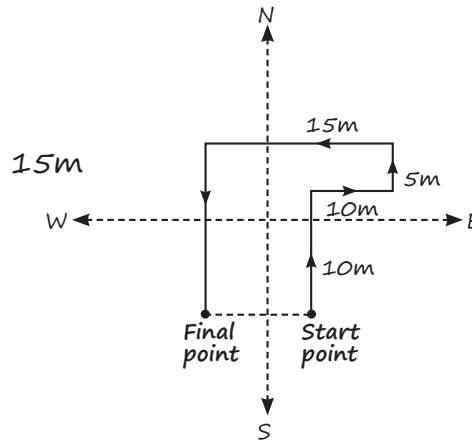
Therefore, he is 5 m from the starting point as shown in the figure. Hence, the correct option is (a)

Example 26. Of the five villages P, Q, R, S, and T are situated close to each other, P is to the west of Q, R is to the south of P, T is to the north of Q and S is to the east of T. Then, R is in which direction with respect to S?

(a) North –west   (b) South –east   (c) South –west   (d) Data inadequate

Sol. (c) Following the information given in the question, we get
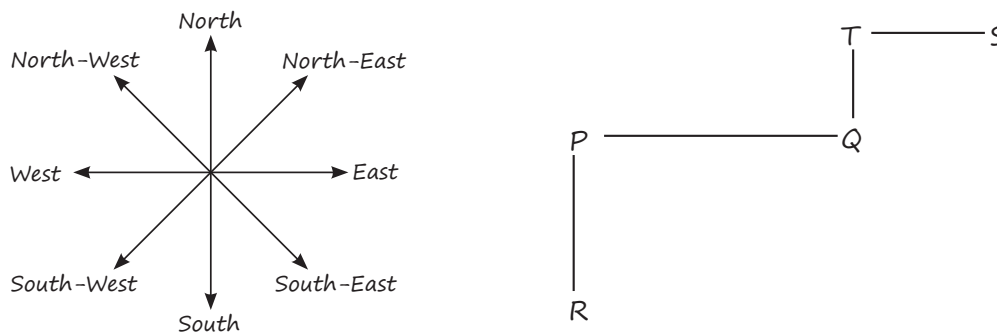
Hence, R is in the Southwest direction with respect to S as shown in the figure.

Therefore, the correct option is (c).

Exdample 27. Mohan starts from point A and walks 1 km towards south, turns left and walks 1 km. Then he turns left again and walks 1 km. Now he is facing _____ direction.

                                                                (ICAI)

(a) East   (b) West   (c) North   (d) South-West

Sol. (c) Given, A be the initial position of Mohan, then
According to the question,

Mohan walks 1 km towards the south and reaches to point B. He turns left, which means he moves towards the east side and reaches to point C. He again turns left and walks 1 km towards the North direction.

Thus, Mohan is facing the north side.
Hence, the correct answer is option (c).
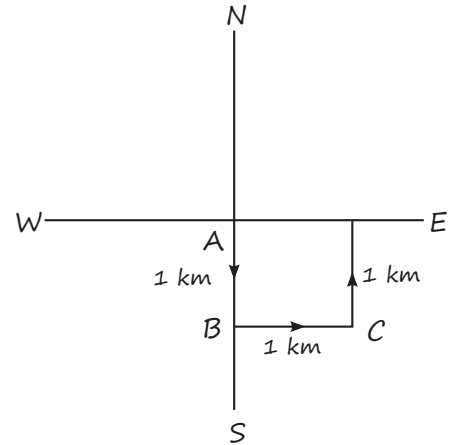
Example 28. A man starts from a point, walks 4 miles towards north and turns left and walks 6 miles, turns right and walks for 3 miles and again turns right and walks 4 miles and takes rest for 30 minutes. He gets up and walks straight 2 miles in the same direction and turns right and walks one mile. What is the direction he is facing?

(a) North   (b) South   (c) South-East   (d) West   **(ICAI)**

Sol. (b) Following the directions as per the question, we get
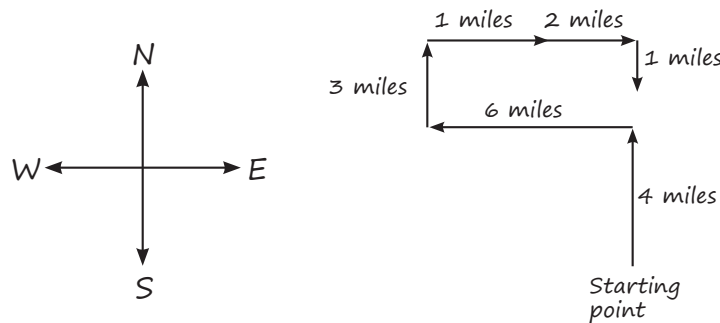
Therefore, he is facing in the South direction.
Hence, the correct option is (b)

Example 29. A boy starts from home in the early morning and walks straight for 8km facing the sun. Then, he takes a right turn and walks straight for 3km. Then, he turns right again and walks for 2km, and then turns left and walks for 1km. Then, he turns right, travels 1 km, and then turns right and travels for 4km straight. How far is he from the starting point?

(a) 5 km   (b) 6 km   (c) 2 km   (d) 4 km

Sol. (a)

Quantitative Aptitude
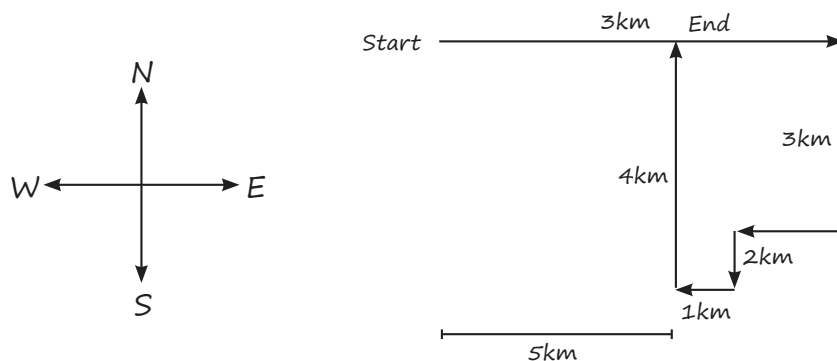
Therefore, he is 5 km from the starting point.

Hence, the correct option is (a).

Example 30. Raju drives 25 km north and turns left and travels 5 km and reaches point 'O'. He then turns right and covers another 5km. Afterward, he turns to the east and drives 5 km. How much distance does he has to travel to go back to the starting point?

    (a) 30 km   (b) 20 km   (c) 25 km   (d) 35 km

Sol. (a)
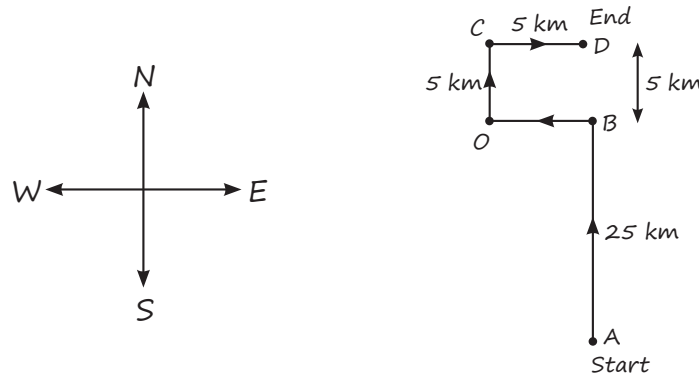
The distance Raju has to travel = DB + AB = 5km + 25 km = 30 km

Therefore, he has to travel 30 km to go back to the starting point.

Hence, the correct option is (a).

Example 31. Pinky walks a distance of 600 m towards the east, turns left and moves 500m, then turns left and walks 600m, and then turns left again and moves 500m and halts. At what distance (in m) is she from the starting point?

    (a) 0   (b) 600   (c) 500   (d) 2200

Sol. (a) According to the information given,
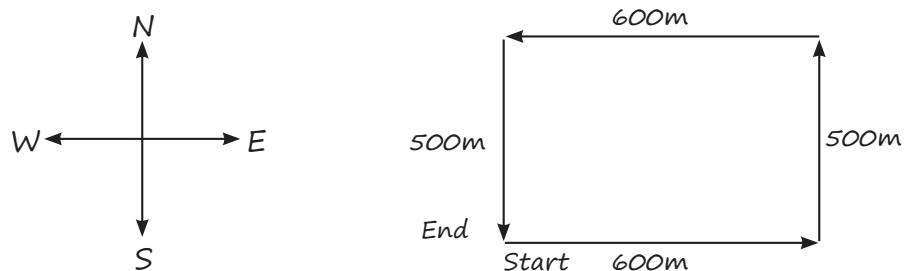
As we can see that the starting point coincides with the endpoint. Hence, Pinky is at zero distance from the starting point.

Hence, the correct option is (a).

Example 32. Pratap starts from school and walks 7km towards the east. He takes a left and walks 4km, then takes a right and walks 2km, and again takes a right and walks 3km. Which direction is he facing now?

    (a) South   (b) North   (c) East   (d) West

Sol. (a) According to the information given,

N

W ⟵——→ E

S

2km

3km

4km

Start
(School)

End

7km
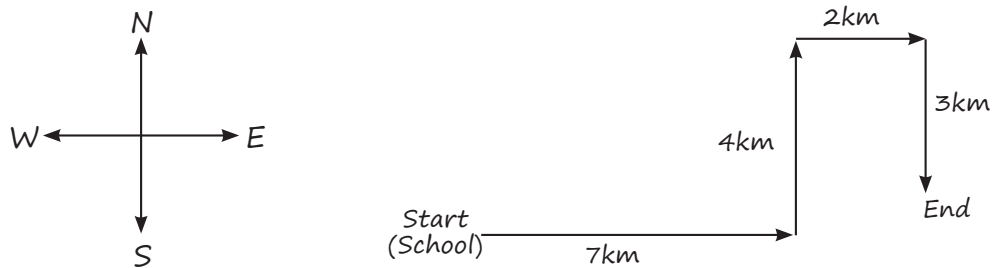
Therefore, Pratap is facing the South direction.

Hence, the correct option is (a).

LAST YEARS QUESTIONS

Example 33. Laxman went 15 km to the north, then he turned west and covered 10 km. Then he turned south and covered 5 km, finally turning to east he covered 10 km. In which direction he is moving now?

    (a) East   (b) West   (c) North   (d) South   **(May, 2018)**

Sol. (a) According to the information given, the directions are:

N

W ⟵——→ E

S

10km

5km

End

10km

15km

Start
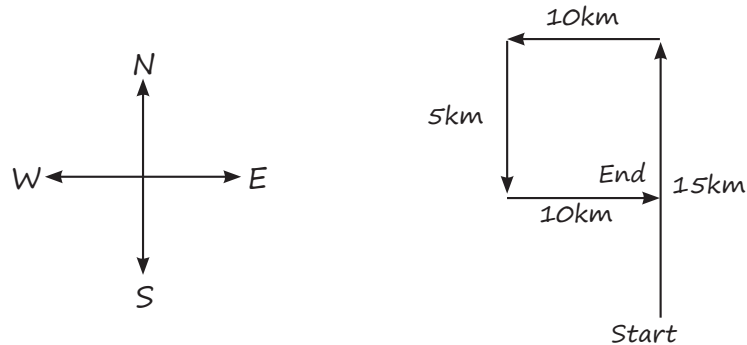
Therefore, Laxman is moving in the East direction now.

Hence, the correct option is (a).

Example 34. A man is facing east, then he turns left and goes 10 meters then turns right and goes 5 meters then goes 5 meters to the south and from there 5 meters to west. In which direction is he from his original place?

    (a) East   (b) West   (c) North   (d) South   **(May, 2018)**

Sol. (c) According to the information given, the directions are:

N

W ⟵——→ E

S

5km

10km

5km

5km

End

Start
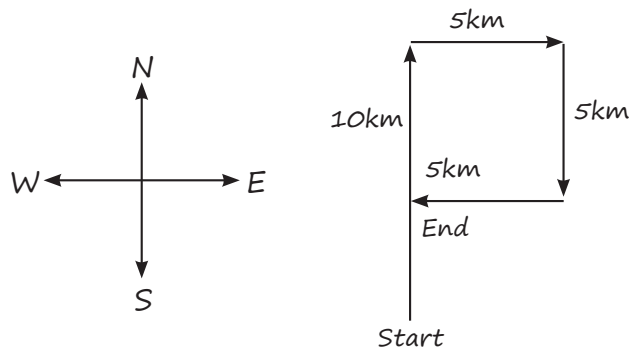
Therefore, the man is in the North direction from his original place.

Hence, the correct option is (c).

Example 35. X walks southwards and then turns right then left and then right. In which direction is he moving now? **(May, 2018)**

   (a) South   (b) North   (c) West   (d) South West

Sol.(c) According to the information given, the directions are:
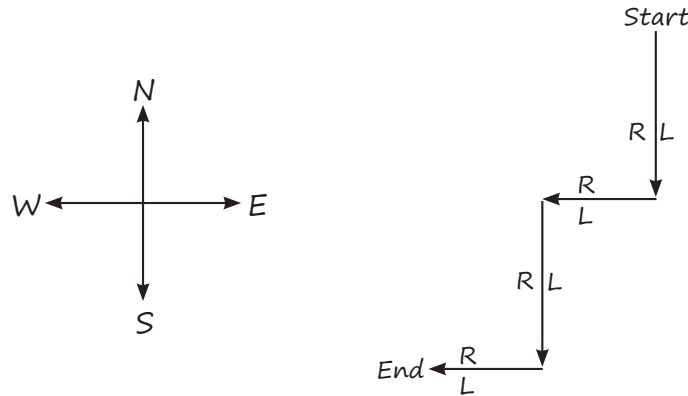
Therefore, X is moving in the West direction now.

Hence, the correct option is (c).

Example 36. Mr. Raman starts walking in the morning facing the sun. After some time, he turned to the left, later again he turned to his left. In which direction is Raman moving now? **(May, 2018)**

   (a) East   (b) West   (c) South   (d) North

Sol.(b) According to the information given, the directions are:
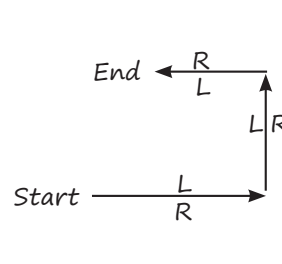
Therefore, Raman is moving in the West direction.

Hence, the correct option is (b).

Example 37. I stand with my right hand extended side-ways towards the south. Towards which direction will my back be? **(May, 2018)**

   (a) North   (b) West   (c) East   (d) South

Sol.(b) According to the information given, the directions are:
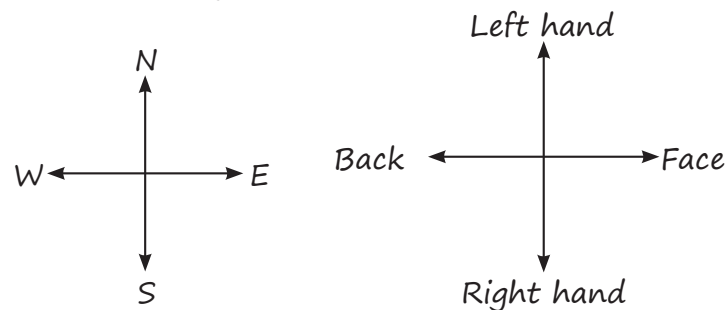
Therefore, my back will be in the West direction.

Hence, the correct option is (b).

Example 38. You go north, turn then right then go to the left. In which direction are you now?

(a) South   (b) West

(c) East   (d) North

Sol.(d) According to the information given, the directions are:
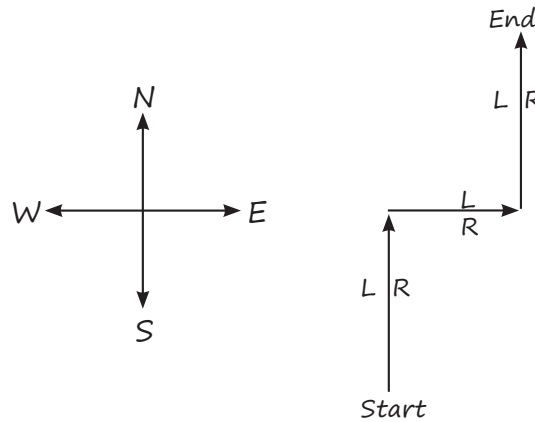
Therefore, I am now in the North direction.

Hence, the correct option is (d).

Example 39. K is a place which is located 2 km away in the north-west direction from the capital P. R is another place that is located 2 km away in the south-west direction from K. M is another place and that is located 2 km away in the north-west direction from R. T is yet another place that is located 2 km away in the south-west direction from M. In which direction is T located in relation to P?   **(ICAI)**

(a) South-West   (b) North-West

(c) West   (d) North

Sol.(c) Following the directions as per the question, we get
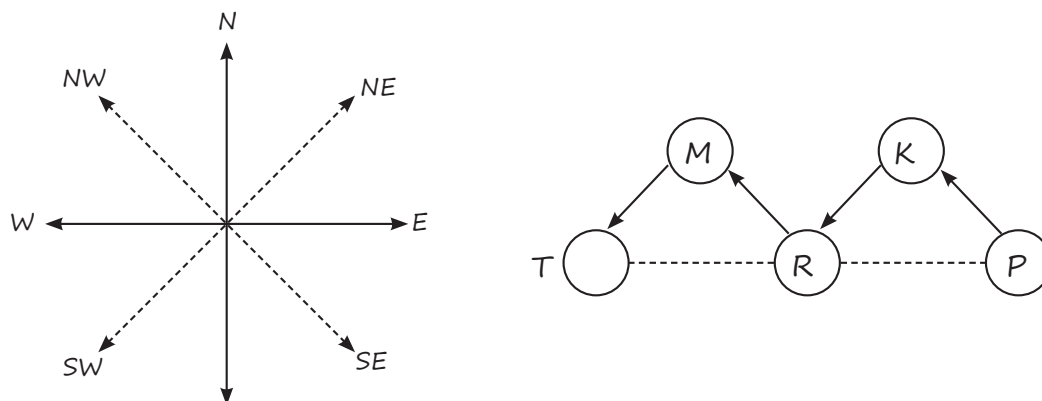
Therefore, T is located in the west direction in relation to P.

Hence, the correct answer is option (c).

Example 40. Anoop starts walking towards south after walking 15 meters he turns towards north. After walking 20 meters he turns towards east and walks 10 meters. He then turns towards south and walks 5 meters. In which direction is he from the original position?

  (a) North   (b) South   (c) East   (d) West   **(Nov, 2018)**

 Sol.(c) Following the directions as per the question, we get
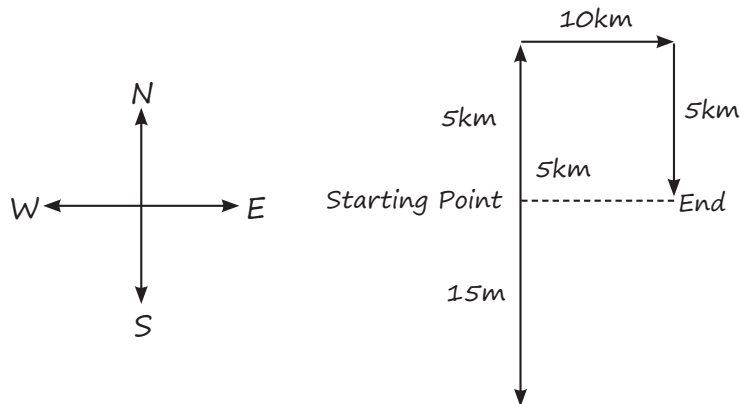
Therefore, Annop is in the East direction from the original position.

Hence, the correct option is (c).

Example 41. Rahim started from point X and walked straight 5 km. West, then turned left and walked straight 2 km. and again turned left and walked straight 7 km. In which direction is he from point X?

  (a) North − East   (b) South− West (c) South-East   (d) North-West   **(Nov, 2018)**

Sol. (c) Following the directions as per the question, we get
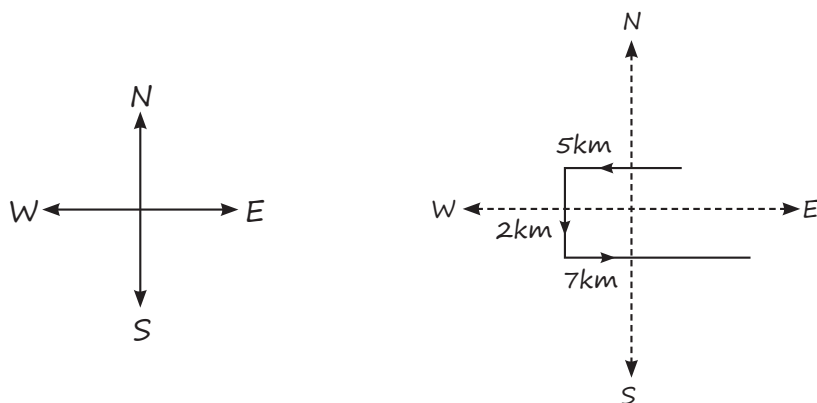
Therefore, he is in the South East direction from X.

Hence, the correct option is (c).

Example 42. A man started to walk east, after moving a certain distance, he turned to his right. After moving some distance, he turned to his right again. After moving a little he turns now to his left, currently he is going in _____ direction.

  (a) East   (b) West   (c) North   (d) South   **(Nov, 2018)**

 Sol. (d) Following the directions as per the question, we get
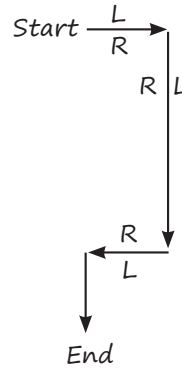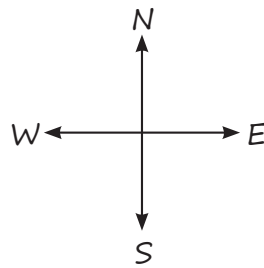
Currently, he is in the South direction.

Hence, the correct option is (d).

Example 43. Manu wants to go to the market. He starts from his house towards the north and reaches a crossing after 30 m. He turns towards east, goes 10 m till the second crossing and turns again, moves towards south straight for 30 m where the marketing complex exits. In which direction is the market from his house?

    (a) North   (b) South   (c) East   (d) West   **(Nov 2018)**

Sol.(c) Following the directions as per the question, we get
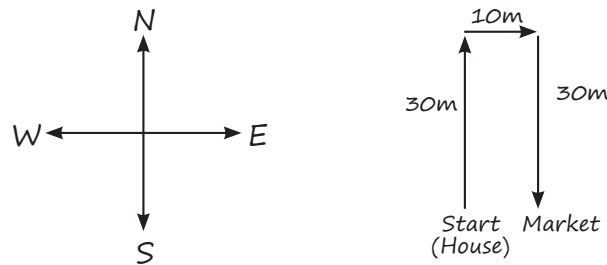
Therefore, the market is in the East direction of Manu's house

Hence, the correct option is (c).

Example 44. Sangeeta leaves from her home, she first walks 30 meters in North–West direction and then 30 meters in south west direction, next she walks 30 meters in south east direction. Finally, she turns towards her house. In which direction is she moving?

    (a) North –west   (b) North –east   (c) South –east   (d) South west   **(June, 2019)**

Sol.(b) Following the directions as per the question, we get

Quantitative Aptitude
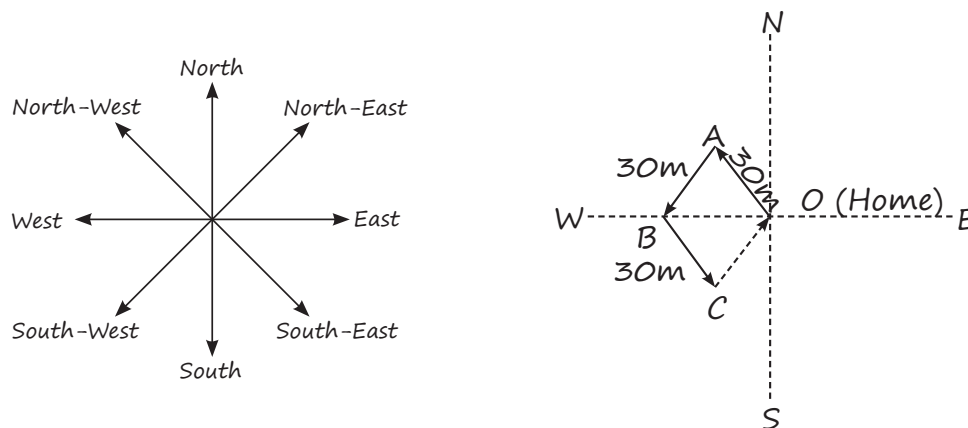
So, as Sangeeta is moving towards her house, she is moving towards point 'O' from point 'C' which is in the 'north-east' direction.

Hence, the correct option is (b).

Example 45. When a person faces north and walks 25m right and she turns left and walks 20m and she again turns right and walks 25m, turns right 25m and turns right and walks 40m , in which direction is he now from his starting point? **(June, 2019)**

(a) North –west　　(b) North-east　　(c) South –east　　(d) South –west

Sol.(c) Following the directions as per the question, we get
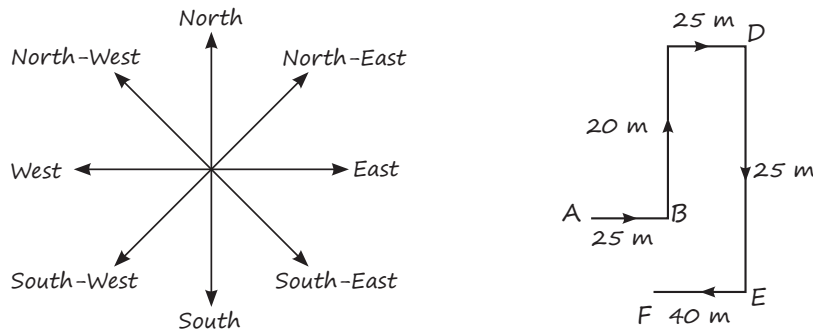
Therefore, she is in the South East direction from her starting point.

Hence, the correct option is (c).

FULL CHAPTER PRACTICE QUESTIONS (PART C)

1. Laxman went 15 km to the North, then he turned West and covered 10 km. Then he turned south and covered 5 km, finally turning to East he covered 10 km. In which direction in which he is now moving?

   (a) East　　　　(b) West　　　　(c) North　　　　(d) South

2. Sandesh starts driving from point A and drives 12 km toward North. He takes a right turn and drives 20 km. Now drive 8 km after taking a left turn. Finally, he takes a left turn and drives 20 km and stops at point B. How far is point A with respect to point B?

   (a) 20 km　　　(b) 10 km　　　(c) 5 km　　　(d) 9 km

3. Sohan drove 15 km to the west from his house, then turned left and drove 20km. Again, turned east and drove 25 km and finally turning left covered 20 km. How far is he from his house?

   (a) 40 km　　　(b) 80 km　　　(c) 5 km　　　(d) 10 km

4. Roza walked 25 m towards the south, took a right turn and walked 15m. She then took a left turn and walked 25 m. She is in which direction from starting point:

   (a) S–E　　　　(b) South　　　(c) S–W　　　(d) N–W

5. Swati starts from a point, walks 2 km towards North, turns toward her right and walks 2 km, turns right again and walks. In which direction is she going now?

   (a) North　　　(b) S–E　　　(c) South　　　(d) West

6. After walking 6 km, I turned right and covered a distance of 2 km, then turned left and covered a distance of 10 km. In the end, I was moving towards the north. From which direction did I start my journey?

   (a) North   (b) South   (c) East   (d) West

7. Rashmi leaves from her home. She first walks 30 m in N-W direction and then 30 m in S-W direction. Next she walks 30 m in S-E direction. Finally, she turns towards her house. In which direction is she moving?

   (a) N-E   (b) N-W   (c) S-E   (d) S-W

8. I am facing south. I turn right and walk 20 m. Then I turn right again and walk 10 m .Then I turn left and walk 10 m and then turn right and walk 20 m. Then I turn right again and walk 60 m. In which direction I am from the starting point?

   (a) North   (b) E-N   (c) East   (d) N-E

9. A walks 3 km north and then he turns left and goes 2 km. He again turns left and goes 3km. He turns right and walks straight. In which direction is he walking now?

   (a) East   (b) West   (c) North   (d) South

10. A walks Southwards, then turns right, then left and then right. In which direction is he from the straight point?

    (a) South   (b) East   (c) South-West   (d) North

11. A boy started walking towards the West. He turns right and again he turns right and then turns left at last. Towards which direction is he walking now?

    (a) West   (b) North   (c) South   (d) East

12. A person Moves 4 km towards west, then turns right and moves 3 km and turns right and moves 6 km , which direction he is moving?

    (a) East   (b) West   (c) North   (d) South

13. I started walking down a road in the morning facing the Sun. After walking for some time I turned to my left. Then I turned to my right. In which direction was I going then?

    (a) East   (b) West   (c) North   (d) south

14. You go North, turn right, then right again and then go left. In which direction are you now?

    (a) South   (b) East   (c) West   (d) North

15. Suman starts from a point, walks 2 km towards North, turns towards her right and walks 2 km. turns right again and walks. What is the direction she is facing now?

    (a) East   (b) West   (c) South   (d) North

16. Ramu starts walking in the morning facing the sun. After some time, he turned to the left. Later, he turned to his left. In which direction Ramu is moving now?

    (a) East   (b) West   (c) South   (d) North

17. Mr. A walks Southwards and then turn right, then left and then right. In which direction is he from his starting point ?

    (a) South-West   (b) North   (c) South   (d) South-East

18. One morning, Rita started to walk toward the sun. After walking a while, she turns to her left and again to her left. She again turned right. Which direction is she facing?

    (a) East   (b) West   (c) North   (d) South

19. One day Nita left home and cycled 10 km Southwards, turned right and cycled 5 km and turned right and cycled 10 km and turned left 10 km. How many kilometers will she have to cycle to reach her home straight?

    (a) 10 km   (b) 15 km   (c) 20 km   (d) 25 km

20. A located to the West of B. C is located to the north in between A and B. D is exactly to the south of B and also in line with B. In which direction of C is D located?

    (a) South   (b) S-E   (c) West   (d) S-W

21. Gopal started walking 2 km straight from his school. Then he turned right and walked 1 km. Again, he turned right and walked 1 km to reach his house. If his house is southeast from his school, then in which direction did Gopal start walking from the school?

    (a) East   (b) West   (c) South   (d) North

22. A taxi driver commenced his journey from a point and drove 10 km toward north and turned to his left and drove another 5 km. After waiting to meet a friend here, he turned to his right and continued to drive another 10 km. He has covered a distance of 25 km so far, but in which direction would he be now?

    (a) South   (b) North   (c) East   (d) South-east

23. Laxman went 15 km to the North, then he turned West and covered 10 km. Then he turned south and covered 5 km. Finally turning to the East he covered 10 km. In which direction is he from his house?

    (a) East   (b) West   (c) North   (d) South

24. A car traveling from the south covers a distance of 8 km, then turns right and runs another 9 km and again turns to the right and stops. Which direction does it face now?

    (a) South   (b) North   (c) West   (d) East

25. Five boys A, B, C, D, and E are sitting in a park in a circle. A is facing South-West, D is facing South-East, B, and E are right opposite A and D respectively and C is equidistant between D and B. Which direction is C facing?

    (a) West   (b) South   (c) North   (d) East

26. Hema starts from his house and walks 3 km towards the north. Then he turns right and walks 2 km and then turns right and walks 5 km, then turns right and walks 2 km, and then again turns right and walks 2 km. Which direction is he facing now?

    (a) North   (b) South   (c) West   (d) East

27. Sikha starts walking north and after a while, she turns to her right. After walking some distance, she turns to his left and walks a distance of 1 km. She then turns to her left again. In which direction is she moving now?

    (a) North   (b) West   (c) East   (d) South

28. Roy walks 2 km to the East, then turns North-West and walks 3 km. Then he turns South and walks 5 km. Then again, he turns West and walks 2 km. Finally, he turns North and walks 6 km. In which direction, is he from the starting point?

(a) South-West   (b) South-East   (c)   North-West (d)   North-East

29. Kunal starts walking North, then turns left and covers some distance, then he turns right and walks. After some time, he turns to his right and then turns left. In which direction he is walking now?

(a) East   (b) South   (c) North   (d) South-East

30. X walks southwards and then turns right, then left, and then right. In which direction is he moving now?

(a) South   (b) North   (c) West   (d) South-West

Answer Key

1. (a)	**2.** (a)	**3.** (d)	**4.** (c)	**5.** (c)	**6.** (b)	**7.** (a)	**8.** (d)	**9.** (b)	**10.** (c)
11. (b)	**12.** (a)	**13.** (a)	**14.** (c)	**15.** (c)	**16.** (b)	**17.** (a)	**18.** (c)	**19.** (b)	**20.** (b)
21. (a)	**22.** (b)	**23.** (c)	**24.** (a)	**25.** (d)	**26.** (a)	**27.** (b)	**28.** (c)	**29.** (c)	**30.** (c)

SUMMARY

❑ Picturising the directions through a diagram is the best way to solve the directions.

❑ Pythagoras theorem : In a right-angled triangle, the square of the hypotenuse side is equal to the sum of squares of the other two sides i.e.

❑ When we are in the North, turning left is West and turning right is East.

❑ When we are in the West, turning left will be South, and turning right will be North.

❑ When we are in the East, turning to left will be North, and turning to right will be South.

❑ When we are in the South, turning to the left is East and turning to the right is West

❑ If we move to the right, the entire direction will be clockwise. So, every right movement will lead to the East, South, and West directions, which are clockwise when starting from the right point, at North.

❑ Similarly, if the movement begins from the left, the entire directions that follow would be anti-clockwise. So, if you turn to the left from North, the directions would be West, South, and East, which are in a reverse pattern.

❑❑❑

Seating Arrangements

INTRODUCTION

In these questions, you have to arrange a group of persons fulfilling certain conditions. Here we can classify these problems into 4 types:

1. Linear Arrangement
2. Two row sequence Arrangement
3. Circular Arrangement
4. Polygon Arrangement

LINEAR ARRANGEMENT

Here the arrangement of the persons is linear i.e., you have to arrange them in a line. Here generally a single row of arrangement is formed.

There will be two types of questions for linear arrangement.

1. When you don't know the direction of facing
2. When you know the direction of facing, (for Example: Upward, Downward, East, North, South, West etc…)

(a) When direction of face is not clear, then we take our self as below:
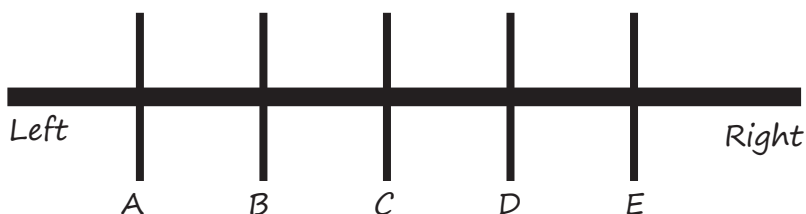
Now, there are a few conclusions which we have to make from above. But first let us know some definition:

1. **Immediate left**: It refers to the position or object located just to the left side of the reference point, without any other object in between.

   E.g.: A is immediate left to B.

2. **Immediate right**: It refers to the position or object located just to the right side of the reference point, without any other object in between.

   E.g.: D is immediate right to C.

3. **To the left**: It means moving towards the left side of the reference point, which can include objects located at different distances or positions.

   E.g.: A, B, C are to the left of D and E.

4. To the right: It means moving towards the right side of the reference point, which can include objects located at different distances or positions.

E.g.: B, C, D and E are to the right of A.

5. In between: It refers to objects or positions that are located between two specified points or objects.

E.g.: B is between A and C.

Now, the conclusion from the above diagram are:
- B, C, D, E are right of A but only B is to the immediate right of A.
- D, C, B, A are right of E but only D is to the immediate left of E.
- C, D, E are right of B but Only C is immediate right of B
- C is in the middle of line.
- A and E are sitting at the extreme end of line.

Example 1. In a park, there are five trees labeled A, B, C, D, and E. Tree A is to the right of Tree B. Tree C is to the left of Tree D. Also, Tree D is to the right of Tree E and Tree B is to the left of Tree C. Which tree is in the middle?

    (a) Tree B   (b) Tree A   (c) Tree D   (d) Tree C

Sol. (d) Let's analyze the given information step by step to determine which tree is in the middle:

Tree A is to the right of Tree B i.e., B A

Tree C is to the left of Tree D i.e., C D

Tree D is to the right of Tree E i.e., E D

Tree B is to the left of Tree C i.e., B C

Thus, the final arrangement:

E D C B A

From the arrangement, we can see that Tree C is in the middle position.

Therefore, the tree in the middle is C.

Hence, the correct option is (d) i.e.,Tree C.

Example 2. There are five houses P, Q , R, S, T. P is the immediate right of Q and T is the immediate left of R and immediate right of P. Q is on the right of S. Which house is located at the extreme left end?

    (a) P   (b) R   (c) S   (d) T

Sol. (c) According to the question,

P is immediate right of Q

    Q   P

T is immediate left of R and immediate right of P i.e.,

    P   T   R
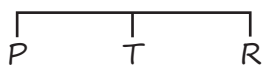
Now, Q is in the right of S, thus the final arrangement will be:

    S   Q   P   T   R
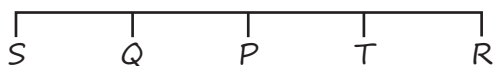
Therefore, house S is located at the extreme left end.

Hence, the correct option is (c) i.e. S.

Example 3. Five students P, Q, R, S, and T, are positioned in a row facing North. Among them, S is seated between T and Q, and Q is immediately to the left of R. P is immediately to the left of T. Who is positioned at the second right?

(a) S   (b) T   (c) R   (d) Q

Sol. (d) According to the question,

Students are sitting in a row facing North.

S is seated between T and Q i.e.   T S Q

Q is seated immediately to the left of R i.e.   Q R

P is seated immediately to the left of T i.e.   P T

Thus, the final sitting arrangement:
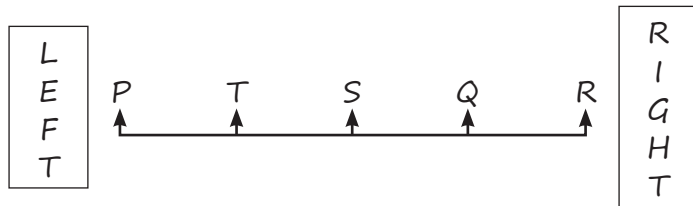
As shown in figure, Q is seated at second right.

Hence, the correct option is (d) i.e., Q.

Example 4. Five students A, B, C, D and E are standing in a row. D is on the right of E, B is on the left of E but on the right of A. D is next to C on his left. The student in the middle is

(a) B   (b) E   (c) C   (d) A   **(Nov 2018)**

Sol. (b) According to the question,

D is on the right of E → E, D

B is on the left of E but on the right of A → A, B, E, D

D is next to C on his left → A, B, E, C, D

The arrangement which we get from the above data is; → A, B, E, C, D

Clearly, student E is in the middle of this arrangement.

Hence, the correct option is (b) i.e, E.

Example 5. In a conference, seven participants labeled A, B, C, D, E, F, and G are seated in a row. The following statements are given:

(I) C is seated to the left of B, but on the right of D.

(II) A is seated to the right of B.

(III) F is seated to the right of E, but to the left of D.

(IV) H is seated to the left of E.

Which person is seated at the extreme right end?

(a) H   (b) D   (c) A   (d) None of these

Sol. (c) Considering the seven participants facing in North direction, then

According to the question,

'C' is seated left to 'B' but on the right to 'D' i.e. D   C   B

'A' is seated right to 'B' i.e.   D   C   B   A

'F; is seated right to 'E' but left to 'D' i.e.

E   F   D   C   B   A

'H' is seated to the left to 'E', then the final arrangement of the seven members in row will be:

H   E   F   D   C   B   A

Therefore, A is seated at the extreme right end.

Hence, the correct option is (c) i.e., A.

Example 6. P, Q, R S and T are sitting in a line facing West. P and Q are sitting together. R is sitting at the south end and S is sitting at the North end. T is neighbor of Q and R. Who is sitting in the middle? **(Dec 2022)**

(a) P   (b) Q   (c) R   (d) S

Sol. (b) Given, P, Q, R, S and T are seated in a line facing West.

As, R is sitting at the north end and S is sitting at the south end

Thus, the arrangement is:

R

—

—

—

S

Also, T is neighbour of R and Q i.e.,

R

T

Q

—

S

Since, P and Q are seated together thus the final arrangement is:

R

T

Q

P

S

Therefore, Q is sitting in the middle.

Hence, the correct option is (b).

Example 7. Five friends A, B, C, D, and E are sitting on a bench.

    I. A is sitting next to B.

   II. C is sitting next to D.

  III. D is not sitting with E.

  IV. E is the last end of the bench.

   V. C is on the 2nd position from the right.

  VI. A is on the right of B and E.

 VII. A and C are sitting together.

In which position A is sitting?

(a) Between B and D

(b) Between B and C

(c) Between E and D

(d) Between C and E

Sol. (b) Since, A is sitting next to B and A is on the right of B i.e., B – A

Also, C is sitting next to D i.e., C – D or D – C

Since A is on right of B and E and also E is the last end of the bench, we get

E – B – A

Also, A and C are sitting together and D is not sitting with E.

Thus, E – B – A – C – D, which is the required arrangement

Clearly, A is sitting between B and C.

Hence, option (b) is correct.

Example 8. In a college party, 5 girls are sitting in a row. F is to the left of M and to the right of O. R is sitting to the right of N but to the left of O. Who is sitting in the middle?

    (a) O   (b) R   (c) P   (d) M

Sol. (a) Arranging the positions of girls according to given arrangement, we observe that F is to the left of M and to the right of O i.e., O – F – M will sit together, Also, R is sitting to the right of N but to the left of O i.e., N – R – O – F – M N – R – O – F – M will be the final sitting arrangement.

Therefore, O is sitting in the middle,

Hence, the correct option is (a).

When you know the direction of facing. (For example – upward, Downward, East, north, south, west etc......)

If it faced South, then

Right   Left

       A   B   C   D   E
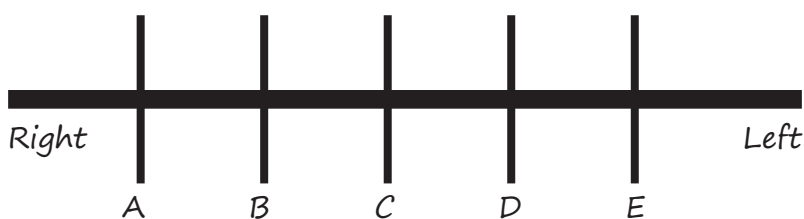
Example 9. P, Q, R, S, T, U, V and W are sitting in a row facing south.

　　a. P is fourth to the right of T

　　b. W is fourth to the left of S

　　c. R and U, which are not at the ends, are neighbours of Q and T respectively.

　　d. W is next to the left of P and P is the neighbour of Q.

　　Who are sitting at the extreme ends?

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

Sol. (a) Given: P, Q, R, S, T, U, V and W are sitting in a row facing south

　　Now, P is fourth to the right of T i.e,　P _ _ _ T

　　W is next to the left of P and P is the neighbour of Q i.e.,

　　Q　P　W _ _ T

　　W is fourth to the left of S i.e.,　S _ Q　P　W _ _ T

　　R and U are neighbours of Q and T respectively i.e., S　R　Q　P　W _ U　T

　　Thus, the position of V and the final arrangement is

　　S　R　Q　P　W　V　U　T

　　Therefore, T and S are sitting at extreme end.

　　Hence, option (a) is correct.

Example 10. Five boys are standing in a row facing East. Pavan is left of Tavan. Vipin and Chavan to the left of Nakul. Chavan is between Tavan and Vipin. Vipin is fourth from the left, then how far is Tavan to the right? **(ICAI)**

　　(a) First　　　　　(b) Second　　　(c) Third　　　　(d) Fourth

Sol. (d) From the given information, we get

　　Pavan is left of Tavan, i.e., Pavan - Tavan,

　　Chavan is between Tavan and Vipin and Vipin is fourth from the left i.e., Pavan - Tavan – Chavan - Vipin

　　Vipin and Chavan to the left of Nakul i.e., Pavan – Tavan - Chavan - Vipin - Nakul

　　Therefore, Tavan is fourth from the right.

　　Hence, the correct option is (d).

Example 11. Five boys A_1, A_2, A_3, A_4, A_5 are sitting in a stair in the following way:

　　(i) A_5 is above A_1

　　(ii) A_4 is under A_2

　　(iii) A_2 is under A_1

　　(iv) A_4 is between and A_2 and A_3

　　Who is in the lowest position of the stair? **(ICAI)**

　　(a) A_1　　　　　　(b) A_3　　　　(c) A_5　　　　　(d) A_2

Sol. (b) Arrangement according to question is:

Since, A_5 is above A_1 (from i)

i.e.
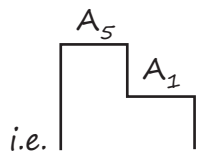
Now, A_2 is under A_1 (from iii)

i.e.
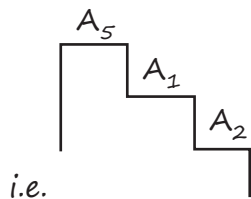
Also, A_4 is under A_2
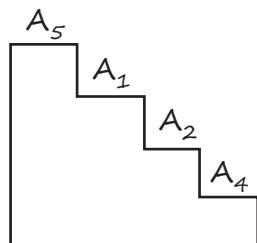
Now, A_4 is between A_2 and A_3, thus
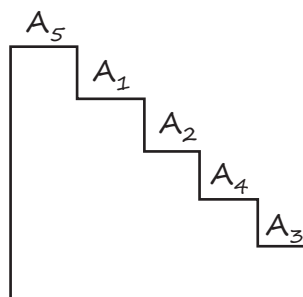
Therefore, A_3 is at the lowest position of the stair.

Hence, the correct option is (b).

Example 12. In a residential complex, five families named A, B, C, D, and E are living in a multi-storeyed building. The following statements are given:

Family A lives in a flat above Family B.

Family C lives in a flat below Family D.

Family B lives in a flat above Family D.

Family E lives in a flat below Family C.

Which family lives in the middle?

(a) Family A   (b) Family B   (c) Family C   (d) Family D

Sol. (d) According to the question,

Family A lives in a flat above Family B i.e.,

Family A
Family B

Also, Family C lives in a flat below Family D and Family B lives in a flat above Family D i.e.,

Family B
Family D
Family C

Now, Family E lives in a flat below Family C thus the final arrangement is:

Family A
Family B
Family D
Family C
Family E

Therefore, family D lives in the middle.

Hence, the correct option is (d) i.e., Family D.

❑ **Double Row Arrangement:** In these questions, there will be two groups of persons. You have to arrange one group in one row and the other group in the other row. The persons in these rows normally face each other.

Right   A   B   C   Left

————————————————————————————

————————————————————————————

Left   P   Q   R   Right

Example 13. Six persons A, B, C, D, E and F are sitting in two rows. Three in each row.

1. E is not at the end of any row
2. D is second to the left of F
3. C, the neighbour of E, is sitting diagonally opposite to D
4. B is the neighbour of F.

Which of the following are in one of the two rows?   **(ICAI)**

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

(c) A, E and F   (d) F, B and C

Sol. (a) As per the given information,

Six persons A, B, C, D, E and F are sitting in two rows, three in each row.

E is not at the end of any row

D is second to the left of F

C, the neighbour of E, is sitting diagonally opposite to D

B is the neighbour of F.

Thus, two cases will be possible that is shown below:

Case 1

Case 2
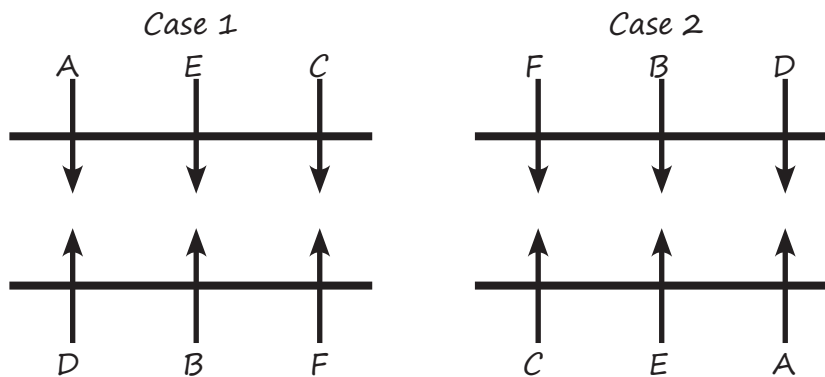
Therefore, D, B and F are in are in one of the two rows

Hence, the correct option is (a) i.e., D, B and F.

Example 14. Eight persons P to W are sitting in front of one another in two rows. Each row has four persons. P is between U and V and facing North. Q, who is to the immediate left of M is facing W. R is between T and M and W is to the immediate right of V.

Who is to the immediate right of R?   (ICAI)

    (a) M   (b) U   (c) M or T   (d) None of these

Sol. (d) According to the question,

    P is between U and V and facing North.

    So, the arrangement can be: U P V or V P U

    It is given that W is to the immediate right of V.

    So, north facing persons sit in the following manner: **U P V W**

    Now, the other row will be south facing.

    As, W is opposite to Q who is to the immediate left of M

    i.e.,   _ _ **M Q**

    Next condition is, R is between T and M.

    Thus, South facing persons sit in the following order: **T R M Q**

    Arrangement according to the question is as follows:
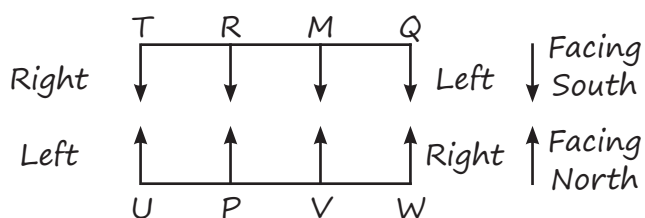
    Clearly, T is to the immediate right of R.

    Hence, the correct option is (d) i.e., None of these.

1. There are five different houses, A to E, in a row. A is to the right of B and E is to the left of C and right of A, B is to the right of D. Which of the houses is in the middle?
   (a) A   (b) B   (c) C   (d) D

2. In a classroom, five students named Alice, Bob, Charlie, Dave, and Emma are seated in a row facing the front. Here, Charlie is sitting between Dave and Emma, and Dave is to the immediate left of Bob. Alice is to the immediate left of Emma. Who is in the middle?
   (a) Charlie   (b) Bob   (c) Emma   (d) Dave

3. In a queue, five individuals are standing in a line. One of the two individuals at the extreme ends is a doctor, and the other is an engineer. An artist is standing to the right of the student. An architect is positioned to the left of the engineer. The student is standing between the doctor and the artist. Counting from the left, at which place is the architect?
   (a) 2nd (b) 3rd (c) 4th (d) None of these

4. Six individuals named A, B, C, D, E, and F are seated in front of one another facing each other in two rows. Each row has three people. The following statements provide their seating arrangement:
   (I) A is seated between D and F and is facing South.
   (II) B, who is to the immediate left of E, is facing F.
   (III) C is seated to the immediate right of E.
   Who is sitting in front of C?
   (a) E   (b) B   (c) D   (d) C

5. Six persons A, B, C, D, E and F are sitting in two rows with three persons in each row. Both rows are in front of each other. E is not at the end of the any row and D is second left to the F, C is neighbor of E and diagonally opposite to D if B is neighbour F who is in front of C then who is sitting diagonally to F? **(Dec 2022)**
   (a) C   (b) E   (c) A   (d) D

Answer Key

1. (a)   2. (a)   3. (d)   4. (c)   5. (c)

❑ **Circular Arrangement:**
   In the circular arrangement, we need to arrange around a circular table and check if the arrangement is to the left or right or facing outwards or inwards.

Example 15. Four girls A, B, C, D are sitting around a circle facing the centre. B and C infront of each other, which of the following is definitely true?
   (a) A and D infront of each other
   (b) A is not between B and C
   (c) D is left of C
   (d) A is left of C

         Quantitative Aptitude

Sol. (a) According to the given information,
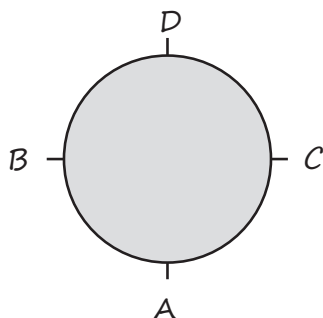
Hence, the correct option is (a) i.e., A and D infront of each other.

Example 16. Parikh is sitting between Narendra and Babita, Charu is to the left of Babita, Pankaj is sitting between Charu and Ashma, they all sitting around a circle facing the center then who is sitting to the right of Babita?

    (a) Parikh   (b) Ashma   (c) Charu   (d) Narendra

Sol. (a) Consider the arrangement of six people: Parikh, Narendra, Babita, Charu, Pankaj, Ashma sitting around a circle facing the center.

According to the question,

Parikh is sitting between Narendra and Babita and Charu is to the left of Babita;
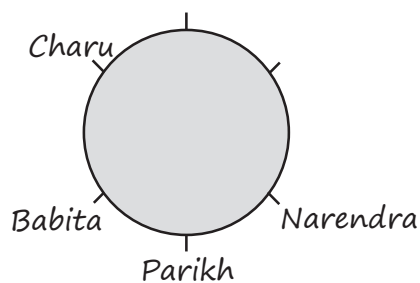
Pankaj is sitting between Charu and Ashma;
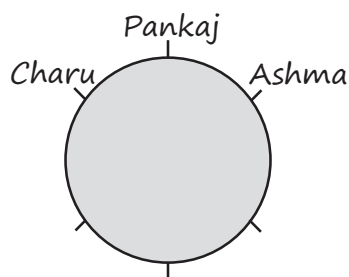
Therefore, the final arrangement will be:
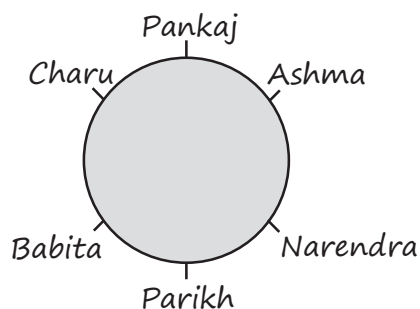
Clearly, Parikh is sitting to the right of Babita.

Hence, the correct option is (a) i.e., Parikh.

Example 17. Bunty, Dev, Manav, Kavya, Payal, Qasturba, Wasir and Himmat are sitting around a circle facing at the center. Manav is to the immediate right of Bunty who is 4th to the right of kavya. Payal is 2nd to the left of Bunty and is 4th to the right of Wasir. Qasturba is 2nd to the right of dev who is 2nd to the right of Himmat.

Who is 3rd to the right of Bunty?

    (a) Wasir   (b) Manav   (c) Himmat   (d) None of these

Sol. (c) According to the information given we get that,

Starting from Manav his right is Bunty, so arrangement will be Manav, Bunty

Also bunty is 4th to the right of kavya so arrangement becomes, Kavya, __ , __ , Manav, Bunty

Payal is 2nd to the left of Bunty and is 4th to the right of Wasir, So Wasir must be 2 right of Kavya

Therefore, the arrangement becomes Kavya, __ , Wasir , Manav, Bunty, __ , Payal , __

Also, Qasturba is 2nd to the right of dev who is 2nd to the right of Himmat.

Thus, the final arrangement is:
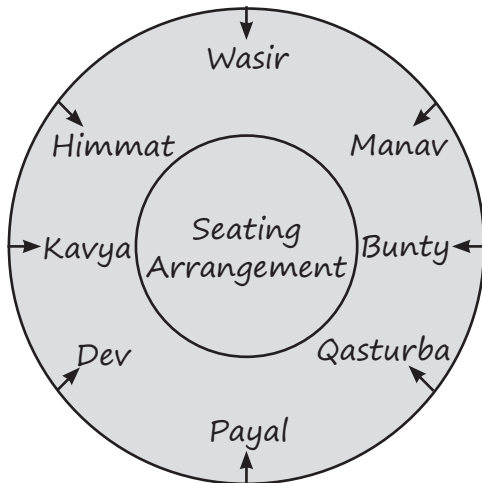
Therefore, the third right of Bunty is Himmat.

Hence, the correct option is (c).

Example 18. Eight executives H, I, J, K, L, M, N and P are sitting around a circular table for a meeting. M is third to the right of J and second to the left of K. H is to the immediate left of I. P is to the immediate right of K, L is third to the left of N. Find who will be a neighbour to I?

    (a) H and M   (b) L and K   (c) H and J   (d) M and J

Sol. (a) According to given conditions,

M is third to the right of J & second to the left of K so J, __ , __ , M , __ , K,

P is to immediate right of K so, J, __ , __ , M , __ , K, P

H and I are together so, it will be

J, H , I , M , __ , K, P

Now, L is third to the left of N

Thus, the required circular arrangement is given as:
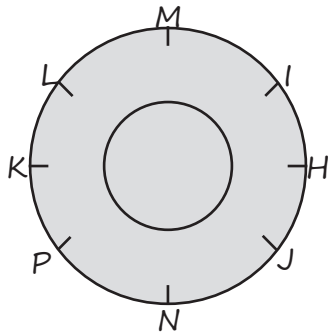
Therefore, H and M are neighbours of I.

Hence, the correct option is (a).

PRACTICE QUESTIONS (PART B)

1. Six friends are seated in a circular arrangement, all facing the center. Deepa is positioned between Prakash and Pankaj. Priti is located between Mukesh and Lalit and Mukesh is sitting right to Priti. Prakash and Mukesh are seated opposite each other. Who is sitting immediate left to Prakash ?

(a) Mukesh   (b) Deepa   (c) Pankaj   (d) Lalit

2. Six persons and are standing in a circle. is between and and is between and . is to the right of . Who is between and ?

(a) B   (b) C   (c) D   (d) E

3. Six girls, named P, Q, R, S, T, and V, are seated in a circle, all facing the center.

The following statements are given:

 A. T is not seated between Q and S but instead, between two other individuals.

 B. P is positioned immediately to the left of V.

 C. R is located four seats to the right of P.

Which of the following statements is not true?

(a) V is seated just to the right of P.

(b) T is seated just to the right of V.

(c) R is positioned second to the left of T.

(d) P is seated second to the right of R.

4. Eight girls are seating around a square table, they are facing centre,

   ❍   A sits 6th to the left of B, who sits third to the right of F.

   ❍   E sits 2nd to the left of F.

   ❍   G sits in between A and B.

   ❍   C sits immediate left of F , who is immediate left of D.

 (1) Who sits second to the left of D?

(a) E   (b) A   (c) C   (d) F

(II) What is the position of E with the Respect to H?

(a) 2nd to the left   (b) 2nd to the right

(c) Fourth to the right   (d) Third to the left

Answer Key

1. (b)   **2.** (d)   **3.** (c)   **4.** (I) – (c) (II) – (c)

DIRECTION (Q19 – Q23):

I.   A, B, C, D, E, F, G, and H are sitting in a row facing North.

II.   A is fourth to the right of E.

III. H is fourth to the left of D.

IV. C and F, who are not at the ends are neighbours of B and E, respectively

V.   H is next to the left of A and A is the neighbours of B.

Example 19. Who are sitting at the ends?

(a) E and C   (b) E and D   (c) G and D   (d) None of these

Sol. (b) According to given conditions we get

A is fourth to the right of E, order is: E   __   __   __   A

Now, H is next to the left of A and A is the neighbours of B, order is E   __ __   H   A   B

H is fourth to the left of D: E   __ __   H   A   B __   D

Also, C and F, who are not at the ends are neighbours of B and E

Arrangement is given as: EFGHABCD

Left   Right

       E   F   G   H   A   B   C   D

Therefore, E and D are sitting at the ends.

Hence, the correct option is (b).

Example 20 Which of the following statements is not true?

(a) H is second to the right of F.

(b) E is fourth to the left of A.

(c) D is fourth to the right of H.

(d) None of these

Sol. (d) From the above arrangement given: EFGHABCD

Options (a), (b) and (c) are true.

Therefore, option (d) is correct.

Example 21. Who is/are the neighbour(s) of D?

(a) F alone   (b) C alone   (c) B and C   (d) Cannot be determined

Quantitative Aptitude

Sol. (b) From the above arrangement given: EFGHABCD

Clearly, C alone is a neighbour of D.

Hence, option (b) is correct.

Example 22. Which of the following statements is not true?

(a) G is the neighbours of H and F
(b) B is the next to the right of A
(c) E is at left end
(d) D is next to the right of B

Sol. (d) From the above arrangement given: EFGHABCD

Out of all the options, option (d) i.e., D is next to the right of B is not true.

Hence, option (d) is correct.

Example 23. What is the position of F?

(a) Next to the right of E.
(b) Next to the right of G.
(c) Sixth to the right of D.
(d) Between G and H

Sol. (a) From the above arrangement given: EFGHABCD

Clearly, we can see that F is next to the right of E.

Hence, option (a) is correct.

DIRECTION (Q24 – Q27): Seven friends P, Q, R, S, T, U and V are standing in a straight line facing north but not necessarily in the same order.

❑   U stands second from the left end of the line.

❑   Only two people stand between U and T.

❑   Only one person stands between P and R.

❑   V stands third to the left of R.

❑   Neither R nor U is an immediate neighbors of S.

Example 24. Which of the following pairs stand at the extreme ends of the line?

(a) Q, S   (b) Q, P   (c) Q, T   (d) V, S

Sol. (d) According to the given conditions:

U stands second from the left end of the line and only two people stand between U and T i.e.,

_ U _ _ T _ _

V stands third to the left of R, so possibilities are:

V U _ R T _ _ 'OR' _ U _ V T _ R 'OR' _ U V _ T R _

Only one person stands between P and R so the above 2nd arrangement cannot be possible, thus the possibilities are:

V U _ R T P _ 'OR' _ U V P T R _

Neither R nor U is an immediate neighbours of S.

So, the possible arrangement is:

V U Q R T P S

Therefore, V and S are at the extreme ends of the line.

Hence, option (d) is correct.

Example 25. What is the position of V with respect to U?

 (a) Immediate left   (b) Second to the right

 (c) Third to the right   (d) Immediate right

Sol. (a) According to the above arrangement i.e., V U Q R T P S

 V is immediate left of U.

 Hence, option (a) is correct.

Example 26. Four of the following five form a group as per the given arrangement. Which of the following does not belong to the group?

 (a) R Q   (b) T P   (c) V T   (d) U V

Sol. (c) According to the above arrangement i.e., V U Q R T P S Clearly, V and T do not form a group.

 Hence, option (c) is correct.

Example 27. Which of the following is TRUE regarding Q?

 (a) P stands second to the left of Q.

 (b) S is one of the immediate neighbour of Q.

 (c) Only one person stands between Q and T.

 (d) Q stands at one of the extreme ends of the line.

Sol. (c) According to the above arrangement i.e., V U Q R T P S

 Now, clearly only one person stands between Q and T i.e., R.

 Hence, option (c) is correct.

Example 28. In a gathering seven members are sitting in a row. 'C' is sitting left to 'B' but on the right to 'D'. 'A' is sitting right to 'B', 'F' is sitting right to 'E' but left to 'D'. 'H' is sitting left to 'E'. Find the person sitting in the middle.   **(ICAI)**

 (a) C   (b) D   (c) E   (d) F

Sol. (b) Considering the seven members facing in North direction, then

 According to the question,

 'C' is sitting left to 'B' but on the right to 'D' i.e.   D   C   B

 'A' is sitting right to 'B' i.e.   D   C   B   A

 'F; is sitting right to 'E' but left to 'D' i.e.

 E   F   D   C   B   A

 'H' is sitting to the left to 'E', then the final arrangement of the seven members in row will be:

   H   E   F   D   C   B   A

 Therefore, D is sitting in the middle.

 Hence, the correct option is (b).

Example 29. Six children A, B, C, D, E and F are standing in a row. B is between F and D. E is between A and C. A does not stand next to either F or D. C does not stand next to D. F is between which of the following pairs of children?   **(ICAI)**

 (a) B and E   (b) B and C   (c) B and D   (d) B and A

Sol. (b) According to question,

B is between F and D i.e., F   B   D

E is between A and C i.e., A   E   C

A does not stand next to either F or D and C does not stand next to D.

⇒ C stands next to F.

∴ The arrangement of six children:

A   E   C   F   B   D
○———○———○———○———○———○

Clearly, F is standing between B and C.

Hence, the correct option is (b)

Example 30. Five senior citizens are living in a multi-storeyed building. Mr. Manu lives in a flat above Mr. Ashokan, Mr. Lokesh in a flat below Mr. Gaurav, Mr. Ashokan lives in a flat above Mr. Gaurav and Mr. Rakesh lives in a flat below Mr. Lokesh. Who lives in the topmost flat? **(May 2018)**

(a) Mr. Lokesh   (b) Mr. Gaurav   (c) Mr. Manu   (d) Mr. Rakesh

Sol. (c) Mr. Manu lives in a flat above Mr. Ashokan

Mr. Manu
Mr. Ashokan

Mr. Lokesh in a flat below Mr. Gaurav

Mr. Gaurav
Mr. Lokesh

Mr. Ashokan lives in a flat above Mr. Gaurav

Mr. Manu
Mr. Ashokan
Mr. Gaurav
Mr. Lokesh

Mr. Rakesh lives in a flat below Mr. Lokesh, thus the order of flats would be:

Mr. Manu
Mr. Ashokan
Mr. Gaurav
Mr. Lokesh
Mr. Rakesh

Therefore, Mr. Manu lives in the topmost flat.

Hence, the correct option is (c).

Example 31. There are eight books kept one over the other. Two books are on Organisation Behaviour, two books on TQM, three books on Industrial Relations and one book is on Economics. Counting from the top, the second, fifth and sixth books are on Industrial Relations. Two books on Industrial Relations are between two books on TQM. One book of Industrial Relations is between two books on Organizational Behaviour while the book above the book of Economics is a book of TQM. Which book is the last book from the top?   **(ICAI)**

    (a) Economics

    (b) TQM

    (c) Industrial Relations

    (d) Organizational Behaviour

Sol. (a) According to the question,

The second, fifth and sixth books are on Industrial Relations, thus

2. Industrial Relations

5. Industrial Relations

6. Industrial Relations

Since, two books on Industrial Relations are between two books on TQM, thus

2. Industrial Relations

4. TQM

5. Industrial Relations

6. Industrial Relations

7. TQM

Now, one book of Industrial Relations is between two books on Organizational Behavior, thus

1. Organizational Behavior

2. Industrial Relations

3. Organizational Behavior

4. TQM

5. Industrial Relations

6. Industrial Relations

7. TQM

Also, the book above the book of Economics is a book of TQM

1. Organizational Behavior

2. Industrial Relations

3. Organizational Behavior

4. TQM

5. Industrial Relations

6. Industrial Relations

7. TQM

8. Economics

Therefore, Economics is the last book from the top.

Hence, the correct option is (a)

DIRECTION (Q1 – Q4): A, B, C, D, E, F and G are sitting in a row facing North:

    I.   F is to the immediate right of E

    II. E is 4th to the right of G

    III. C is the neighbour of B and D

    IV. Person who is third to the left of D is at one of ends

1. Who is at immediate right of D?   **[July 2021]**

    (a) E and F only   (b) G, B, and C (c) E, F and A   (d) G and B only

2. Who are neighbours of F?

    (a) A and E   (b) E and A   (c) D and E   (d) B and D

3. The third person from the right extreme end is

    (a) E   (b) D   (c) C   (d) F

4. Person immediately to the left of B is

    (a) C   (b) G   (c) F   (d) D

5. Four children are sitting in a row. A is occupying a seat next to B but not next to C. If C is not sitting next to D? Who is occupying the seat adjacent to D?

    (a) B   (b) B and A   (c) Not enough information (d)   A

6. Five girls are sitting on a bench to be photographed. Seema is to the left of Rani and to the right of Bindu. Mary is to the right of Rani. Reeta is between Rani and Mary. Who is sitting immediate right to Reeta?   **(Jan 2021)**

    (a) Seema   (b) Rani   (c) Bindu   (d) Mary

7. Five persons are sitting on a bench to be photographed, S is to the left of N and to the right of B. M is to the right of N. R is between N and M. Who is sitting immediate right to R?

    (a) B   (b) N   (c) M   (d) S

8. Six friends P, Q. R, S, T and U are sitting around the hexagonal table each at one corner and are facing the centre of the hexagonal. P is second to the left of U. Q is neighbour of R and S. T is second to the left of S. Which one is sitting opposite to P?

    (a) R   (b) Q   (c) T   (d) S

9. 5 children are sitting in a row. S is sitting next to P but not T. K is sitting next to R, who is sitting on the extreme left. T is not sitting next to K. Who are sitting adjacent to S?   **(Dec 2020)**

    (a) K & P   (b) R & P   (c) only P   (d) P & T

10. In a college party, 5 girls are sitting in a row. F is to the left of M and to the right of O. R is sitting to the right of N but to the left of O, who is sitting in the middle?

    (a) O   (b) R   (c) P   (d) M

11. A is seated between D and F at a round table. C is seated opposite to D. E is round adjust to D. Who sit opposite to B?

(a) A   (b) D   (c) C   (d) F

DIRECTION (Q12 – Q15): Four Indian, A, B, C and D and four Chinese E, F, G and H are sitting in a circle around a table facing each other in a conference. No two Indians or Chinese are sitting side by side, C who is sitting between G and E is facing D, F is between D and A and facing G, H is to the right of B.

12. Who is sitting left of A?   **(Jan 2021)**

(a) E   (b) F   (c) G   (d) H

13. Who is sitting third right of D?

(a) A   (b) C   (c) G   (d) E

14. Person sitting between B & C is

(a) G   (b) H   (c) A   (d) E

15. Looking clockwise Person sitting second next to H is

(a) A   (b) F   (c) E   (d) B

16. Five boys A, B, C, D and E are sitting in a row. A is to the right of B and E is to the left of B but to the right of C. A is to the left of D. Who is second from the left end?

(a) D   (b) A   (c) E   (d) B   **(June 2019)**

17. Five senior citizens are living in a Multi-Storeyed building. Mr. Muan lives in a flat above Mr. Ashokan, Mr. Lokesh in a flat below Mr. Gaurav, Mr. Ashokan lives in a flat below Mr. Gaurav and Mr. Rakesh lives in a flat below Mr. Lokesh. Who lives in the top most flat?   **(ICAI)**

(a) Mr. Lokesh   (b) Mr. Gaurav

(c) Mr. Muan   (d) Mr. Rakesh

DIRECTION (Q18 – Q21): Statement: In a straight line there are six person sitting in a row. B is between F and D. E is between A and C. A does not stand next to F or D, C does not stand next to D.

18. F is between which of the following persons?   **(June 2019)**

(a) B and E   (b) B and C   (c) B and D   (d) B and A

19. Who are sitting at extreme ends?

(a) B and A   (b) D and E   (c) D and A   (d) B and E

20. Who is fourth from the left extreme end?

(a) B   (b) C   (c) B   (d) F

21. Which group is followed from given information?

(a) F C E   (b) F E A   (c) D F E   (d) F E A

DIRECTION (Q22 – Q25): Six persons A, B, C, D, E & F are sitting in two rows. Three in each row such that

    I. E is not at the end of any row

   II. D is second to the left of F

  III. C, the neighbor of E, is sitting diagonally opposite to D

  IV. B is neighbor of F

22. What will be the arrangement?

    (a) AEC & DBF   (b) FBE & CDA (c) CBE & ABF   (d) DBC & AEF

23. Who is sitting diagonal to A?

    (a) B   (b) F   (c) D   (d) C

24. Who is sitting between A & C?

    (a) B   (b) E   (c) D   (d) F

25. Who is sitting between D and F?

    (a) B   (b) E   (c) D   (d) F

26. 5 persons are standing in a line. One of the 2 persons at the extreme ends is a professor and the other a businessman. An advocate is standing to the right of student. An author is to the left of the businessman. The student is standing between the professor and advocate. Counting from the left, the author is at which place?   **(Dec 2019)**

    (a) 2nd (b) 3rd (c) 4th (d) None of these

27. Four Indian A, B, C and D and four Chinese E, F, G and H are sitting in a circle around a table facing each other in the conference. No two Indians or Chinese are sitting side by side, C who is sitting between G and E is facing D, F is between D and A and facing G, H is to the left of B. Who is sitting left to A?   **(Jan 2021)**

    (a) E   (b) F   (c) G   (d) H

28. A, B, C and D are playing cards, A and B are partners. D faces towards the North. If A faces west, then who faces south?   **(Jan 2021)**

    (a) C   (b) B   (c) D   (d) Data is inadequate

29. Eight persons A, B, C, D, E, F, G and H are sitting in a line. E sits second right to D. H sits fourth left to D. C and F are immediate neighbors, but C is not immediate neighbor of A. G is not neighbor of E. Only two persons sit between A and E. The persons on left end and right end respectively are   **(Nov 2018)**

    (a) G and E   (b) B and E   (c) H and E   (d) G and B

Answer Key

1. (c)	**2.** (b)	**3.** (a)	**4.** (b)	**5.** (d)	**6.** (d)	**7.** (c)	**8.** (d)	**9.** (a)	**10.** (a)
11. (c)	**12.** (a)	**13.** (d)	**14.** (a)	**15.** (b)	**16.** (c)	**17.** (c)	**18.** (b)	**19.** (c)	**20.** (d)
21. (a)	**22.** (a)	**23.** (c)	**24.** (b)	**25.** (a)	**26.** (c)	**27.** (a)	**28.** (a)	**29.** (a)	

SUMMARY

❑ We have to arrange a group of person according to given conditions, and we classify the arrangement into 4 types:
- ❍ Linear arrangement
- ❍ Two row arrangement
- ❍ Circular arrangement
- ❍ Polygon arrangement

❑ **Linear arrangement:** Here we have to arrange given people in a line.
- ❍ Here, either we know the direction of facing; in this case we consider all possibilities.
- ❍ Or we know the direction of facing such as (facing upward, downward, east, west, …)

❑ **Two row arrangement:** There will be two groups of persons. Here, we arrange one group in one row and another group in another row. and persons in these rows face each other.

❑ **Circular arrangement:** In the circular arrangement, we need to arrange around a circular table and check if the arrangement is to the left or right or facing outwards or inwards.

❑❑❑

Blood Relations

❏ Blood relation refers to the connection between people based on their shared family ancestry, not through marriage or other relationships.

❏ In blood relation questions, certain information about the members of a family is given, and based on that information, you need to determine the relationship between specific family members.
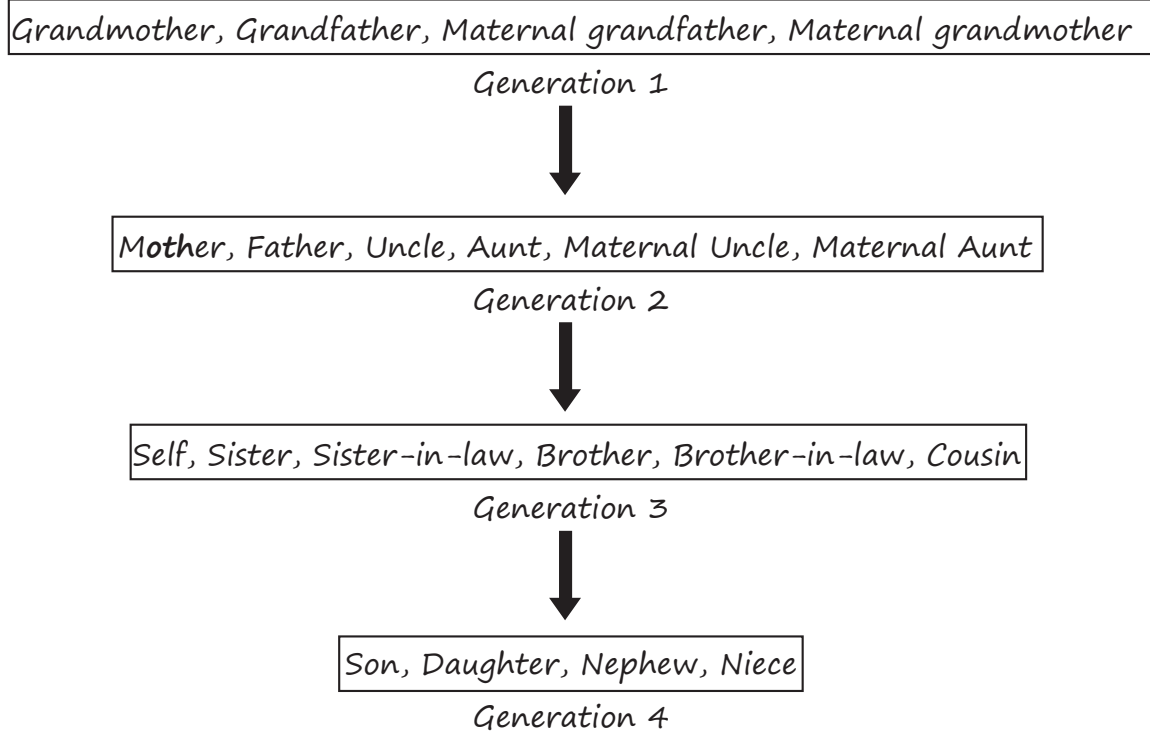
S. No	Let's see some Relations:
1.	Mother's or Father's Father: Grandfather (Maternal Grandfather/Paternal Grandfather)
2.	Mother's or Father's Mother: Grandmother (Maternal Grandmother/Paternal Grandmother)
3.	Mother's or Father's Brother: Uncle
4.	Mother's or Father's Sister: Aunt
5.	Wife's Father or Husband's Father: Father-in-law
6.	Wife's Mother or Husband's Mother: Mother-in-law
7.	Sons of Wife: Daughter-in-law
8.	Daughter's Husband: Son-in-law
9.	Husband's or Wife's Brother: Brother-in-law
10.	Husband's or Wife's Sister: Sister-in-law
11.	Brother's or Sister's Daughter: Niece
12.	Brother's or Sister's Son: Nephew
13.	Uncle's or Aunt's Son or Daughter: Cousin

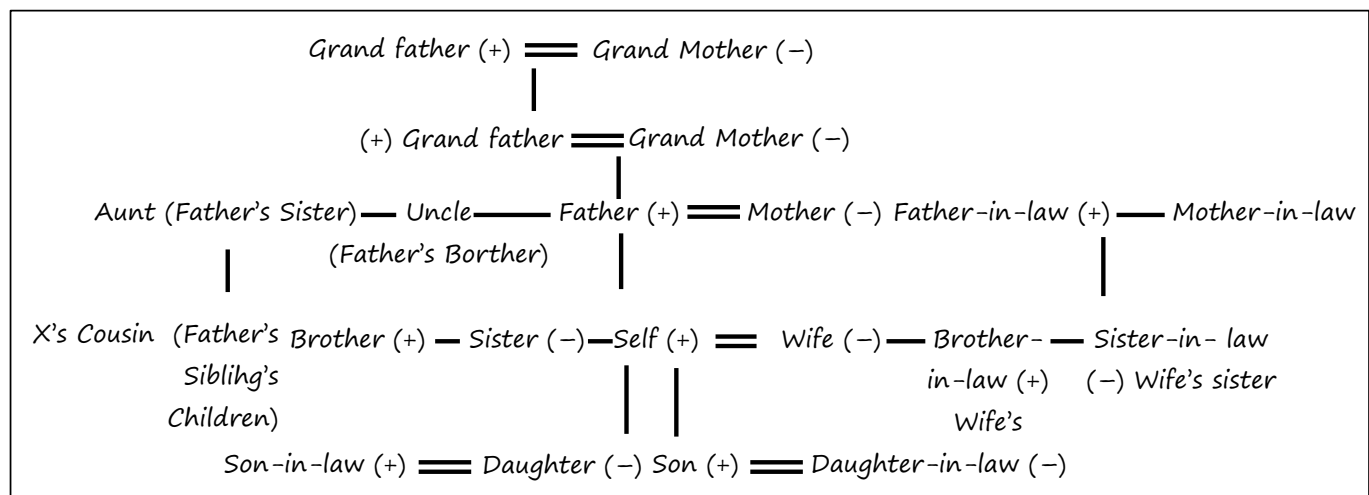**Note:** Husband and Wife can be referred to as "spouse" only.

Now, if we directly attempt to solve the questions, it can become complicated and confusing. Therefore, it is essential to follow a systematic approach.

Symbols	Representation
✚	Male
▬	Female
➡ or ⬅	One generation gap
⬆ or ⬆	Same generation
═	Husband/Wife

Also keep in mind about different generation

Grandmother, Grandfather, Maternal grandfather, Maternal grandmother

Generation 1

↓

Mother, Father, Uncle, Aunt, Maternal Uncle, Maternal Aunt

Generation 2

↓

Self, Sister, Sister-in-law, Brother, Brother-in-law, Cousin

Generation 3

↓

Son, Daughter, Nephew, Niece

Generation 4

Now if all above is clear we can draw the main family diagram called as Family Tree.

—	Sibling's Relation
=	Husband – Wife Relation
		Next generation
(+) Male	(−) Female

By using all of the above, we can solve questions of blood relatives.

SOME TIPS BEFORE WE START

❏ **Break the question into small parts:** Long statements can be confusing. To avoid confusion, break down each statement into smaller sub-statements and analyse them individually before proceeding to the next part of the question.

❏ **Avoid assuming gender based on names:** It's important not to make assumptions about a person's gender solely based on their name. Read the question carefully and gather information about relationships before drawing any conclusions about gender.

❏ **Draw clear diagrams:** Visual representation can greatly aid in solving blood relation questions. Draw a clear and organized family tree diagram as you solve the question. Place individuals of the same generation at the same level, creating a hierarchical structure. This will help you visualize and understand the relationships more easily.

BASED ON PUZZLES

Example 1. If A is the husband of B, B is the sister of C, and C is the daughter of D, then what is the relationship of A to D?

    (a) Father-in-law   (b) Father   (c) Uncle   (d) Brother

Sol. (a) According to the given information, we have

    Since B is the sister of C and C is the daughter of D, it means that B and C are siblings (sisters) and both are the children of D.

    Also, A is husband of B making him son-in-law of D.
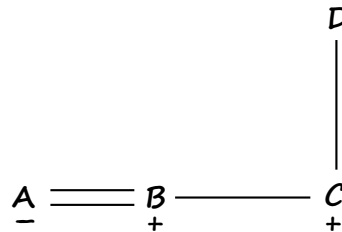
    Therefore, D is the father-in-law of A.

    Hence, the correct option is (a).

Example 2. A, B and C are sisters. D is the brother of E and E is the daughter of B. How is A related to D?

    (a) Sister   (b) Cousin   (c) Niece   (d) Aunt
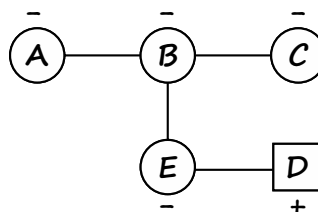
Sol. (d) According to the given information,

    E is the daughter of B and D is the brother of E.

    Thus, D is the son of B.

    Also, A is the sister of B.

    Then the relation figure is:

where, the positive sign represents a male and negative sign represents a female.

Therefore, A is the maternal aunt of D.

Hence, the correct option is (d).
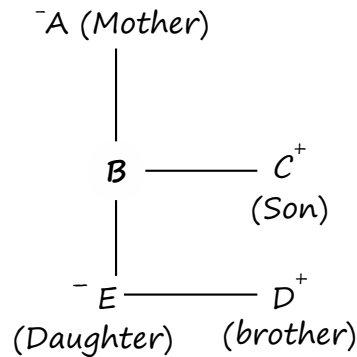
Example 3. Given that:

 I. A is the mother of B.

 II. C is the son of A.

 III. D is the brother of E.

 IV. E is the daughter of B.

Who is grandmother of D?   **(ICAI)**

 (a) A   (b) B   (c) C   (d) D

Sol. (a) According to the given relations, we have

$$\bar{A}\ (Mother)$$

$$B \text{——} \overset{+}{C}$$
$$(Son)$$

$$\bar{E} \text{——} \overset{+}{D}$$
$$(Daughter)\quad (brother)$$

Therefore, A is grandmother of D.

Hence, the correct option is (a).

Example 4. If P is the husband of Q and R is the mother of S and Q. What is R to P?

 (a) Mother (b) Sister (c) Aunt (d) Mother-in-law **(ICAI)**

Sol. (d) Given,

P is the husband of Q

R is the mother of S and Q

The above situation can be represented as:

Mother

R

P $\overset{\longleftarrow}{\text{Husband}}$ Q S
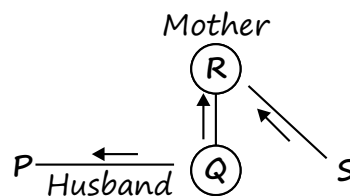
where the circle around the alphabet indicates that person is a lady.

Therefore, P is the son-in-law of R or R is the mother-in-law of P.

Hence, the correct answer is option (d) i.e., Mother-in-law.

Example 5. A and B are married couples. X and Y are brothers. X is the brother of A. How is Y related to B?
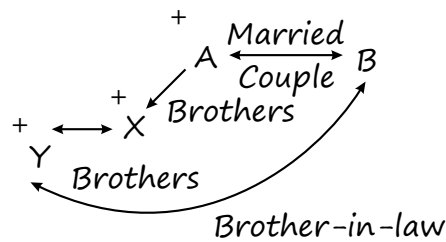
    (a) Brother-in-law (b) Brother   (c) Cousin   (d) None of these

Sol. (a) Given,

    A and B are husband and wife, X and Y are the brothers, and X is the brother of A.

    So, Y is also the brother of A.

    Then the relation figure is:

    where, the positive sign represents a male.

    Therefore, Y is the brother-in-law of B.

    Hence, the correct option is (a).

Example 6. I. F is the brother of A.

   II. C is the daughter of A.

   III. K is the sister of F.

   IV. G is the brother of C.

   Who is the uncle of G?   **(ICAI)**

   (a) A   (b) C   (c) F   (d) K

Sol. (c) According to the question,
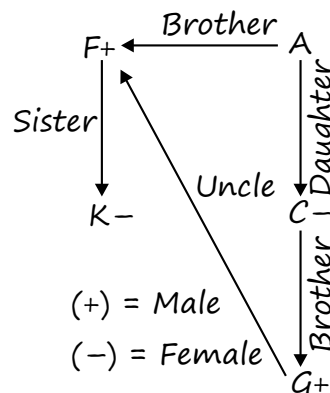
    From the diagram, it is clear that G is the uncle of F.

    Hence, the correct option is (c).

Example 7. E is the son of A, D is the son of B, E is married to C. C is B's daughter. How is D related to E?

    (a) Brother   (b) Uncle   (c) Father-in-law (d) Brother-in-law

Sol. (d) Given: C is D's daughter and D is B's son.

This means, D is the brother of C.

Since, E is married to C.

Then the relation figure is:

where, positive sign represents the person is a male and negative sign represents person is a female.

Therefore, D is the brother-in-law of E.

Hence, the correct option is (d).

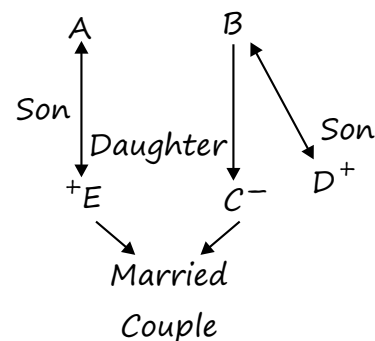**Example 8.** P is the father of T. T is the daughter of M. M is the daughter of K. What is P to K ?   **(ICAI)**

(a) Father   (b) Father-in-law (c)   Brother (d)   Son-in-law
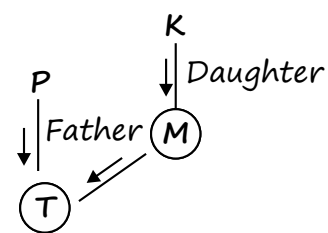
Sol. (d) The given information can be represented as:

where the circle around the alphabet indicates that person is a lady.

Thus, M is the mother of T and wife of P.

Therefore, P is the son-in-law of K.

Hence, the correct option is (d) i.e., Son-in-law.

Example 9. Ram and Mohan are brothers; Shankar is Mohan's father. Chhaya is Shankar's sister. Priya is Shankar's niece. Shubhra is Chhaya's granddaughter. Then Ram is Shubhra's

(a) Brother   (b) Uncle   (c) Cousin   (d) Nephew   **(Nov, 2018)**

Sol. (b) Make flow diagram according to the situations given,
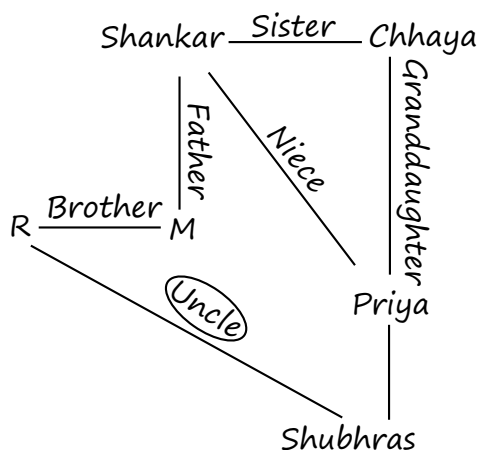
Thus, from the diagram Ram is Shubhra's Uncle.

Hence, the correct option is (b).

PRACTICE QUESTIONS (PART A)

1.   A is the father of D. D is the son of E. E is the daughter of F. What is A to F?
   (a) Grandson   (b) Great Grandson
   (c) Son   (d) None of these

Quantitative Aptitude

2. Ravi is the brother of Anu. Sita is the sister of Mohan. Anu is the daughter of Sita. How is Ravi related to Sita?

(a) Nephew   (b) Father   (c) Son   (d) Brother

3. P is Q's brother. Q is R's father. R and S are sisters. How is P related to S?

(a) Son   (b) Uncle   (c) Father   (d) Grandson

4. Aryan is the brother of Bhavana. Deepak is the brother of Chetna. Bhavana is the daughter of Deepak. How is Aryan related to Chetna?

(a) Nephew   (b) Father   (c) Son   (d) Brother

5. C is wife of B. E is the son of C, A is the brother of B and father of D. What is the relationship of E to D?

(a) Mother   (b) Sister   (c) Brother   (d) Cousin

6. If X is the wife of Y and Z is the father of W and Y. What is Z to X?

(a) Father   (b) Brother   (c) Uncle   (d) Father-in-law

7. A boy goes to see a movie and sees a man sitting to his left and finds out that the man is his relative. The man is the husband of the sister of his mother. How is the man related to the boy?

(a) Nephew   (b) Brother   (c) Uncle   (d) Father

Answer Key

1. (a)   **2.** (c)   **3.** (b)   **4.** (a)   **5.** (d)   **6.** (d)   **7.** (c)

BASED ON DIALOGUE OR CONVERSATION

Similarly, few dialogues and in parallel relations to it:

- ❑ Only son of my Grandfather: My Father
- ❑ Only son of my Grandmother: My Father
- ❑ Only daughter of my Grandmother: My Mother
- ❑ Only daughter of my Grandfather: My Mother
- ❑ Sister of my Mother: My Aunt
- ❑ Son /daughter of my Husband: My Son /Daughter
- ❑ Son /Daughter of my Wife: My Son /Daughter
- ❑ Only Daughter of my Grandfather's only Son: My Sister/Self
- ❑ Grandmother of my Father's only Son: My Grandmother
- ❑ Father of my Daughter's Father: My Father/Father-in-law
- ❑ Father of my Son's Father: My Father/Father-in-law
- ❑ My Son's Sister: My Daughter
- ❑ Daughter-in-law of Grandmother of my Father's only Son: My Mother
- ❑ A is the Father of B but B is not the Son of A: B is Daughter of A

Example 10. B is the husband of P. Q is the only grandson of E, who is the wife of D and mother–in–law of P. How is B related to D?

    (a) Nephew   (b) Cousin   (c) Son –in–law   (d) Son

Sol. (d) Given: B is the husband of P and E is the mother-in-law of P.

    According to question the relation figure is:
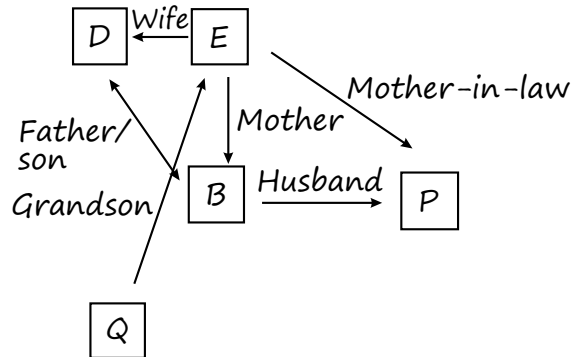
    From the diagram, it is clear that B is the son of D.

    Hence, the correct option is (d).

Example 11. Maya introduces Rajesh as the son of the only daughter of her mother's brother. How is Maya related to Rajesh?

    (a) Cousin   (b) Sister   (c) Aunt   (d) Niece

Sol. (c) In the given scenario, Maya introduces Rajesh as the son of the only daughter of her mother's brother.

    i.e., Maya's mother's brother has a daughter, and that daughter is Rajesh's mother. As Maya is the daughter of Rajesh's grandmother, thus Maya is .

    Therefore, Maya is Rajesh's aunt.

    Hence, the correct option is (c) i.e., Aunt.

Example 12. Pointing to a photograph, a man said "His mother's husband's sister is my aunt," Then what is the relation between a man and him?   **(June 2019)**

    (a) Son   (b) Uncle   (c) Nephew   (d) Brother

Sol. (d) According to the question,

    His mother's husband's sister implies his paternal aunt.

    Now, man (Photograph) and he are brothers.
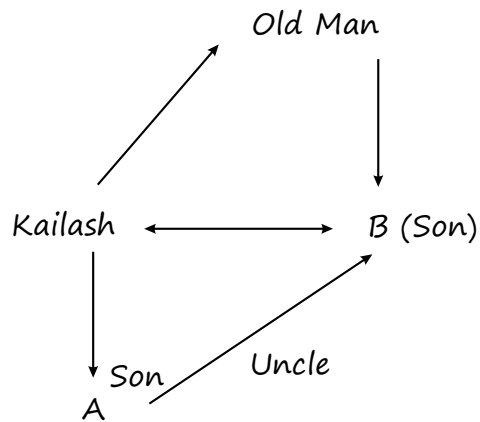
    Hence, the correct answer is option (d).

Example 13. Pointing to the old man Kailash said "his son is my son's uncle". How is Kailash related to an old man?   **(June 2019)**

    (a) Brother   (b) Either son or son in law

    (c) Father   (d) Grand father

Sol. (b) According to the question,

    Make a flow diagram along to the scenarios,

We can clearly see; Kailash is either the son or son-in-law.

Hence, the correct answer is option (b).

Example 14. Sanjay's mother said to him, "My brother has a son whose daughter is Tina." How is Tina related to Sanjay?

(a) Cousin   (b) Sister   (c) Aunt   (d) Niece

Sol. (d) In the given scenario, Sanjay's mother states that her brother has a son whose daughter is Tina.

This means that Tina is the daughter of Sanjay's cousin.

Therefore, Tina is Sanjay's niece.

Hence, the correct option is (d) i.e., Niece.

Example 15. Pointing to a photograph Vikas said "She is the daughter of my grandfather's only son". How is the lady in the photograph related to Vikas in the photograph?   **(ICAI)**

(a) Father   (b) Brother   (c) Sister   (d) Mother

Sol. (c) Depicting the given information, we get
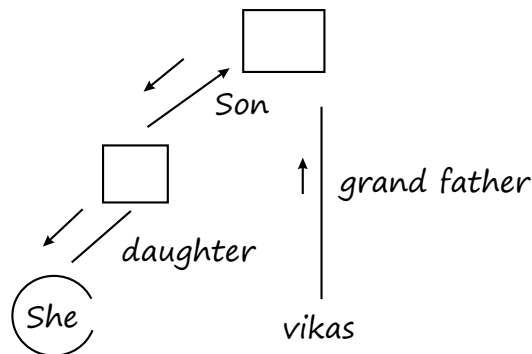
Vikas's grandfather's only son is Vikas's father.

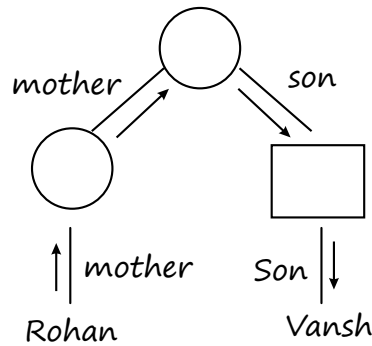So, the daughter of Vikas's father is Vikas's sister.

Thus, the lady is the sister of Vikas.

Hence, the correct option is (c) i.e., Sister.

Example 16. Rohan's mother said to Rohan "My mother has a son whose son is Vansh". Rohan is related to Vansh as

(a) Uncle   (b) Cousin   (c) Nephew   (d) Grandfather

Sol. (b) According to the question,

Make a flow diagram according to the conditions given,

Therefore, Rohan is the cousin of Vansh.

Hence, the correct answer is option (b) i.e., Cousin.

Example 17. Kalyani is the mother-in-law of Veena, who is the sister-in-law of Ashok. Dheeraj is the father of Sandeep, the only brother of Ashok.

How is Kalyani related to Ashok?

(a) Mother   (b) Wife   (c) Mother-in-law   (d) Aunt

Sol. (a) According to question,

Kalyani is Veena's mother-in-law and Ashok is Veena's brother-in-law.

Thus, Ashok is Kalyani's son.
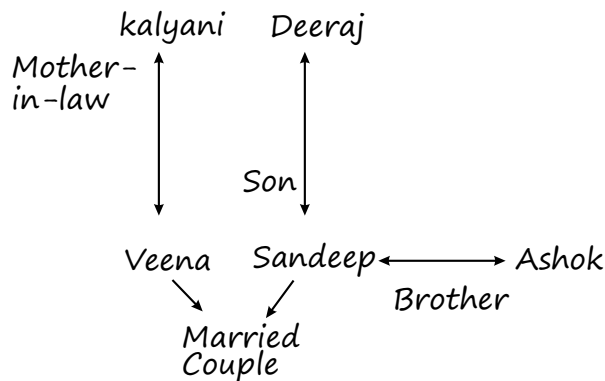
Therefore, Kalyani is the mother of Ashok.

Hence, the correct option is (a).

Example 18. Vinod introduces Vishal as the son of the only brother of his father's wife. How is Vinod related to Vishal?   **(May 2018)**

(a) Cousin   (b) Brother   (c) Son   (d) Uncle

Sol. (a) As per the given information,

Wife of Vinod's father is mother of Vinod Only brother of Vinod's mother is maternal uncle of Vinod.

Therefore, Vinod is the cousin of Vishal.

Hence, the correct answer is option (a).
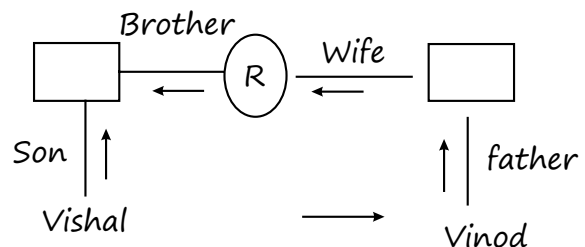
Example 19. A and B are sisters. A is the mother of D. B has a daughter C who is married to F. G is the husband of A. How is C related to D? **(ICAI)**

    (a) Cousin   (b) Niece   (c) Aunt   (d) Sister-in-law

Sol. (a) The given information can be depicted as:

So, B is the aunt of D and the mother of C.
Therefore, C is the cousin of D.
Hence, the correct option is (a) i.e., Cousin.

Example 20. Rahul and Robin are brothers. Promod is Robin's father. Sheela is Pramod's sister. Prema is Promod's niece. Shubha is Sheela's grand-daughter. How is Rahul related to Shubha?

    (a) Brother   (b) Cousin   (c) Uncle   (d) Nephew   **(ICAI)**

Sol. (c) Depicting the given information, we get

Rahul and Robin are brothers and Pramod is Robin's father which implies that Rahul is also the son of Pramod.

Also, Sheela is Pramod's sister and Prema is Pramod's niece which implies that Prema is the daughter of Sheela.

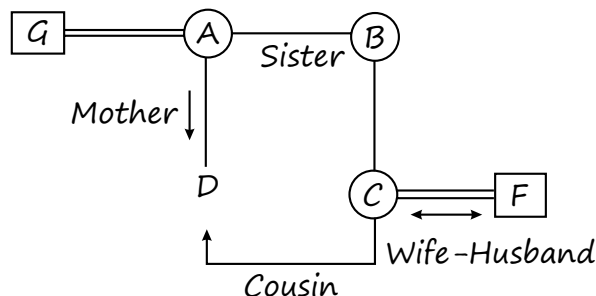Since, Shubha is Sheela's grand-daughter.

Therefore, Rahul is the uncle of Shubha.

Hence, the correct option is (c).
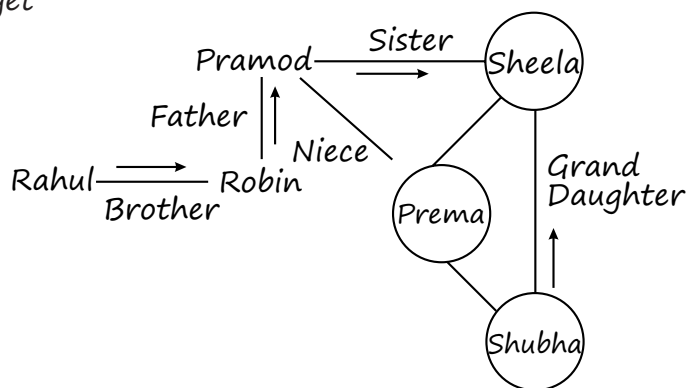
Example 21. Suresh introduces a man as "He is the son of the woman who is the mother of the husband of my mother". How is Suresh related to the man? **(ICAI, May 2018)**

    (a) Uncle   (b) Son   (c) Cousin   (d) Grandson

Sol. (b) According to the question,

The husband of my mother is my father (Suresh) and the mother of my father is the mother of the man, so the man is the brother of the father of Suresh.

Thus, the brother of my father (Suresh) is my uncle.

Therefore, Suresh is the son of the man.

Hence, the correct option is (b) i.e., Son

Example 22. Pointing to a lady, Sahil said, "She is the daughter of the women who is the mother of the husband of my mother". Who is the lady to Sahil?

    (a) Aunt   (b) Sister   (c) Daughter   (d) Sister-in-Law

Sol. (a) According to the question,

Mother's husband i.e., Father

Mother of the husband of my mother i.e., Grandmother.

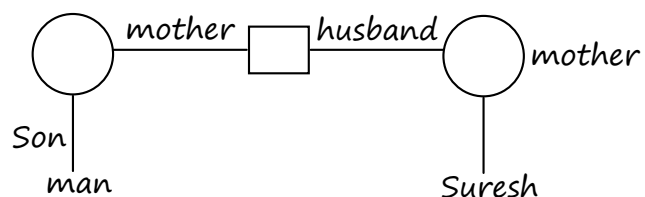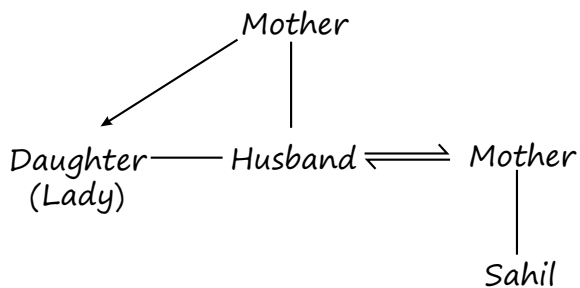Grandmother's daughter i.e., Father's sister or paternal aunt.

Thus, the lady is Sahil's Aunt.

Hence, the correct answer is option (a) i.e., Aunt.

PRACTICE QUESTIONS (PART B)

1. Pointing to a picture, Abhishek said, she is the mother of my son's wife's daughter. How is the lady related to Abhishek?

    (a) Uncle   (b) Cousin   (c) Daughter   (d) None

2. Ramu's mother said to Ramu,"My mother has a son whose son is Achyut". How is Achyut relation to Ramu?   **(ICAI)**

    (a) Uncle   (b) Cousin   (c) Brother   (d) Nephew

3. Sanjay's mother said to him, "My brother has a son whose daughter is Tina." How is Tina related to Sanjay?

    (a) Cousin   (b) Sister   (c) Aunt   (d) Niece

4. Pointing to a man, a lady said, "His mother is the only daughter of my mother". How is the lady related to the man?

    (a) Mother   (b) Daughter   (c) Sister   (d) Aunt

5. A woman said, "The man in the picture is my nephew's maternal grandfather." How is the man in the picture related to the woman?

    (a) Brother   (b) Son   (c) Grandfather   (d) Father

6. Looking at the portrait of a man, Ashok said, 'his mother is the wife of my father's son. Brother and sisters I have none'. At whose portrait was Ashok looking?

    (a) His cousin   (b) His nephew   (c) His uncle   (d) His son

7. Lalita said to Tina, "You are the daughter-in-law of the grandmother of my father's only son". How is Lalita related to Tina?

    (a) Aunt   (b) Sister   (c) Mother   (d) Indeterminable

8. Pointing to a photograph, Sonia said, "His mother's only daughter is my mother". How does Sonia relate to that man? **(June 2019)**

   (a) Nephew   (b) Sister   (c) Wife   (d) Niece

9. Pointing to a photograph, Amar said, "I have no brother or sister but that man's father is my father's son." Whose photograph was it?

   (a) His son's   (b) His father's   (c) His nephew's   (d) None of these

10. Pointing to a man in a photograph, a woman said, "the father of his brother is the only son of my grandfather", how is the woman related to the man in the photograph?

   (a) Mother   (b) Aunty   (c) Daughter   (d) Sister   **(Nov, 2018)**

Answer Key

  1. (d)   **2.** (b)   **3.** (d)   **4.** (a)   **5.** (d)   **6.** (d)   **7.** (d)   **8.** (d)   **9.** (a)   **10.** (d)

SYMBOLICALLY CODED RELATION

❑   In symbolically coded relations questions, the relationships between certain members of the family are indicated by symbols like @, £, $, %, &, +, −, etc. The candidate is required to understand the codes/symbols assigned to the relationships and decipher the other relationship expressed to such codes or express another given relationship in the symbolic code form.

Example 23. Read the following information carefully and answer the questions given below:

  1. A + B means A is the son of B;

  2. A − B means A is the wife of B;

  3. A × B means A is the brother of B;

What does P + R − Q mean?

   (a) Q is the uncle of P   (b) Q is the son of P

   (c) Q is the father of P   (d) Q is the brother of P

Sol. (c) Here, P + R − Q means,

    P is the son of R, who is the wife of Q.

    Therefore, Q is the father of P.

    Hence, the correct option is (c).

Example 24. Read the following carefully and answer the questions given below:

  1. A $ B means A is the father of B;

  2. A # B means A is the sister of B;

  3. A * B means A is the daughter of B and

  4. A @ B means A is the brother of B.

Which of the following indicates that M is the wife of Q ?

   (a) Q $ T # T @ M   (b) Q $ R @ T # M

   (c) Q $ R * T # M   (d) Q $ R @ T * M

Sol. (d) Here, Q $ R → Q is the father of R

Also, R @ T→ R is the brother of T

This means, Q is the father of T.

Now, T * M → T is the daughter of M.

Then, M is the mother of T.

Therefore, M is the wife of Q.

Hence, the correct option is (d).

Example 25. Read the following information and answer the following question:

1. A $ B means A is mother of B
2. A # B means A is father of B
3. A @ B means A is husband of B
4. A % B means A is daughter of

Which of the following expressions indicate 'R is the sister of H'?

(a) H $ D @ F # R   (b) H % D @ F $ R

(c) R $ D @ F # H   (d) R % D @ F $ H

Sol. (d) Here, R % D means R is the daughter of D.

So, D @ F means D is the husband of F.

Then, F $ H means F is the mother of H.

Therefore, D and F have children R and H.

R is the sister of H.

Hence, the correct option is (d).

Answer the below question based on the following information:

1. A + B means A is the mother of B.
2. A – B means A is the sister of B.
3. A * B means A is the father of B.
4. A ? B means A is the brother of B.

Example 26. Which of the following means Q is the grandfather of P?

(a) P + N * M * Q   (b) Q * N * M + P

(c) Q ? M ? N * P   (d) None of these

Sol. (d) Option (a): P + N * M * Q

Here, P is the mother of N who is father of M and M is father of Q.

Therefore, P is great grandmother of Q.

Option (b): Q * N * M + P

Q is the father of N who is the father of M and M is mother of P.

Therefore, Q is great grandfather of P .

Option (c): Q ? M ? N * P

Here, Q is the brother of M who is the brother of N and N is the father of P.

Therefore, Q is the uncle of P.

Hence, the correct option is (d).

Example 27. If P + Q means P is the mother of Q.

P ÷ Q means P is the father of Q.

P − Q means P is the sister of Q.

Then which of the following relationship shows that M is the daughter of R?   **(Nov 2018)**

    (a) R ÷ M + N   (b) R + N + M   (c) R + M ÷ N   (d) None of these

Sol. (a) According to the question,

    P + Q means P is the mother of Q

    P ÷ Q means P is the father of Q

    P − Q means P is the sister of Q

    According to the options given,

    Option (a): R ÷ M + N:

    R ÷ M indicates R is the father of M.

    M + N indicate M is the mother of N

    Thus M is a female making M daughter of R.

    From the above scenario, R ÷ M + N shows that M is the daughter of R.

    Hence, the correct answer is option (a).

Example 28. Which of the following means that N is the maternal uncle of M?

    (a) N ? P − L + E − M   (b) N − Y + A ? M

    (c) M − Y * P − N   (d) N ? C + F * M

Sol. (a) N ? P → N is the brother of P

    P − L → P is the sister of L

    L + E → L is the mother of E

    E − M → E is the sister of M.

    Therefore, L is the mother of M, P is the maternal aunt of M and N is the maternal uncle of M

    Hence, the correct option is (a).

Example 29. A reads a book and finds the name of the author familiar. The author 'B' is the paternal uncle of C. C is the daughter of A. How is B related to A?   **(May 2018)**

    (a) Brother   (b) Sister   (c) Father   (d) Uncle

Sol. (a) According to the question,

    B is paternal uncle of C and C is daughter of A

    Thus, there are two possibilities:

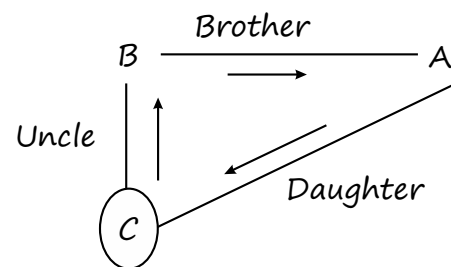   (I.) If A is father of C then B is brother of A.

    (II.) If A is mother of C then B is brother-in-law of A.

    Out of the given options, we are given with 'brother' as a option.

    The diagram according to the given scenarios,

    Thus, B is the brother of A.
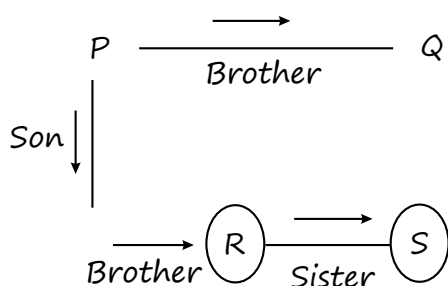
    Hence, the correct answer is option (a).

Example 30. P and Q are brother's, R and S are sisters. P's son is R's brother. How is Q related to R?

    (a) Uncle   (b) Brother   (c) Father   (d) Grandfather **(May, 2018)**

Sol. (a) According to the question,

    Make the flow diagram establishing the relationship,

    Thus, Q is the uncle of R.

    Hence, the correct answer is option (a).

Example 31. Six persons are seen together in a group. They are A, B, C, D, E and F, B is the brother of D, but D is not brother of B. F is brother of B, C and A are married together, F is son of C, but C is not mother of F, E is brother of A, then the number of female members in the group is   **(Nov 2018)**

    (a) 1   (b) 2   (c) 3   (d) 4

Sol. (b) According to the question,

    B is the brother of D thus B is a male.

    D is not a brother of B thus D is a female.

    F is the brother of B thus F is a male.

    C and A are married together, i.e., one is male and other is female.

    F is the son of C, but C is not the mother of F. C is the father of F i.e., C is a male.

    E is the brother of A thus E is a male.

    i.e., B, F, C, E are males.

    Therefore, there are a total of 6 members, 4 are males, 2 are females.

    Hence, the correct answer is option (b).

PRACTICE QUESTIONS (PART C)

1. Pointing to a photograph, Sheela said, he is the only son of my grandfather's only son. How is the boy in the photograph related to Sheela?

    (a) Brother   (b) Cousin   (c) Son   (d) Cannot be determined

2. Pointing to a girl, Prasan said, she is the only granddaughter of my wife's grandfather's only child. How is the girl related to Prasan?

    (a) Sister   (b) Niece   (c) Daughter   (d) Cannot be determined

3. P is the sister of Q. R is the father of S, who is the brother of Q. R married to T. How is Q related to T?

   (a) Son   (b) Daughter

   (c) Either son or daughter   (d) Data inadequate

4. G is the father of K, who is the brother of B. K is married to U. B is the daughter of C. D is the father of U and M is the only son of D. How is U related to C?

   (a) Daughter   (b) Daughter-in-law

   (c) Grand Daughter   (d) Son—in—law

5. K is married to S. P is a brother of B. S is a mother of N, who is a brother of B. How is B related to K?

   (a) Son   (b) Daughter

   (c) Either son or daughter   (d) None of these

6. Pointing to a girl, Mala said, 'she is the granddaughter of my grandfather's only son.' How is the girl related to Mala?

   (a) Niece   (b) Sister

   (c) Daughter   (d) Cannot be determined

7. Pointing to a boy, Ram said, 'He is the only son of my grandfather's son.' How is the boy related to Ram?

   (a) Brother   (b) Son   (c) Cousin   (d) Data inadequate

DIRECTION (Q8 – Q9): These are seven members A, C, D, E, F, G and H in a family. There are two fathers, one mother, two sisters and four brothers. E is the sister—in—law of D. G is a daughter of C. F is the brother of E. A is a grandfather of G. E is a mother of H?

8. How many are related to A?

   (a) Grandson   (b) Granddaughter

   (c) Son   (d) Cannot be determined

9. How many male members in the family?

   (a) 4   (b) 5   (c) 3   (d) Data inadequate

DIRECTION (Q10 – Q12): M is the grandson of G. D is the husband of G. K is married to the son of S. T have two children of different gender. E is the daughter of K's brother N is brother—in—law of the son of S. G has one only one child. D is the father of N.

10. How is N related to G?

    (a) Son   (b) Son—in—law (c) Grandson   (d) Brother

11. If Q is married to N, then how is Q related to M?

    (a) Father   (b) Mother   (c) Sister   (d) Grandmother

12. If U is the son of T, then how is U related to N?

    (a) Brother   (b) Uncle   (c) Cousin   (d) Brother—in—law

DIRECTION (Q13 – Q15): A family consists of six members P, Q, R, X, Y and Z. Q is the son of R but R is not the mother of Q. P and R are married couple. Y is the brother of R. X is the daughter of P and Z is the brother of P.

13. Who is the brother–in–law of R?
    (a) P　　　　　　　(b) Z　　　　　　(c) Y　　　　　　(d) X

14. How many female members are there in the family?
    (a) One　　　　　　(b) Two　　　　　(c) Three　　　　(d) Four

15. Which of these is a pair of brothers?
    (a) P and X　　　　(b) P and Z　　　(c) Q and X　　　(d) R and Y

DIRECTION (Q16 – Q17): There are six children taking part in an essay competition, namely A, B, C, D, E, and F. A and E are brothers. F and D are the sisters of E. C is the only son of A's uncle. B and D are the brothers of C's father.

16. How is D related to A?
    (a) Uncle　　　　　(b) Sister　　　(c) Niece　　　　(d) Cousin

17. How many male competitors are there?
    (a) 6　　　　　　　(b) 5　　　　　　(c) 4　　　　　　(d) 3

DIRECTION (Q18 – Q20):

1. P × Q means P is the brother of Q.

2. P ÷ Q means Q is the mother of P.

3. P – Q means P is father of Q.

4. P + Q means Q is the sister of P.

18. Which of the following means M is the daughter of T?
    (a) M + N ÷ J – T　　　　　　　　(b) T – J × R + M
    (c) M – J × T ÷ K　　　　　　　　(d) M + W × R ÷ T

19. How is K related to R in the expression R ÷ T + K?
    (a) Daughter　　　(b) Sister　　　(c) Niece　　　　(d) None of these

20. Which of the following means D is grandfather of W?
    (a) D – K × T – W　　　　　　　　(b) D ÷ K × T ÷ W
    (c) D – K × T – W　　　　　　　　(d) D – K × T ÷ W

21. "Rahul said, 'She is the daughter-in-law of my father's only child.' How is Rahul related to the girl?"
    (a) Uncle　　　　　(b) Husband　　(c) Brother　　　(d) None of these

22. A woman said, "The man in the picture is my nephew's maternal grandfather." How is the man in the picture related to the woman?
    (a) Brother　　　　(b) Son　　　　(c) Grandfather　(d) Father

23. In a joint family, there are father, mother, 3 married sons and one unmarried daughter. Out of the sons, two have 2 daughters each and one has a son only. How many female members are there in the family? **(Dec 2022)**
    (a) 3　　　　　　　(b) 6　　　　　　(c) 9　　　　　　(d) 8

24. There are six children playing football namely A,B,C,D,E and F, A & E are brothers, F is sister of E, C is the only son of As uncle, B & D are daughter of the brother of C's father. How D is related to A? **(Dec 2022)**

    (a) Uncle   (b) Cousin   (c) Nice   (d) Sister

25. When Rani saw Vinit, she recollected that "He is the brother of my grandfather's son". How is Rani related to Vinit?

    (a) Aunt   (b) Daughter   (c) Sister   (d) Niece

26. A prisoner introduced a boy who came to visit him to the jailor as "Brothers and sisters, I have none, he is my father's son's son". Who is the boy ?

    (a) Nephew   (b) Son   (c) Cousin   (d) Uncle

27. Suresh introduce a man as "he is the son of the woman who is the mother of the husband of my mother". How is Suresh is related to the man?

    (a) Brother-in-law (b) Son   (c) Brother   (d) Nephew

28. P and Q are brothers. R and S are sisters. P's son is R's brother. How is Q related to R ?

    (a) Uncle   (b) Brother   (c) Father   (d) Grandfather

29. Suman is daughter-in-law of Rakesh and sister-in-law of Rajesh, Ramesh is the son of Rakesh and only brother of Rajesh. Find the relation of Suman with Ramesh.

    (a) Sister-in-law   (b) Cousin   (c) Aunt   (d) Wife   **(Dec 2022)**

30. Pointing to a man in the photograph, Khushi says, "This man's son's sister is my mother –in-law," How is Khushi's husband related to the man in the photograph?

    (a) Grandson   (b) Son   (c) Son in law   (d) Cousin   **(Dec 2022)**

Answer Key									
1. (a)	2. (c)	3. (c)	4. (d)	5. (c)	6. (c)	7. (c)	8. (a)	9. (b)	10. (a)
11. (b)	12. (d)	13. (b)	14. (b)	15. (d)	16. (b)	17. (d)	18. (b)	19. (d)	20. (a)
21. (b)	22. (d)	23. (c)	24. (d)	25. (d)	26. (b)	27. (b)	28. (a)	29. (d)	30. (a)

SUMMARY

❑ Any relation in the world which either by birth or by marriage is called a Blood Relation.

❑ Different ways in which the blood relation is described :

○ Dialogue/ Conversation Based – One person describes his/her relation with another person (this may or may not be related to the person with whom the conversation is being made).

○ Based on Puzzles – To make the questions complex, blood relation questions are also being asked in the form of a puzzle. A piece of brief information about multiple people being interrelated is given and sub-questions based on the same may be asked.

○ Symbolically coded relations: the relationships between certain members of the family are indicated by symbols like £, $. %, &. +. – etc.

❑ Family tree is the best way to represent blood relations and related answers to them. The following points help in drawing a family tree.

❑ All the family members of the upper generation are represented above in the family tree. **E.g.:** father, mother, uncle, aunt etc. The logic can be extended by representing the grandparents above the parents in the family tree. **E.g.:** grandfather and grandmother.

❑ Similarly the relation between two members of the family is shown by connecting a double-headed arrow.

❑ All the family members of the same generation are represented in the middle of the family tree. **E.g.:** brothers, Sisters, cousins, wife, husband, etc.

❑ All the family members of the next generation are represented below in the family tree. **E.g.:** Daughter, son, niece, nephew.

❑❑❑