

23. If it is possible to make a meaningful word with the first, the third, the seventh and the eleventh letters of the word OMNIPRESENCE using each letter only once, which of the following will be the second letter of that word? If more than one such words can be made, give 'M' as the answer and if no such word can be made, give 'R' as the answer.
- (1) N (2) C (3) E
 (4) M (5) R
24. If it is possible to make a meaningful word with the third, sixth, ninth, and twelfth letters of the word ELECTRIFICATION, write the last letter of the word so formed as the answer. If no such word can be formed mark 'N' as your answer and if more than one word can be formed mark 'D' as your answer.
- (1) R (2) E (3) T
 (4) D (5) N
25. How many meaningful English words can be made with the letters RBAE, using each letters only once in each word?
- (1) None (2) One (3) Two
 (4) Three (5) More than three
26. How many such pairs of letters are there in the word CLEARING each of which has as many letters between them in the word as there are in English alphabet?
- (1) None (2) One (3) Two
 (4) Three (5) None of these
27. Each vowel in the word JOURNEY is replaced by the previous letter in the English alphabet and each consonant is replaced by the next letter in the English alphabet, and then the substituted letters are arranged in alphabetical order. Which of the following will be the fifth from the left end?
- (1) D (2) K (3) O
 (4) T (5) None of these
28. 'RT is related to 'VX' and 'BD' is related to 'FH', in the same way as 'KM' is related to—
- (1) NP (2) OR (3) OQ
 (4) PR (5) None of these
29. 'JM' is related to 'PS' in the same way as 'BE' is related to—?
- (1) HJ (2) HK (3) IL
 (4) JM (5) None of these
30. If it is possible to make only one meaningful English word with the first, the sixth, the eighth and the ninth letters of the word HOARDINGS, which of the following will be the third letter of that word? If no such word can be made, give 'X' as the answer and if more than one such word can be made, give 'Y' as the answer.
- (1) G (2) I (3) S
 (4) X (5) Y
- Directions (31 - 36): Study the following arrangement carefully and answer the questions given below:**
- B 2 M E J % R 5 @ N D I P 4 © T 3 9 F U 1 \$
 6 H J A 7 * G Q #**
31. If all the symbols in the above arrangement are dropped, which of the following will be the twelfth from the right end?
- (1) 4 (2) 3 (3) 9
 (4) F (5) None of these
32. Which of the following is the fifth to the left of the eighteenth from the left end of the above arrangement?
- (1) % (2) A (3) D
 (4) 3 (5) None of these
33. How many such vowels are there in the above arrangement, each of which is immediately preceded by a number and immediately followed by a consonant?
- (1) None (2) One (3) Two
 (4) Three (5) Four
34. How many such consonants are there in the above arrangement, each of which is immediately preceded by a number and immediately followed by a letter?
- (1) None (2) One (3) Two
 (4) Three (5) More than three
35. Which of the following is the ninth to the right of the twentieth from the right end of the above arrangement?
- (1) D (2) @ (3) 1
 (4) 6 (5) None of these

36. Four of the following five are alike in a certain way based on their positions in the above arrangement and so form a group. Which is the one that **does not** belong to that group?
- (1) 5 NI (2) 9 U \$ (3) H A *
- (4) 7 G # (5) D P T
- Directions (37 - 40): Study the following arrangement carefully and answer the questions given below:**
- 3 D K \$ P 2 7 # @ 4 J T H 9 * F M R 1 5 % ?
6 8
37. How many such numbers are there in the above arrangement, each of which is immediately followed by a symbol and preceded by a letter?
- (1) None (2) Three (3) Two
(4) One (5) None of these
38. If DP : 65 :: 7 @ : ?
- (1) 1M (2) RF (3) 1F
(4) RM (5) None of these
39. How many such symbols are there in the above arrangement, each of which is immediately followed by a letter but not preceded by a letter?
- (1) One (2) Two (3) Three
(4) Zero (5) None of these
40. Which of the following will come in the place of the question mark (?) according to the above arrangement?
- KPD, 7@2, ?, *M9
- (1) 4T@ (2) JH@ (3) 4T#
(4) JH4 (5) None of these
- Answers with Explanation:-**
1. 2; C R E A T I O N
2. 5; O V E R W H E L M
3. 1; B E A C O N
A B C E N O
4. 1; D E C L A R A T I O N
A A C D E I L N O R T
5. 5; S E A L
T E A M
- Meaningful words: MATE, MEAT, TAME, TEAM
6. 5; LIVE, VEIL, VILE, EVIL
- 7 - 11;
- M K K I D N E T T Q O B F
1 2 3 4 5 6 7 8 9 10 11 12 13
H A A G T U U X W L S R I
14 15 16 17 18 19 20 21 22 23 24 25 26
7. 5; There is no such consonant.
8. 5; A R M
↓ ↓ ↓
15 + 25 + 1 = 41
9. 5; O B L
11 + 12 = 23 P 23
10. 2; Except UUT, in all others letters are consecutive elements from left to right.
11. 5; (a) D + Q = 5 + 10 = 15
(b) M + H = 13 + 4 = 15
- 12 - 14: P R O T E I N
N P R T E I O
12. 3; There are only two letters between R and I.
13. 5; E
14. 1; 15. 1; Fourth to the right of the tenth element implies $(10 + 4 =) 14^{\text{th}}$ element from the left end. Hence, the required element is 'P'.
16. 3; 7 B J I 4 N P 8 A
↑ ↑ ↑
Obviously, the required element is '4'.
17. 4; Note that third to the left of the ninth element from the right end implies $(9 + 3 =) 12^{\text{th}}$ element from the right end. Hence, the required element is 'P'.
18. 2; A C E G I K M O B D F H J L N / A C E G I
K M B D F H J L / A C
19. 4; A, AB, ABC, ABCD, ABCDE, ABCDEF,
ABC
20. 5; AZ/ABY/ABCX/ABCDW/ABCDEV/
A B C D E F U
Thus F will come next in the series.
21. 5; Here specified letters are
R, A, E and T
The meaningful words formed are:
TEAR & RATE
22. 2; POST and POTS
23. 4; CONE and ONCE
24. 4; RITE, TIER, TIRE
25. 3; BARE and BEAR

26.3; C L E A R I N G

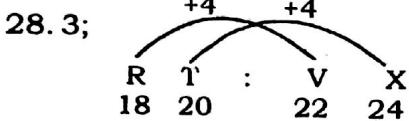
There are only two such pairs.

27.5; J O U R N E Y

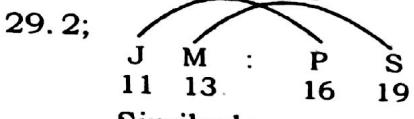
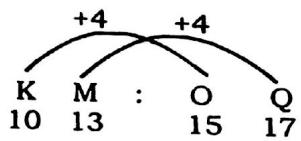
K N T S O D Z

D K N O S T Z

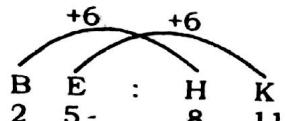
Now, in the above arrangement the 5th element from the left end is 'S'.



Similarly,



Similarly,



30.1; The specified letters are H, I, G and using this letters we get the word SIGH.

31.2; After removing all the symbols

B 2 M E J R 5 N D I P 4 T 3 9 F U 1 6 M
J A 7 G Q

So, 3 is the twelfth element from the right.

32.5; 5th to the left of 18th element from the left end implies $(18 - 5) = 13^{\text{th}}$ element from the left end. Hence, the required element is 'P'.

33.1; Here, we have to look for Number - Vowel - Consonant sequence.

There is no such sequence in the given arrangement.

34.4; Here, we have to look for

Number - Consonant - Letter sequence.

B 2 M E J % R 5 @ N D I P 4 © T 3 9 F U 1

\$ 6 H J A T * G Q #

There are only three such sequences.

Note that 9th element to the right of 20th element from the right end implies $(20 - 9) = 11^{\text{th}}$ element from the right end.

Hence, the required element is '1'.

35.3;

- (1) 5 - N - I
- (2) 9 - U - \$
- (3) H - A - *
- (4) 7 - G - #
- (5) D - P - - T

Obviously, option (5) is different from others.

37.4; Here, we have to look for Letter-Number-Symbol sequence.

3 D K \$ P 2 7 # @ 4 J T H 9 * F M R 1 5 %
? 6 8

38.2; DP : 65 ; 7 @ : RF

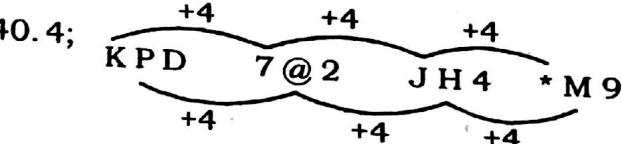
Here D and P are 2nd and 5th elements respectively from the left end, whereas 6 and 5 are 2nd and 5th elements respectively from the right end.

Similarly,

7 and @ are 7th and 9th elements respectively from the left end, whereas R and F are 7th and 9th elements respectively from the right end.

39.1; 3 D K \$ P 2 7 # @ 4 J T H 9 * F M R 1 5 %
? 6 8

There is only one such symbol.

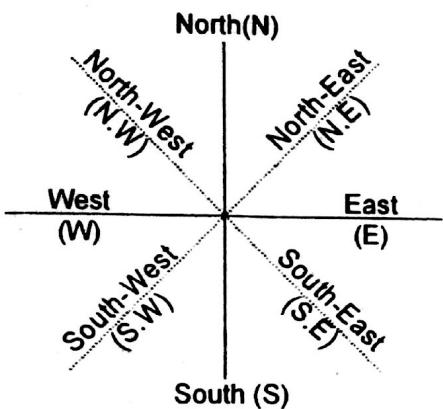


6

DIRECTION TEST

In this chapter we will deal with the problems related to directions. In the questions a problem based on directions is given and on the basis of the information given in the problem we have to decipher the resultant direction or the distance travelled following certain rules.

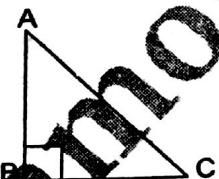
The following diagram illustrates the basic directions.



Note that one should be aware of basic geometric rule, such as Pythagorus Theorem before proceeding further.

Pythagorus Theorem $\Rightarrow AC^2 = AB^2 + BC^2$

$$\therefore AC = \sqrt{AB^2 + BC^2}$$



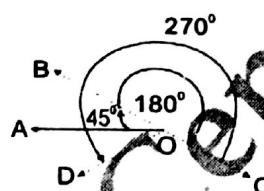
Now, let's see some examples for better understanding

1. A 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. In which direction is he facing now?

- (1) South (2) North-West (3) West
- (4) South-West (5) None of these

Sol. (4): Clearly, the man initially faces the direction OA. On moving 45° clockwise, he faces the direction OB.

On further moving 180° clockwise, he faces the direction OC. Finally, on moving 270° anti-clockwise, he faces the direction OD, which is South-West.



$$(45^\circ \text{ CW} + 180^\circ \text{ CW} + 270^\circ \text{ ACW} = 45^\circ \text{ ACW from the original position})$$

Note: CW- Clockwise, ACW- Anti-clockwise

2. A man is looking for his friend. He went 90 m in the East before turning to his right. He went 20 m before turning to his right again and goes further to look for his friend at his uncle's place 30 m from this point. His friend was not there. From there, he went 100 m to North before meeting his friend in a street. How far did the man meet his friend from the starting point?

- (1) 80 m (2) 100 m (3) 140 m
- (4) 260 m (5) None of these

Sol. (2): Clearly, the man moves from A, 90 m Eastwards upto B, then turns right and moves 20 m upto C, then turns right and moves 30 m upto D. Finally, he turns right and moves 100 m upto E.

Clearly,

$$AB = 90 \text{ m}, BF = CD = 30 \text{ m}$$

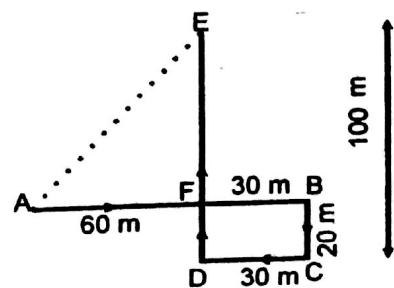
$$\text{So, } AF = AB - BF = 60 \text{ m.}$$

$$\text{Also, } DE = 100 \text{ m, } DF = BC = 20 \text{ m.}$$

$$\text{So, } EF = DE - DF = 80 \text{ m.}$$

\therefore His distance from starting point

$$AE = \sqrt{AF^2 + EF^2}$$

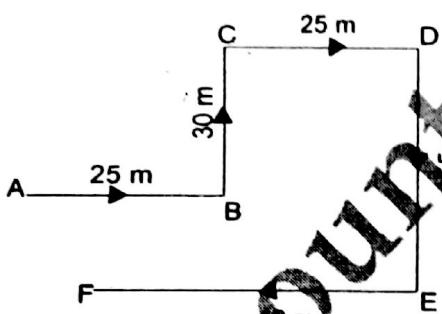


$$= \sqrt{(60)^2 + (80)^2} = \sqrt{3600 + 6400} = \sqrt{10000} = 100 \text{ m}$$

3. Chandan faces towards North. Turning to his right, he walks 25 m. He then turns to his left and walks 30 m. Next, he moves 25 m after turning to his right. He then turns to his right again and walks 55 m. Finally, he turns to the right and moves 40 m. In which direction is he now from his starting point?

- (1) South-West (2) South
- (3) North-West (4) South-East
- (5) None of these

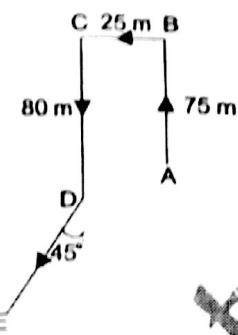
Sol. (4): Chandan turns towards right from North direction. So, he walks 25 m towards East upto B, turns left and moves 30 m upto C, turns right and goes 25 m upto D. At D, he turns to right towards the South and walks 55 m upto E. He again turns to right and walks 40 m upto F, which is his final position. F is to the South-East of A. So, he is to the South-East from his starting point.



4. Deepika moved a distance of 75 m towards the North. She then turned to the left and walking 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 facing now?

- (1) North-East (2) North-West (3) South
- (4) South-West (5) None of these

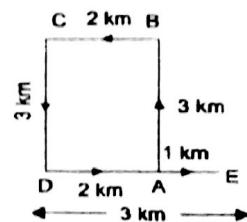
Sol. (4): Deepika started from A, moved 75 m upto B, turned left and walked 25 m upto C. She then turned left again and moved 80 m upto D. Turning to the right at an angle of 45° , she was finally moving in the direction DE i.e., South-West.



5. Satish walks a distance of \sqrt{km} towards North, then turns to his left and walks for 2 km. He again turns left and walks for 3 km. At this point he turns to his left again and walks for 3 km. How many kilometres is he from the starting point?

- (1) 1 km (2) 2 km (3) 3 km (4) 5 km

Sol. (1): The movements of Satish are as shown in Fig. (A to B, B to C, C to D and D to E). Clearly, $AD = BC = 2 \text{ km}$.



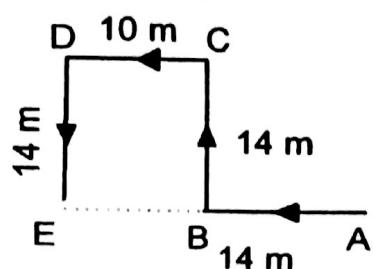
So, required distance = $AE = (DE - AD)$
 $= (3 - 2) \text{ km.} = 1 \text{ km}$

6. Namita walks 14 m towards West, then turns to her right and walks 14 m and then turns to her left and walks 10 m. Again turning to her left she walks 14 m. What is the shortest distance (in metres) between her starting point and the present position?

- (1) 10 m (2) 24 m (3) 28 m (4) 38 m

Sol. (2): The movements of Namita are as shown in (A to B, B to C, C to D and D to E).

Clearly, Namita's distance from his initial position = $AE = (AB + BE) = (AB + CD)$
 $= (14 + 10) \text{ m} = 24 \text{ m.}$

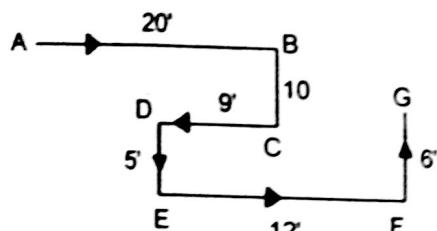


7. A rat runs 20' towards East and turns to right, runs 10' and turns to right, runs 9' and again turns to left, runs 5' and then turns to left, runs 12' and finally turns to left and runs 6'. Now, in which direction is the rat facing?

(1) East (2) West (3) North
 (4) South (5) None of these

Sol. (3): The movements of the rat from A to G are as shown in

Clearly, it is finally facing the direction FG i.e. North.

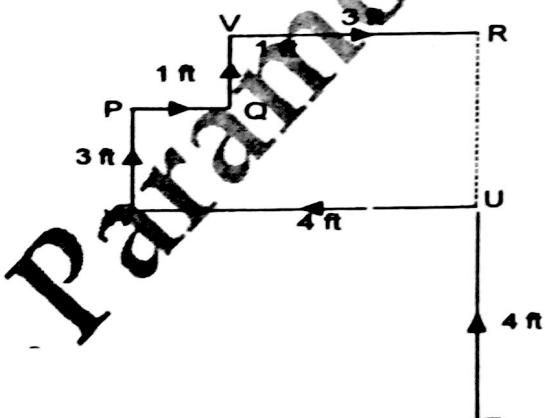


8. Maya starts from point T, walks straight to point U which is 4 ft away. She turns left at 90° and walks to W which is 4 ft away, turns 90° right and goes 3 ft to P, turns 90° right and walks 1 ft to Q, turns left at 90° and goes to V, which is 1 ft away and once again turns 90° right and goes to R,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

(1) 4 ft (2) 5 ft (3) 7 ft (4) 8 ft

Sol. (4): The movements of Maya from T to R are as shown in

$$\begin{aligned} \text{Distance between T and R} &= TR = TU + UR = TU + PW + QV \\ &= (4 + 3 + 1) \text{ ft} = 8 \text{ ft.} \end{aligned}$$

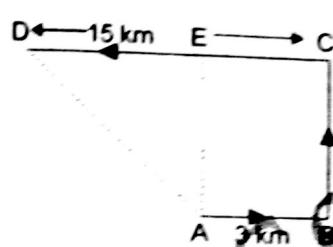


9. A person starts from a point A and travels 3 km Eastwards to B and then turns left and travels thrice that distance to reach C. He again turns left and travels five times the distance he covered between A and B

and reaches his destination D. The shortest distance between the starting point and the destination is

(1) 12 km (2) 15 km (3) 16 km (4) 18 km

Sol. (2): The movements of the person are as shown in



Clearly, $AB = 3 \text{ km}$,

$$BC = 3 AB = (3 \times 3) \text{ km} = 9 \text{ km},$$

$$CD = 5 AB = (5 \times 3) \text{ km} = 15 \text{ km.}$$

Draw $AE \perp CD$.

Then, $CE = AB = 3 \text{ km}$ and $AE = BC = 9 \text{ km}$.

$$DE = (CD - CE) = (15 - 3) \text{ km} = 12 \text{ km.}$$

$$\text{In } \triangle AED, AD^2 = AE^2 + DE^2$$

$$AD^2 = 9^2 + 12^2$$

$$AD^2 = 81 + 144$$

$$AD^2 = 225$$

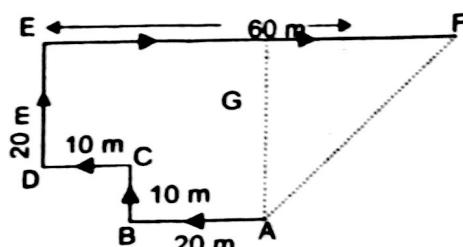
$$AD = \sqrt{225} = 15$$

Minimum distance = 15 km.

10. 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 turning right walk 20 m. Then I turn right again and walk 60 m. In which direction am I from the starting point?

(1) North (2) North-West
 (3) East (4) North-East

Sol. (4): The movements of the person are from A to F, as shown. Clearly, the final position in F which is to the North-East of the starting point A.



Exercise:

1. Roy walks 2 km to 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?
(1) South-West (2) South-East
(3) North-West (4) North-East
(5) None of these
2. Rana travels 10 km North, turns left and travels 4 km and then again turns right and covers another 5 km. He then turns right and travels another 4 km. How far is he from the point of starting of his journey?
(1) 5 km (2) 4 km (3) 15 km
(4) 10 km (5) None of these
3. Ram starts from a point A and walks 6 km North, then turns left and walks 8 km. Then he turns left and walks 12 km up to the point D. In which direction is Ram facing?
(1) North (2) South (3) East
(4) West (5) None of these
4. Sita walks 1 km to East, turns right and walks another 1 km and then turns left and walks 2 km and again turning to her left travels 5 km. How far is Sita from her starting point? (Consider the shortest distance)
(1) 8 km (2) 5 km (3) 7 km
(4) 6 km (5) None of these
5. Vishal walks 2 km towards South. He then turns right and walks 3 km. He now turns left and walks 5 km. Further, he moves 2 km after turning to the left. In which direction is he facing?
(1) West (2) East (3) North
(4) South (5) None of these
6. Kannan walked 10 km towards North. From there he turned back and walked 6 km towards South. Then he walked 3 km towards East. How far was he from the starting point?
(1) 3 km (2) 6 km (3) 7 km
(4) 5 km (5) None of these
7. Shashi and Sunil start from O (Zero) and walked in opposite directions. Shashi covered 7 km towards West to A and Sunil walked to East 5 km to B. Then Sunil turned to his left and walked 3 km to D and Shashi walked to her right and walked 3 km to C. How far are they from each other?
(1) 10 km (2) 12 km (3) 14 km
(4) 16 km (5) None of these
8. Ram is facing North-West. He turns in clockwise direction by 90° , then 180° in the anti-clockwise direction and turns another 90° in the same direction. In which direction is he facing now?
(1) South-West (2) West (3) South
(4) South-East (5) None of these
9. Laxman went 15 km to North, then 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 is he from the starting point?
(1) East (2) West (3) North
(4) South (5) None of these
10. A man from a point, walks 4 miles North, turns to his right and walks 2 miles, again turns to his right and walks 2 miles, again turns to his right and walks 2 miles. In which direction would he be now with respect to the starting point?
(1) North (2) South (3) East
(4) West (5) None of these
11. Pran and Khan start from their office and walks in opposite direction, each travelling 10 km. Pran then turns left and walks 10 km, while Khan turns right and walks 10 km. How far are they now from each other?
(1) 0 km (2) 5 km (3) 10 km
(4) 20 km (5) None of these
12. A taxi driver commenced his journey from a point and drove 10 km towards 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?
(1) South (2) North (3) East
(4) South-East (5) None of these
13. If A stand on his head with his face towards North, in which direction will his left hand point?
(1) North-East (2) North (3) East
(4) North-West (5) None of these

14. A car travelling towards South covers a distance of 8 km, then turns right and runs another 9 km and again turns to the right and stopped. In which direction does it face now?
 (1) South (2) North (3) West
 (4) East (5) None of these
15. A man starts from a point walks 2 km towards North, turns towards his right and walks 2 km, turns right again and walks. In which direction is he going now?
 (1) South (2) South-East
 (3) North (4) West
 (5) None of these
16. Harihar starts walking straight facing South. After walking 30 m he turned to his right, walked 25 m and turned to his left. Again after walking a distance of 10 m he turned to his left. In which direction is he facing now?
 (1) West (2) East
 (3) North-East (4) South-West
 (5) None of these
17. Ashok walked 5 m towards East, took a right turn and walked 10 m and again he took a right turn and walked 15 m. In which direction is he facing now?
 (1) South (2) West (3) North
 (4) South-West (5) None of these
18. Q walked 20 m towards West, took a left turn and walked 20 m. He then took a left turn and walked 20 m and again took a right turn and walked 20 m. How far is Q now from the starting point?
 (1) 40 m (2) 50 m (3) 80 m
 (4) Data inadequate (5) None of these
19. Tom walked 10 miles from point P towards the East. He then took right turn and walked 5 miles and taking another right turn walked again for another 5 miles. In which direction is point P from where Tom is standing now?
 (1) West (2) North-West
 (3) North-East (4) Can't be determined
 (5) None of these
20. Shyam walked 6 m towards East, then took a right turn and walked a distance of 9 m. He then took a left turn and walked a distance of 6 m. How far is he from the starting point?
 (1) 15 m (2) 21 m (3) 18 m
 (4) Can't be determined (5) None of these
21. Prabir started walking towards South. He took a right turn after walking 10 m. He again took a left turn after walking 20 m. In which direction is he facing now?
 (1) South (2) North (3) West
 (4) East (5) Can't be determined
22. Raman starts from point P and walks toward South and stops at point Q. He now takes a right turn followed by a left turn and stops at point R. He finally takes a left turn and stops at point S. If he walks 5 km before taking each turn, towards which direction will Raman have to walk from point S to reach point Q?
 (1) North (2) South (3) West
 (4) East (5) North-West
23. Kunal walked 10 m towards the East, turned right and walked another 15 m. Then he turns left and walks 3 m. He finally takes a left turn and walked 6 m. In which direction is he facing now?
 (1) East (2) North (3) West
 (4) South (5) South-West
24. Ahmed is standing to the West of Amit and North of Rachna. Satish is standing to the West of Rachna but to the South of Samir. Satish is in which direction from Amit?
 (1) West (2) South-West
 (3) South (4) South-East
 (5) None of these
25. Mohan walked 40 m towards North, took a left turn and walked 20 m. He again took a left turn and walked 40 m. How far and in which direction is he from the starting point?
 (1) 20 m East
 (2) 20 m North
 (3) 20 m South
 (4) 100 m South
 (5) None of these
26. Samir was standing facing East. He turned to his right and walked 5 m, again turned to his right and walked 7 m. Then he turned to his left and walked 4 m. In which direction is he facing now?
 (1) North (2) South (3) West
 (4) North-West (5) None of these

27. If M is in the South of B and B is in the West of N, then in which direction is N from M?
 (1) North (2) East
 (3) North-East (4) South-West
 (5) None of these
28. Naveen walks 20 m towards East. He then turns left and walks 10 m. He again turns left and walks 20 m. How far is he from his starting point?
 (1) 10 m (2) 50 m (3) 40 m
 (4) 30 m (5) None of these
29. Mohan starts walking towards East and walked 30 m, then he turned right and walked 50 m and he again turned left and walked 40 m. Again he turned left and walked 50 m. Now, how far is he from his starting point?
 (1) 170 m (2) 70 m (3) 120 m
 (4) 110 m (5) None of these
30. A walks 10 m North, then he turns right and walks 10 m. And then turning left each time, he walks 5 m, 15 m and 15 m respectively. Now, how far is he from his starting point.
 (1) 5 m (2) 10 m (3) 15 m
 (4) 20 m (5) None of these
31. Praveen walked 30 m towards East, then he turned right and walked 20 m. Again he turned right and walked 30 m. How far is he from his starting point?
 (1) 30 m (2) 80 m (3) 50 m
 (4) 20 m (5) None of these
32. Atul walks 20 m towards South. He then turns left and walks 30 m. After that he turns right and walks 10 m. Then again he turns right and walks 40 m. After this he turns right and walks 30 m. Now he stops. Now, in which direction is he from his starting point?
 (1) South-West
 (2) West
 (3) North-West
 (4) Starting point
 (5) None of these
33. Amit walked 20 m towards West; turned right and walked 30 m, again he turned right and walked 20 m. How far was he from his starting point?
 (1) 70 m (2) 40 m (3) 30 m
 (4) 50 m (5) None of these
34. Dhanesh walks 50 m East and then he turns to his right and walks 30 m. Now in which direction is he from his starting point?
 (1) South-West (2) North-East
 (3) North-West (4) South-East
 (5) None of these
35. Four persons A, B, C and D are sitting along the different sides of a table. B is sitting towards left of A. C who is facing West, is sitting to the right of D. Who is facing South?
 (1) A (2) B (3) B or D
 (4) Data inadequate (5) None of these
36. Five persons P, Q, R, S and T are sitting around a round table. Q is sitting between T and S. P is not immediate left of S, then who is sitting second to the right of Q?
 (1) P (2) R (3) S
 (4) Data inadequate (5) None of these
37. Q walked 20 m towards West, turned left and walked 20 m, then he turned right and walked 20 m and again turned right and walked 20 m. Now how far is Q from his starting point?
 (1) 40 m (2) 50 m (3) 80 m
 (4) Data inadequate (5) None of these
38. If North-East becomes West and South-East becomes North then what will West become?
 (1) South-East
 (2) North-East
 (3) South
 (4) North-West
 (5) None of these
39. Imagine that you are walking towards South. After sometime you turn left. Then again you turn left. After that you turn right and once again turn to the right. In which direction you are walking now?
 (1) East (2) West (3) South
 (4) North (5) None of these

- 40.** Manish and Rinku starts walking from a same point. Manish goes towards West and covers 4 km, and then he turns right and goes 3 km. Rinku goes towards North and covers 3 km, then turns right and goes 5 km. How far is Manish from the Rinku now?
- (1) 1 km (2) 3 km (3) 9 km
 (4) 7 km (5) None of these
- 41.** Sarla says to Suresh that she is going to the North direction to hide, but she went 2 km East from there and then 3 km towards South and again 2 km towards West and then again same distance towards the starting place. Now in which direction is Sarla from her hiding place?
- (1) North (2) South (3) West
 (4) East (5) None of these
- 42.** Four friends are sitting along the different sides of a square table. Meena is sitting to the different right of Padma and Beena is sitting to the left of Krishna. Which of the two friends are sitting opposite to each other while Krishna is sitting to the left of Padma?
- (1) Padma and Krishna
 (2) Krishna and Beena
 (3) Beena and Meena
 (4) Meena and Krishna
 (5) Padma and Meena
- 43.** Girija, Ishan, Frendis and Hema are sitting on a bench. Hema is sitting ahead and to the immediate left of Frendis. On one side of Ishan Frendis is sitting and to his other side Girija is sitting. Who is sitting to the extreme right?
- (1) Girija (2) Ishan (3) Frendis
 (4) Hema (5) None of these
- 44.** 5 books have been kept such that, E is just above A. C is just below the D. A is just above D. B is just below C. Which book is at the bottom?
- (1) A (2) D (3) B
 (4) C (5) None of these
- 45.** I am standing on a river shore with my back towards the river. An object in the water flows on its own from my left and goes to my right. River is flowing from West to East, then in which direction am I facing?
- (1) East (2) West (3) North
 (4) South (5) None of these
- 46.** My house's door faces the East. Sriram's house is attached to the back wall of my house, whose door is exactly in the opposite direction of my house but it is on the main road. Towards which direction the door of Sriram's house on the other side of the road will face?
- (1) Towards East
 (2) Towards West
 (3) Towards North
 (4) Towards South
 (5) Question is not clear
- 47.** Kamla is between Mohan and Suresh. Ramesh is on the immediate left of Suresh and Sohan is on the immediate right of Mohan. All are standing facing North, then who is on the extreme right?
- (1) Mohan (2) Suresh (3) Ramesh
 (4) Sohan (5) None of these
- 48.** Ashok went 8 km South and turned West and walked 3 km, again he turned North and walked 5 km. He took a final turn to east and walked 3 km. In which direction was Ashok from the starting point?
- (1) East (2) North (3) West
 (4) South (5) None of these

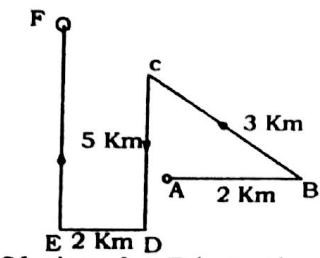
Directions (49 - 50):

Kiran walks 20 m North, she turns right and walks 30 m, then she turns right and walks 35 m, then she turns left and walks 15 m, then she again turns left and walks 15 m. Once again she turns left and walks 15 m.

- 49.** How far is Kiran from her starting point?
- (1) 25 m (2) 15 m (3) 45 m
 (4) 30 m (5) None of these
- 50.** In which direction is Kiran facing now?
- (1) East (2) West (3) North
 (4) South (5) None of these

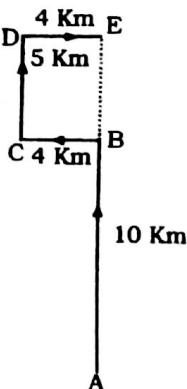
Answer with Explanations

1. 3;



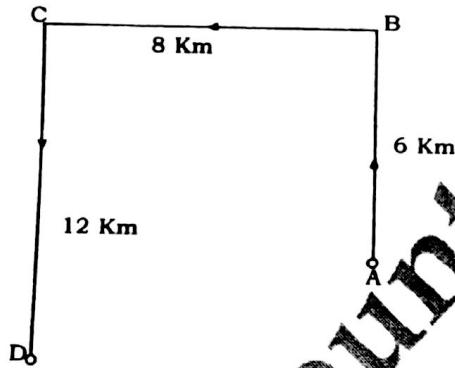
Obviously, F is to the North-West of A.

2. 3;



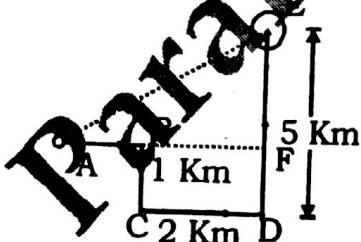
Hence, required distance
 $AE = AB + BE = AB + CD$
 $= 10 + 5 = 15 \text{ Km}$

3. 2;



Obviously, Ram is facing South.

4. 2; We have to find out the distance between the two points A and E.



Here,

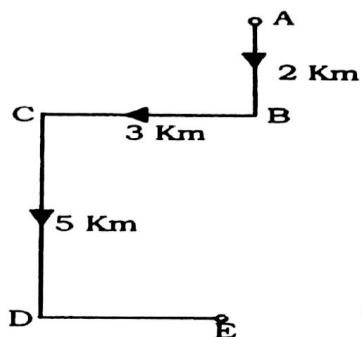
$$EF = DE - FD = 5 - 1 = 4 \text{ Km}$$

$$AF = AB + CD = 1 + 2 = 3 \text{ Km}$$

$$\therefore AE = \sqrt{(AF)^2 + (EF)^2} = \sqrt{3^2 + 4^2}$$

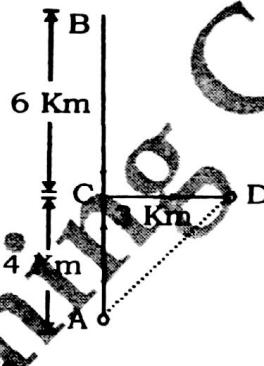
$$= \sqrt{25} = 5 \text{ Km}$$

5. 2;



Vishal is facing East, at the end of the journey)

6. 4;

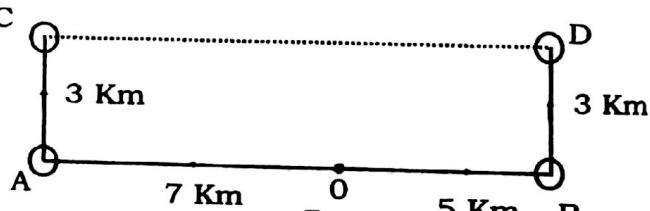


Here,

$$AD = \sqrt{(AC)^2 + (CD)^2} = \sqrt{4^2 + 3^2}$$

$$= \sqrt{25} = 5 \text{ Km}$$

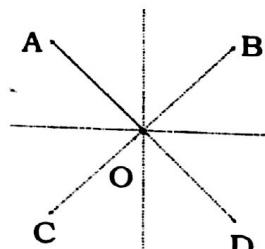
7. 2;



Here, the required distance,
 $CD = AB = 7 + 5 = 12 \text{ Km}$

Note:- CW = Clockwise, ACW = Anti-clockwise

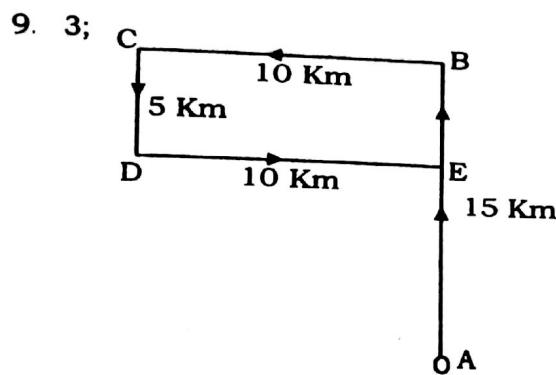
8. 4;



$$90^\circ \text{ CW} + 180^\circ \text{ ACW} + 90^\circ \text{ ACW}$$

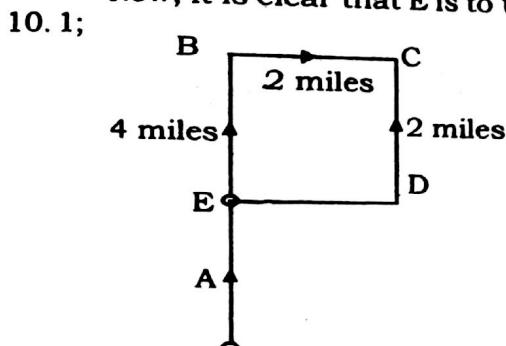
$$= 180^\circ \text{ ACW}$$

from the original position. Thus, we can conclude that Ram is facing point D from the point O. Thus, he is facing South-East.

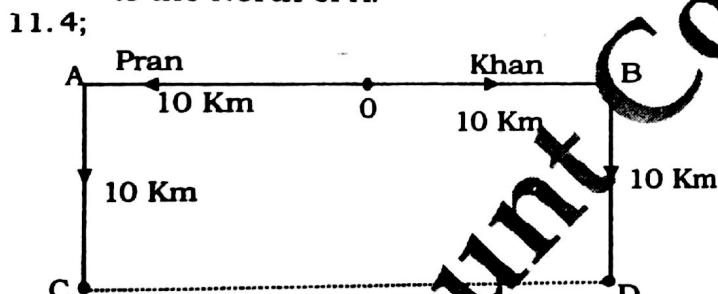


Here A is starting point. E is the final destination.

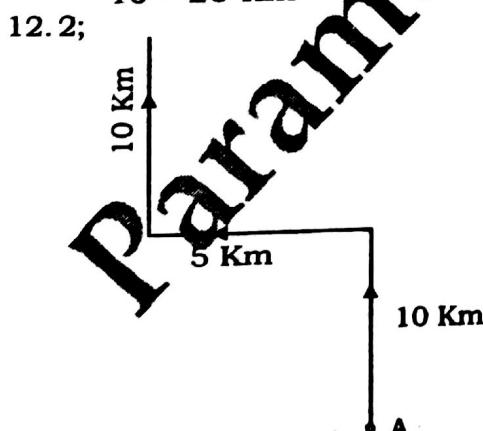
Now, it is clear that E is to the North of A.



Here, A is starting point and E is the final destination. Now it is clear that E is to the North of A.



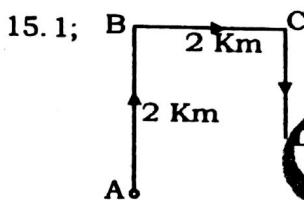
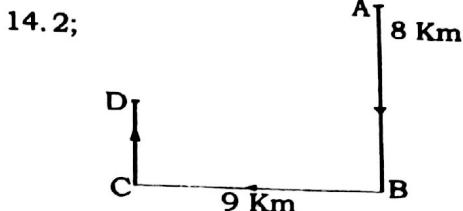
The required distance $CD = AB = 10 + 10 = 20 \text{ Km}$



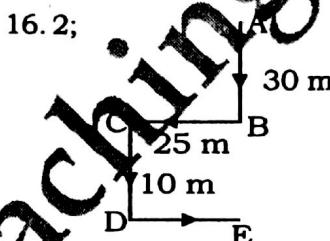
Obviously, the driver is facing North.

13. 3; If A stands on head with his face towards North, his left hand will point towards East whereas his right hand will point

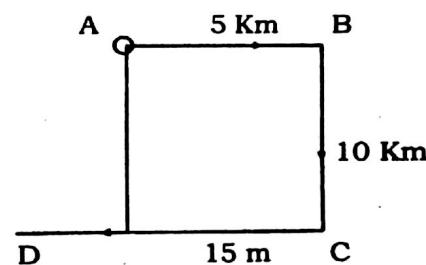
towards West.



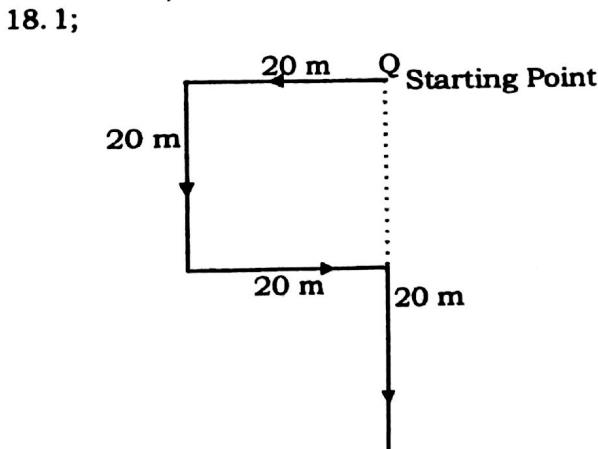
Now, it is obvious that the man is facing South.



Now, it is obvious that Harihar is facing East.

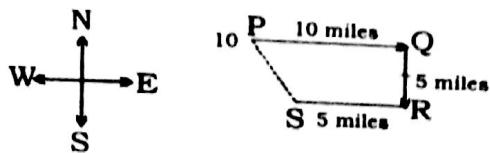


Now, it is clear that Ashok is facing West.



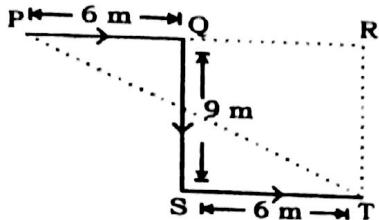
Required distance $= (20 + 20) = 40 \text{ m.}$

19. 2;



It is clear from the diagram that point P is in North-West direction.

20. 1;



In the above figure 'P' is starting point and 'T' is end point.

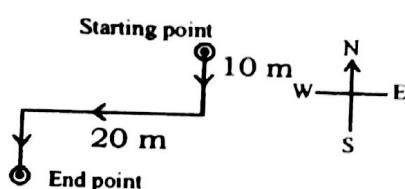
$$\text{Now, } PT^2 = PR^2 + RT^2$$

$$PT = \sqrt{PR^2 + RT^2}$$

$$= \sqrt{12^2 + 9^2} = \sqrt{144 + 81} = \sqrt{225} = 15 \text{ m}$$

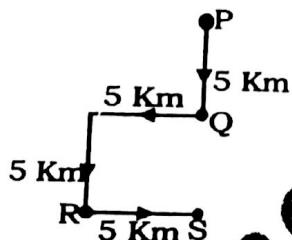
[∴ PR = PQ + ST and RT = QS]

21. 1;



From the above figure it is clear that Prabir is facing South.

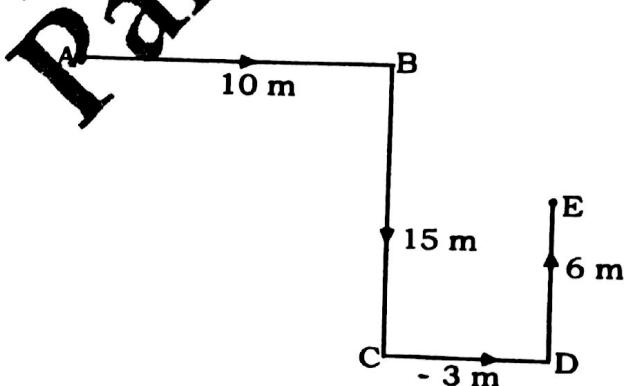
22. 1;



Here, P is starting point whereas S is end point.

In order to reach point Q Raman has to travel towards North.

23. 2;



From the above diagram it is clear that Kunal is facing North.

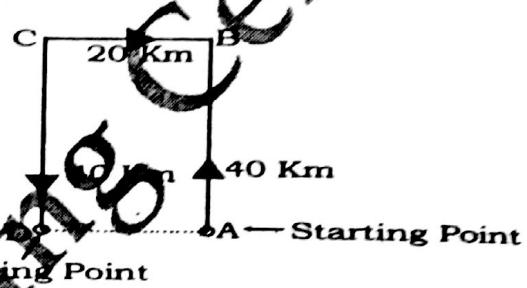
24. 2;

Ahmed Amit

Satish Rachna

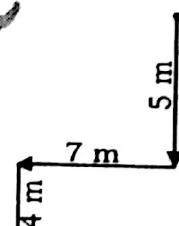
Look at the position of Satish and Amit. It is clear that Satish is to the south-west of Amit.

25. 5; 20 metres, West



Hence, required distance AD = BC = 20 m (West)

26.



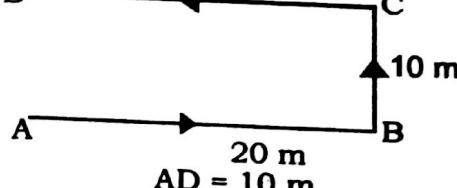
27. 3; Look at the positions of B, M and N.

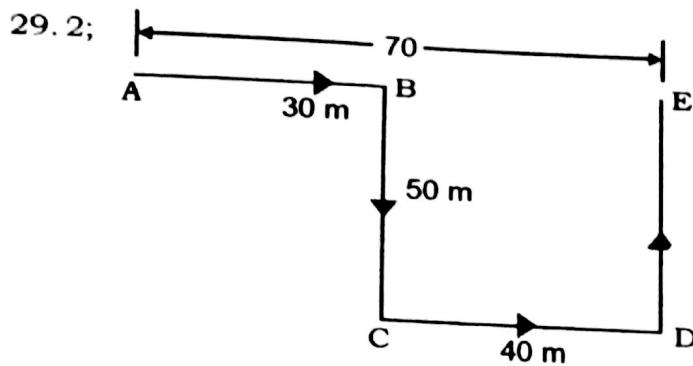
B M N

M

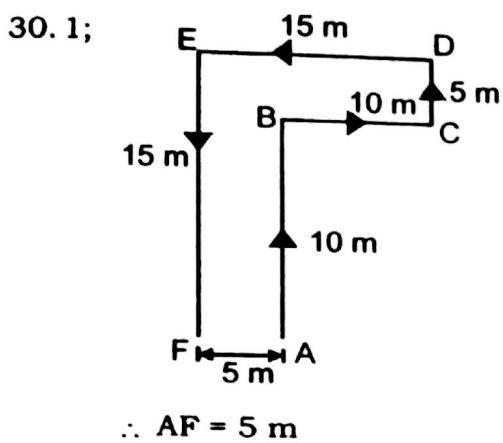
Obviously N is to the North-east of M.

28. 1; D → 20 m C

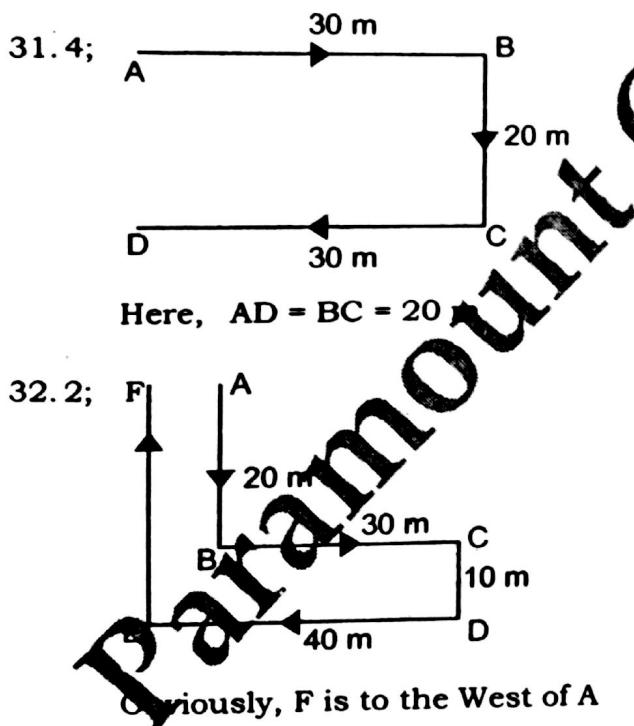




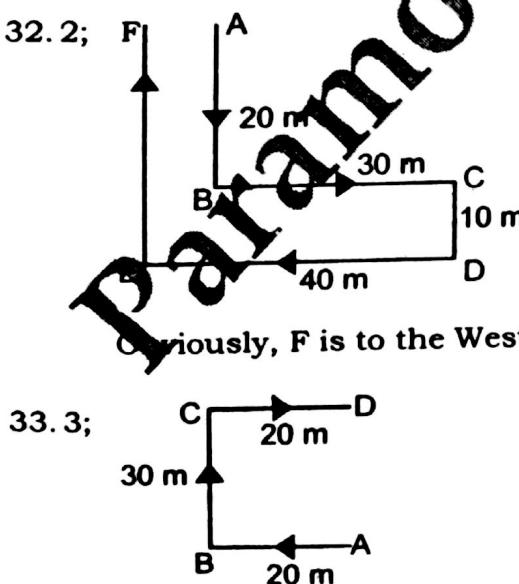
Obviously, $AE = 30 + 40 = 70 \text{ m}$



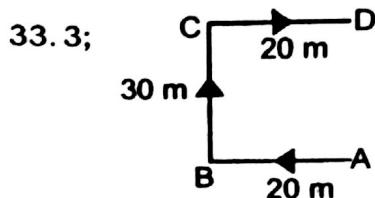
$\therefore AF = 5 \text{ m}$



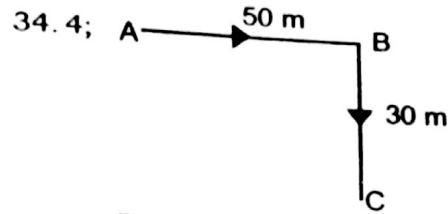
Here, $AD = BC = 20$



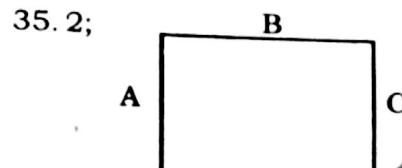
Obviously, F is to the West of A



Obviously, $AD = BC = 30 \text{ m}$.



Point C is to the South-east of



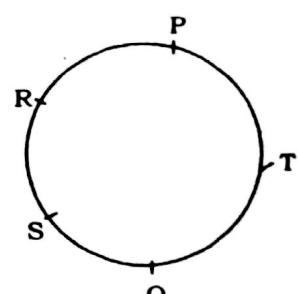
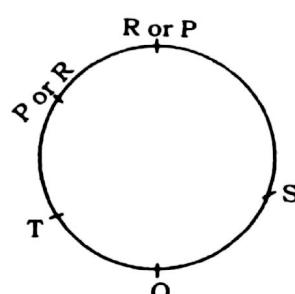
It is B who is facing South.

36. 4; P or R

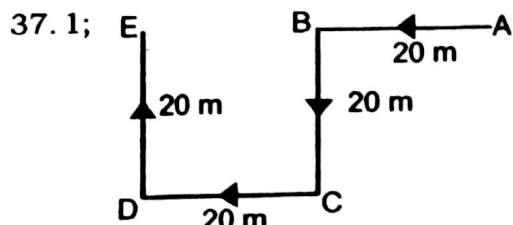
We have information that Q is sitting between T and S. We get two possibilities Case I and Case II.



If P is not immediate left of S, then we get

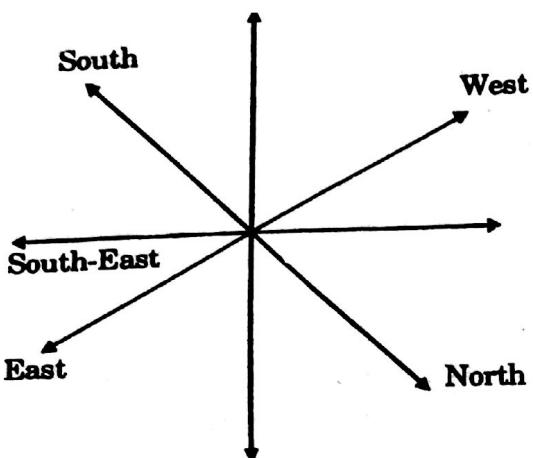


Now it is clear that the person sitting second to the right of Q is P or R.

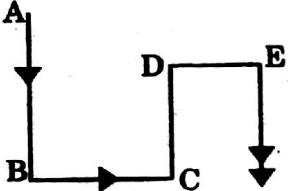


Obviously, $AE = AB + DC = 20 + 20 = 40 \text{ m}$

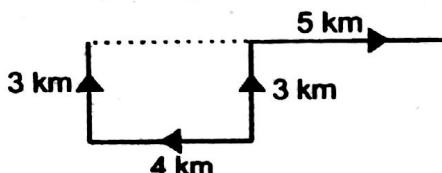
38. 1;



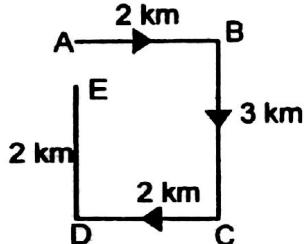
39. 3;



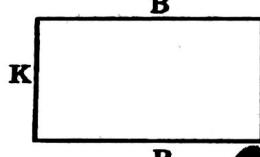
40. 3;



41. 2;



42. 4;



43. 1; The position of all the four persons will be as follows:

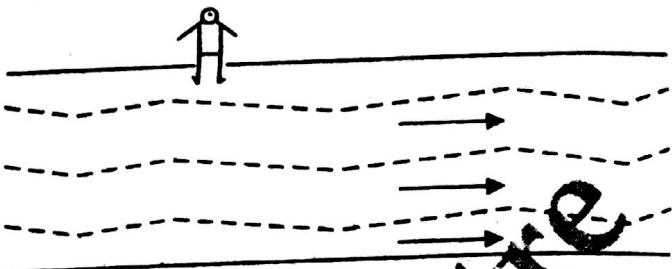
Hema Francis Ishan Girija

Now, it is obvious that Girija is sitting on the extreme right end.

44. 3; The order of the five books are:

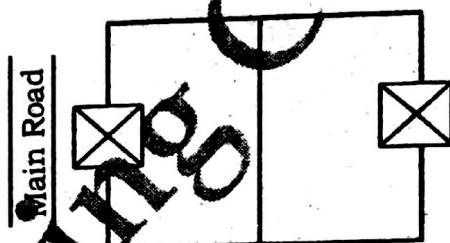
- A
- D
- C
- B

45. 3;



According to the information in the question part, the situation is as shown above. Now, it is clear that the person is facing North.

46. 2;



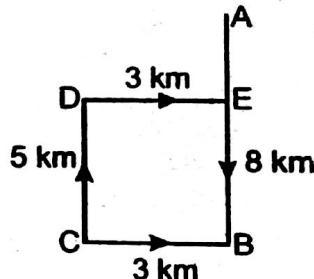
Look at the position of the two houses. It is clear that Sriram's house is facing West.

47. 4; The order of the person's are :

Ramesh Suresh Kamla Mohan Sohan

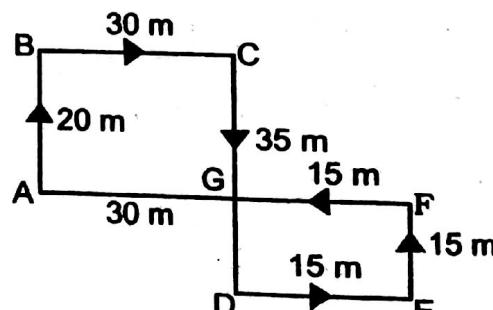
Now, it is clear that Sohan is sitting on extreme right position.

48. 4;



Obviously, E is to the South of A.

49. 4;



Obviously, AG = BC = 30 m

50. 2; West

Now, it is clear that the book B is at bottom.

BLOOD RELATION

In this chapter we will study the different types of blood relations. A relation on the mother's side is called '**maternal**' while that on the father's side is called '**Paternal**'. Thus, mother's brother is '**maternal uncle**' while father's brother is '**paternal uncle**'. Let us Summarize some common relations.

1.	Mother's or father's son	Brother
2.	Mother's or father's daughter	Sister
3.	Mother's or father's brother	Uncle
4.	Mother's or father's sister	Aunt
5.	Mother's or father's father	Grandfather
6.	Mother's or father's mother	Grandmother
7.	Son's wife	Daughter-in-law
8.	Daughter's husband	Son-in-law
9.	Husband's or wife's sister	Sister-in-law
10.	Husband's or wife's brother	Brother-in-law
11.	Brother's or Sister's son	Nephew
12.	Brother's or Sister's daughter	Niece
13.	Uncle or aunt's son or daughter	Cousin
14.	Sister's husband	Brother-in-law
15.	Brother's wife	Sister-in-law
16.	Grandson's or Granddaughter's daughter	Great grand daughter

1. Pointing towards a person (x), a man said to woman, "His mother is the only daughter of her father." How is the woman related to that person (x)?
 (1) Daughter (2) Sister (3) Mother
 (4) Wife (5) None of these

Sol. (3): The only daughter of woman's father is she herself. So, the person is woman's son, i.e. the woman is the person's mother. Hence, the answer is (3).

2. Pointing to a lady in the photograph, Shaloo said, "Her son's father is the son-in-law of my mother." How is Shaloo

related to the lady?

- (1) Aunt (2) Sister (3) Mother
 (4) Cousin (5) None of these

Sol. (2): Lady's son's father is lady's husband. So, the lady's husband is the son-in-law of Shaloo's mother, i.e. the lady is the daughter of Shaloo's mother. Thus, Shaloo is the lady's sister. Hence, the answer is (2).

3. Anil introduced Rohit as the son of the only brother of his father's wife. How is Rohit related to Anil?

- (1) Cousin (2) Son (3) Uncle
 (4) Son-in-law (5) None of these

Sol. (1): The relations may be analysed as follows:

Father's wife - mother, Mother's brother - Uncle; Uncle's son - Cousin.

So, Rohit is Anil's cousin. Hence, the answer is (1).

Pointing towards a person in the photograph, Anjali said "He is the only son of the father of my sister's brother." How is that person related to Anjali?

- (1) Mother (2) Father
 (3) Maternal uncle (4) Brother
 (5) None of these

Sol. (4): The relations may be analysed as follows:

Sister's brother - Brother; Brother's father - Father; father's son - Brother.

So, the person in the photograph is Anjali's brother. Hence, the answer is (4).

Rita told Mani, "The girl I met yesterday at the beach was the youngest daughter of the son-in-law of my friend's mother." How is the girl related to Rita's friend?

- (1) Cousin (2) Daughter (3) Niece
 (4) Friend (5) None of these

Sol. (1): The relations may be analysed as follows:

Daughter of son-in-law - Niece; Mother's niece - Cousin.

So, the girl is the cousin of Rita's friend. Hence, the answer is (1).

6. A woman going with a boy is asked by another woman about the relationship between them. The woman replied, "My maternal uncle and the maternal uncle of his maternal uncle is the same." How is the lady related with that boy?

- Grandmother and Grandson
- Mother and Son
- Aunt and Nephew
- Brother and Sister
- None of these

Sol. (4): Brother of woman's mother is the maternal uncle of the boy's maternal uncle. So, the woman can be maternal aunty/mother of the boy. Hence, the answer is (4).

7. Pointing out to a lady, Rajan said, "She is the daughter of the woman who is the mother of the husband of my mother." Who is the lady to Rajan?

- Aunt
- Grand daughter
- Daughter
- Sister
- None of these

Sol. (1): The relations may be analysed as follows:

Mother's husband-Father;
Father's mother-Grandmother;
Grandmother's daughter-Father's sister;
Father's sister-Aunt.

So, the lady is Rajan's aunt.

Hence, the answer is (1).

8. A man pointing to a photograph says, "The lady in the photograph is my nephew's maternal grandmother. How is the lady in the photograph related to the man's sister who has no other sister?"

- Cousin
- Sister-in-law
- Mother
- Mother-in-law
- None of these

Sol. (3): Clearly, Nephew's maternal grandmother is sister's mother and hence own mother. Hence, the answer is (3).

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

Prashant Arora has three children-Sangeeta, Vimal and Ashish. Ashish married Monika, the eldest daughter of Mr. and Mrs. Roy. The Roys married their youngest daughter to the eldest son of Mr. and Mrs. Sharma, and they had two

children named Amit and Shashi. The Roys have two more children, Roshan and Vandana, both elder to Veena. Sameer and Ajay are sons of Ashish and Monika. Rashmi is the daughter of Amit.

What is the surname of Rashmi?

- Sharma
- Roy
- Arora
- Cannot be determined
- None of these

II. How is Sameer related to Monika's father?

- Grandson
- Son
- Daughter
- Son-in-law
- None of these

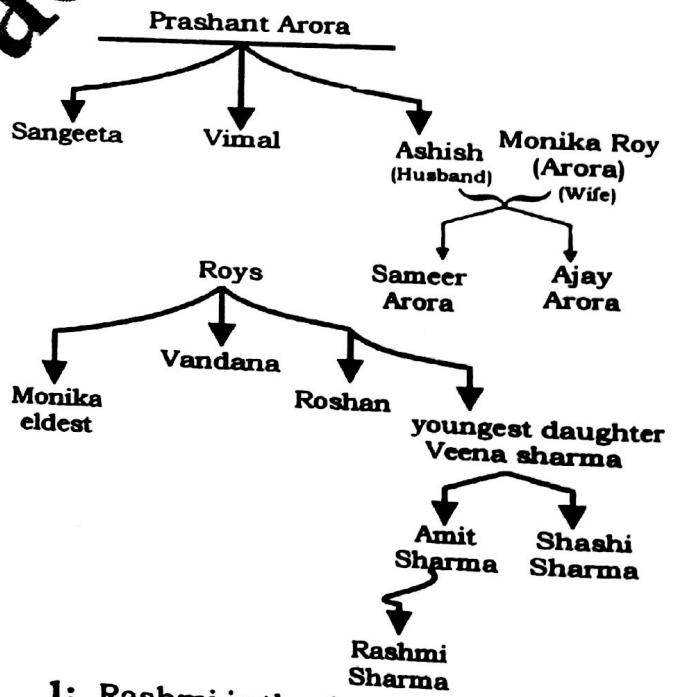
III. What is the surname of Sameer?

- Roy
- Sharma
- Arora
- Cannot be determined
- None of these

IV. How is Mr. Roy related to Ashish?

- Aunt
- Mother-in-law
- Mother
- Sister-in-law
- None of these

Sol.



I. 1; Rashmi is the daughter of Amit who is, therefore, the eldest son of Sharmas and married to Veena, the youngest daughter of the Roys. So, the surname of Rashmi is Sharma.

Hence, the answer is (1).

II. 1; Sameer is the son of Ashish who is the son of Prashant Arora. So, Sameer is the grandson of Monika's father.

Hence, the answer is (1).

Sol. (4): My mother-in-law's husband = My father-in-law.

Only daughter of my father-in-law = my wife. Sister-in-law of wife = my sister.

Hence, the answer is (4).

11. A is the brother of B. C is married to D. If C is the nephew of B. How is A related to D?

 - (1) Father-in-law
 - (2) Mother-in-law
 - (3) Son-in-law
 - (4) Daughter-in-law
 - (5) None of these

Sol. (1): A is brother of B, C is nephew of B so C is son of A. Hence A is father-in-law of D.

12. Pointing to a photograph Y says, "He is the only brother of the only daughter of my sister's maternal grandmother." Pointing to another photograph, X says, "He is the only brother of the only daughter of my sister's maternal grandmother." If among the two photographs, one was either of Mr X. or Mr. Y., and the photograph, towards which Y was pointing, was not of Mr X., then how Y related to Mr X?

(1) Grandfather
(2) paternal uncle
(3) maternal uncle
(4) Can't say
(5) None of these

Sol. (3): The photograph on which Y is looking is his maternal uncle. And the photograph on which X is looking is his maternal uncle. According to question the answer is (3).

Exercise:

1. A is sister of B. C is brother of D. If D is a sister of A, how is B related to D?
(1) Brother (2) Brother or Sister
(3) Sister (4) Data inadequate
(5) None of these

2. M is sister of D. D is brother of K. F is mother of M. How is K related to F?
(1) Son
(2) Daughter
(3) Son or Daughter
(4) Data inadequate
(5) None of these

3. B is brother of D. D is sister of E. E is brother of F. How is F related to B?
(1) Brother
(2) Sister
(3) Brother or Sister
(4) Data inadequate
(5) None of these

4. B is the only child of only daughter of C's paternal grandfather. How is C's father related to B?
(1) Maternal Uncle
(2) Paternal Uncle
(3) Father
(4) Can't be determined
(5) None of these

5. M is sister of D. R is brother of D. F is father of M and T is mother of R. How is D related to T?
(1) Brother (2) Son (3) Daughter
(4) Data inadequate
(5) None of these

6. Pointing to Hari, Seema says, "He is the paternal grandfather of my eldest son Mahesh. How is Hari related to Seema?
(1) Father (2) Uncle
(3) Brother-in-law
(4) Data inadequate
(5) None of these

7. Pointing to a girl, Mohan said, "She is the daughter of my grandfather's only daughter-in-law". How is Mohan related to that girl?
(1) Brother (2) Uncle
(3) Cousin (4) Can't be determined
(5) None of these

8. A said to B that B's mother was the mother-in-law of A's mother. How is A's mother related to B's mother?
 (1) Daughter-in-law
 (2) Mother-in-law
 (3) Sister
 (4) Aunt
 (5) Sister-in-law
9. Pointing to a woman in a photograph, a man says, "She is the only daughter of the mother-in-law of my only son." How is the woman related to the man?
 (1) Daughter (2) Wife
 (3) Daughter-in-law
 (4) Mother (5) Mother-in-law
10. Pointing to a woman in a photograph a man says, "She is the only daughter of my father's only daughter-in-law." How is the woman related to the man?
 (1) Wife (2) Daughter
 (3) Daughter-in-law
 (4) Sister (5) Sister-in-law
11. Pointing to a man in a photograph a woman says, "He is the father of my only daughter-in-law's father-in-law". How is the man related to the woman?
 (1) Father (2) Brother
 (3) Husband (4) Brother-in-law
 (5) Father-in-law
12. Pointing to a woman in a photograph a man says, "She is the only daughter of my wife's mother-in-law". How is the woman related to the man?
 (1) Daughter (2) Wife
 (3) Sister (4) Sister-in-law
 (5) Mother-in-law
13. Pointing to a woman in a photograph a man says, "She is the only daughter of my father's mother-in-law". How is the woman related to the man?
 (1) Daughter (2) Mother
 (3) Daughter-in-law
 (4) Mother-in-law (5) None of these
14. Pointing to a photograph a woman says, "He is the brother of the daughter of my mother-in-law's only son". How is the man related to the woman?
 (1) Son (2) Brother
15. Pointing to a photograph a woman says, "He is the son of the wife of my husband's father". How is the man related to the woman?
 (1) Son (2) Son-in-law
 (3) Brother-in-law
 (4) Brother (5) None of these
16. Pointing to a man in a photograph a woman says, "He is the father-in-law of the wife of the only grandson of my own father-in-law". How is the man related to the woman?
 (1) Son (2) Husband
 (3) Cousin (4) Nephew
 (5) Son-in-law
17. Pointing to a woman in a photograph, a man says, "She is the mother-in-law of the wife of the father of my only son". How is the woman related to that person?
 (1) Daughter (2) Wife
 (3) Daughter-in-law
 (4) Sister-in-law
 (5) None of these
18. Pointing to a woman in a photograph a man says, "She is the grandmother of the son of my daughter-in-law's mother-in-law." How is the woman related to that person?
 (1) Mother (2) Mother-in-law
 (3) Sister (4) Wife
 (5) Sister-in-law
19. Pointing to a woman in the photograph a man says, "This woman is the wife of the father of my wife's brother." How is the woman related to that person?
 (1) Mother (2) Mother-in-law
 (3) Sister (4) Sister-in-law
 (5) Daughter
20. Pointing to a woman a man says, "She is the sister-in-law of the only daughter of my mother-in-law's husband". How is the woman related to the man?
 (1) Daughter
 (2) Mother
 (3) Sister-in-law
 (4) Daughter-in-law
 (5) Sister

21. A is the father of B and C. B is the son of A but C is not the son of A. How is C related with A?
 (1) Daughter (2) Son (3) Niece
 (4) Nephew (5) None of these
22. Mayank said, "My mother is the sister of Rajat's brother." What is Rajat's relation with Mayank?
 (1) Cousin (2) Maternal uncle
 (3) Uncle (4) Brother-in-law
 (5) None of these
23. Ajay is the brother of Vijay. Mili is the Sister of Ajay. Sanjay is the brother of Rahul and Mehul is the daughter of Vijay. Who is Sanjay's Uncle?
 (1) Rahul (2) Ajay (3) Mehul
 (4) Data inadequate
 (5) None of these
24. A man introduced the boy coming with him as "He is the Son of the father of my wife's daughter". What relation did the boy bear to the man?
 (1) Son-in-law (2) Son (3) Brother
 (4) Father (5) None of these
25. Pointing towards Arun, Mr. Varun said, "He is the son of my sister's only brother. How is Arun related to Varun?
 (1) Son (2) Brother (3) Nephew
 (4) Data insufficient
 (5) None of these
26. If Amit's father is Billoo's father's only son and Billoo has neither a brother nor a daughter, what is the relationship between Billoo and Amit?
 (1) Uncle - nephew
 (2) Father - Daughter
 (3) Father - Son
 (4) Cousins
 (5) None of these
27. A is the sister of B. B is the son of C, and E is the daughter of D and sister of A. What is D to C?
 (1) Brother (2) Husband (3) Wife
 (4) Data is inadequate
 (5) None of these
28. If B's mother was A's mother's daughter, how was A related to B?
 (1) Uncle (2) Aunt (3) Sister
 (4) Data is insufficient
 (5) None of these
29. Pointing to a woman in the photograph a man said, "She is the daughter of my grandmother's only son. How is the woman related to the man?
 (1) Mother (2) Daughter
 (3) Sister-in-law (4) Sister
 (5) None of these
30. A man and a woman are sitting in a room. Man's mother-in-law and woman's mother-in-law are mother and daughter respectively. Man is the of the woman.
 (1) Father (2) Mother (3) Uncle
 (4) Grandfather-in-law
 (5) None of these
31. Pointing to a photograph, a woman said, "She is the only daughter of my mother's father." How is the woman related to the person in the photograph?
 (1) Mother (2) Grandmother
 (3) Daughter (4) Cannot be determined
 (5) None of these
32. Pointing to a photograph a lady tells Mohan, "I am the only daughter of this lady and her son is your maternal uncle". How is the speaker related to Mohan's father?
 (1) Wife
 (2) Sister-in-law
 (3) Either of the two
 (4) Neither of the two
 (5) Cannot be determined
33. A is the mother of B. B's father C has three children. Based on these information, state which of the following statements is definitely true?
 (1) C has three daughters
 (2) C has three sons
 (3) B is a male child
 (4) B has two sisters
 (5) None of these
34. A is B's brother. A is C's brother. To find out how B is related to C, which of the following is the minimum further information necessary, if any?
 I. C's sex II. B's sex
 (1) Only I is necessary
 (2) Only II is necessary
 (3) Either I or II is necessary
 (4) Both I and II are necessary
 (5) Neither I nor II is necessary

35. Is D brother of F? To find out the answer which of the following information given in the statements A and B is/are sufficient?
- B has two Sons of which F is one.
 - D's mother is married to B.
 - Both A and B together are needed
 - Both A and B together are not sufficient
 - Only A is sufficient
 - Only B is sufficient
 - Either A or B is sufficient
36. Introducing a man to her husband, a woman said, "His brother's father is the only son of my paternal grandfather." How is the woman related to the man?
- Aunt
 - Mother
 - Daughter
 - Mother-in-law
 - Sister
37. Pointing to a photograph, a lady tells a boy, "I am the only daughter of this lady and her son is your maternal uncle." How is the speaker related to the boy's father?
- Sister-in-law
 - Wife
 - Either (1) or (2)
 - Neither (1) nor (2)
 - None of these
38. Pointing to a woman, a man said, "Her husband's mother is the wife of my father's only son". How is the man related to the woman?
- Son
 - Father-in-law
 - Uncle
 - Father-in-law
 - Grandfather
39. Introducing a lady, a man said, "Her mother's husband's sister is my mother". What is the man's relationship with the lady?
- Cousin
 - Nephew-Aunt
 - Father-daughter
 - Data insufficient
 - None of these
40. D is the son of J who is son of F. P is the daughter of R. If N is the sister of P and daughter of J, what is J's relationship with R?
- Brother
 - Father
 - Husband
 - Uncle
 - None of these
- Directions (41 - 45): Read the information given below and answer the following questions.**
- P is the father of R, but R is not his son. T is the daughter of R. U is the wife of P. Q is the brother of R. S is the son of Q. V is the wife of Q. W is the father of V.
- Who is the Grandmother of S?
 - W
 - P
 - R
 - None of these
 - Who is the son of U?
 - Q
 - R
 - T
 - Cannot be determined
 - Who is the Father-in-law of Q?
 - R
 - P
 - T
 - W
 - None of these
 - Who is the sister-in-law of R?
 - S
 - V
 - U
 - Cannot be determined
 - Who is the cousin of T?
 - R
 - Q
 - W
 - S
 - None of these
- Directions (46 - 50): Read the following statements and answer the questions given below :**
- Radha and Minilal have two children - Divya and Simmi. Divya got married to Anuj, who is the son of Madhu and Jabbar. Reshma is the daughter of Anuj. Anuj's sister Kiran got married to Subodh and Tarun and Aman are their sons. Tarun is the grandson of Madhu and Jabbar.
- What is the relationship between Aman and Reshma?
 - Uncle - Niece
 - Father - Daughter
 - Husband - Wife
 - Cousins
 - None of these
 - How is Subodh related to Jabbar?
 - Son-in-law
 - Son
 - Brother
 - Father-in-law
 - None of these

48. How is Reshma related to Kiran?
 (1) Niece (2) Daughter (3) Mother
 (4) Aunt (5) None of these
49. How is Divya related to Kiran?
 (1) Aunt
 (2) Grandmother
 (3) Sister-in-law
 (4) Sister
 (5) None of these
50. Which of the following statements is definitely true?
 (1) Aman is the son of Simmi
 (2) Madhu is the Mother-in-law of Subodh
 (3) Reshma is the cousin of Kiran
 (4) All the three are true
 (5) None of these

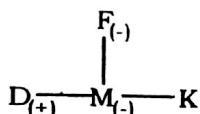
Answers with Explanation:

Note: The symbol '+' indicates male, '-' indicates female, \leftrightarrow indicates married couples.

1. 2; $A_{(-)} - B - D_{(-)} - C_{(+)}$

Obviously, B is either brother or sister of D.

2. 3;

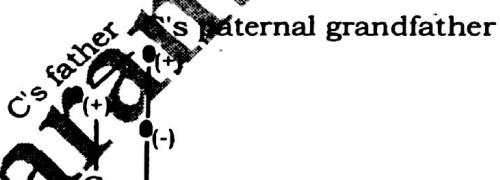


Obviously, K is either son or daughter of F.

3. 3; $B_{(+)} - D_{(-)} - E_{(+)} - F$

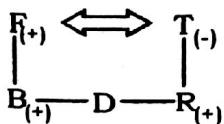
Obviously, F is either brother or sister of B.

4. 1;



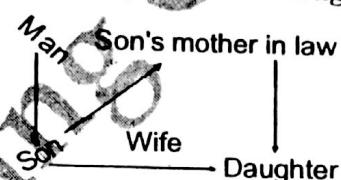
Look at the shown family tree. B is child of the sister of C's father. Therefore, C's father is the maternal uncle of B.

5. 4;

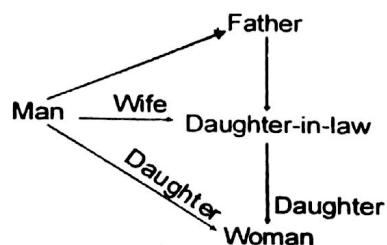


Here, the gender of D is not known. Therefore, D is either son or daughter of

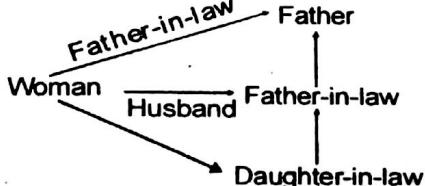
- T. Since, we can't answer exactly, hence opt 'Data inadequate' as our answer.
6. 5; Paternal grandfather of Seema's son implies father of Seema's husband i.e. Seema's father-in-law.
7. 1; Only daughter-in-law of one's paternal grandfather implies one's mother. Again, the daughter of one's mother implies one's sister.
 Thus, Mohan is the brother of the girl.
8. 1; If B's mother is the mother-in-law of A's mother then A's mother is the daughter-in-law of B's mother.
9. 3; Only daughter of the mother-in-law of one's son implies one's daughter-in-law.



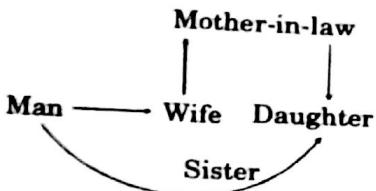
10. 2; One's father's only daughter-in-law implies one's wife. Again, the only daughter of one's wife implies one's daughter. Thus, the woman is speaker's daughter.



11. 5; Woman's daughter-in-law's father-in-law implies woman's husband. Again, the father of woman's husband implies woman's father-in-law. Hence, the man is woman's father-in-law.

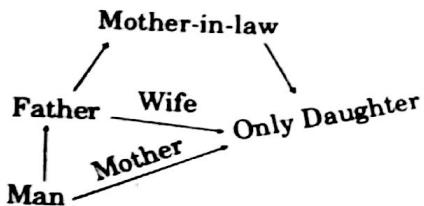


12. 3; The only daughter of one's wife's mother-in-law implies the only daughter of one's mother. Again, only daughter of one's mother implies one's sister. Hence, the woman is the sister of the man.

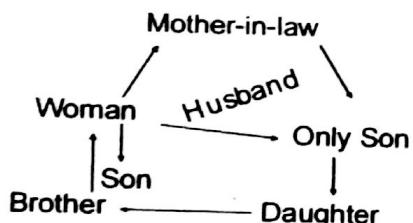


implies woman's wife. Now, the mother-in-law of man's wife implies man's mother.

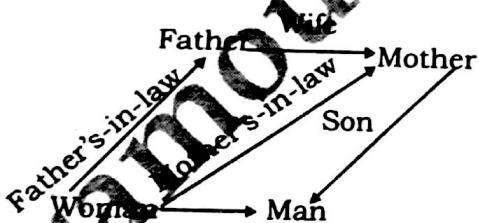
- 13.2; Note that only daughter of one's father's mother-in-law implies one's mother. Hence, the woman is the mother of the man.



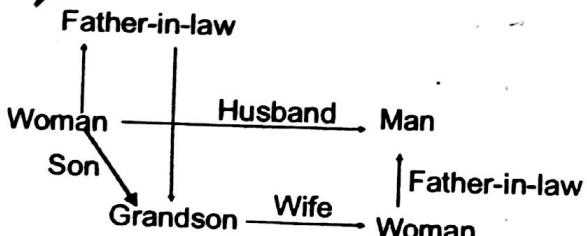
- 14.1; Woman's mother-in-law's only son implies woman's husband. Now, the brother of the daughter of woman's husband implies woman's son.



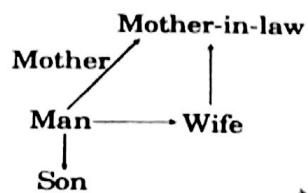
- 15.5; Woman's husband's father implies woman's father-in-law. Now, the wife of woman's father-in-law implies woman's mother-in-law. Again, only son of woman's mother-in-law implies woman's husband.



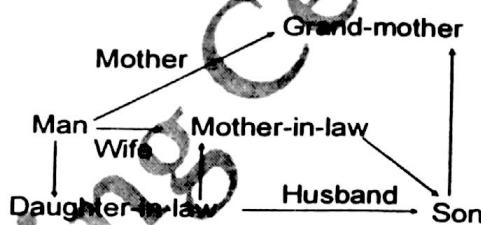
- 16.2; The only paternal grandson (who has no uncle) of woman's father-in-law implies woman's son. Now, the father-in-law of the wife of woman's son implies woman's husband.



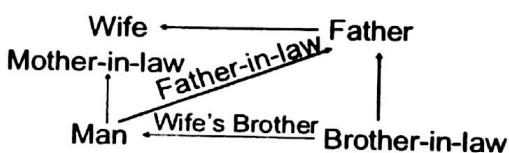
- 17.5; The wife of the father of man's only son



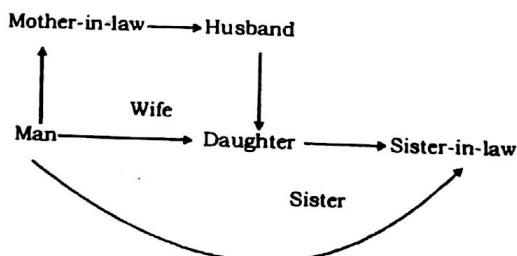
- 18.1; Man's daughter-in-law's mother-in-law implies man's wife. Now, the paternal grandmother of the son of man's wife implies man's mother.



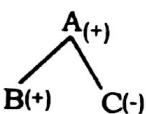
- 19.2; The father of man's wife's brother implies man's father-in-law. Again, the wife of man's father-in-law implies man's mother-in-law.



- 20.5; Only child of man's mother-in-law's husband implies man's wife. Now, the sister-in-law of man's wife implies man's sister.

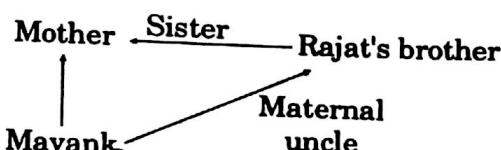


- 21.1;



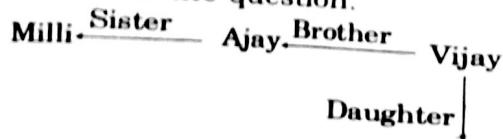
Obviously, C is the daughter of A.

- 22.2; Mother's brother implies maternal uncle.



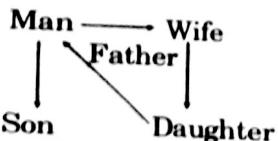
23.4; Here, we need some more information

to answer the question.

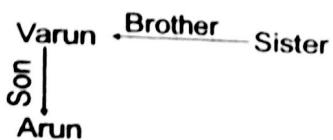


- 24.2; The father of man's wife's daughter implies man himself. Thus, the introduced boy is man's son.

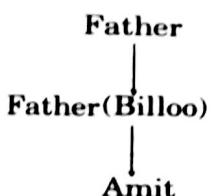
30.5;



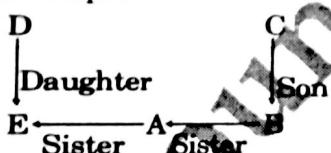
- 25.1; Varun's sister's only brother implies varun himself. Thus, the introduced boy is the son of Varun.



- 26.3; According to the given information Billoo, is the father of Amit.



- 27.4; Here, the genders of D and C are not known. But it is clear that D and C are married couple.

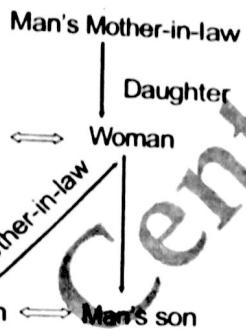
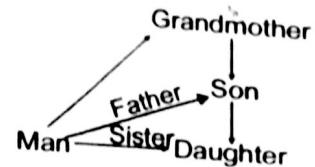


28.4;



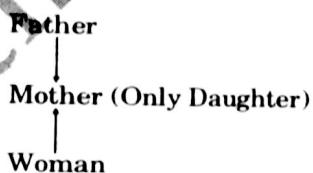
Thus, the given information is not sufficient to answer the question.

- 29.4; Man's paternal grandmother's only son implies man's father. Now, the daughter of man's father implies man's sister.

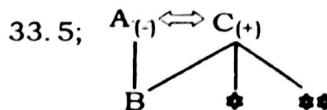
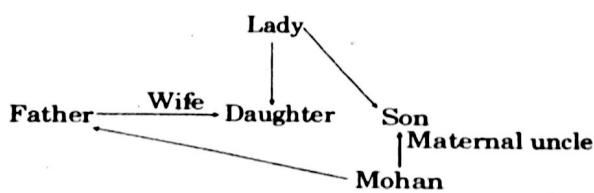


Look at the diagram shown. It is clear that the man is the father-in-law of the woman sitting with him (the man).

- 31.1; The only daughter of woman's mother's father implies woman's mother.



- 32.1; According to the given information, Mohan is the child of the speaker (woman). Therefore, the speaker is the wife of Mohan's father.



We have no information regarding the gender of off springs of A and C. Therefore, all the given statements are doubtful.

- 34.2; C — A ⁽⁺⁾ — B

Here, the question is :

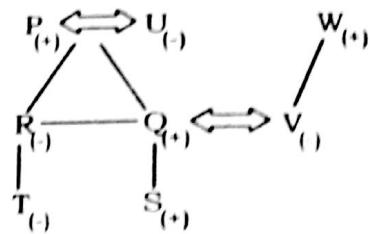
how is B related to C?

Now, we need only the gender of B.

- 35.2; Both statements A and B even together are not sufficient to answer the question.

According to the given information, we can conclude that D is the child of B. It is not necessary that D is one of the two sons of B. D may be daughter of B.

41 - 45:



41. 4 42. 1 43. 4 44. 2 45. 4

36. 5; The only son of woman's paternal grandfather is woman's father.

Now, the son of woman's father is woman's brother.

Thus, the woman is the sister of the man.

37. 4; According to the given information, the speaker is the mother of the boy.

38. 4; The wife of speaker's (the man) father's only son implies the wife of the speaker.

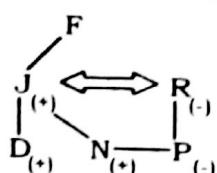
Now, we can conclude that woman's husband's mother is speaker's wife.

Thus, the speaker is woman's father-in-law.

39. 1; Note that woman's mother's husband's sister is woman's paternal aunt.

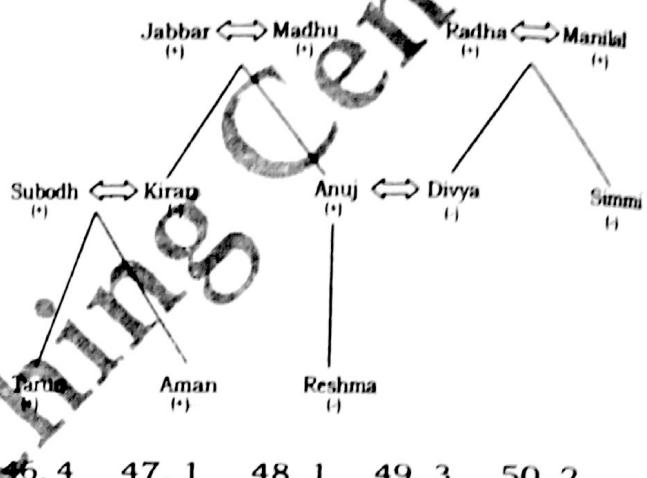
Now, the son of woman's paternal aunt is the cousin of the woman.

40. 3;



Obviously, J is the husband of R.

46 - 50:



46. 4 47. 1 48. 1 49. 3 50. 2

CODED RELATIONSHIP

Directions (1 - 10): Read the following information carefully and answer the questions given below:

- (i) $P + Q$ means P is the father of Q .
 - (ii) $P - Q$ means P is the mother of Q .
 - (iii) $P \times Q$ means P is the brother of Q .
 - (iv) $P + Q$ means P is the sister of Q .
 - (v) $P \diamond Q$ means P is the son of Q .
 - (vi) $P \# Q$ means P is the daughter of Q .
1. How is A related to F in the given expression?

$$A + B \times C + D \diamond E \# F$$
 - (1) Son (2) Son-in-law
 - (3) Brother (4) Father-in-law
 - (5) None of these
 2. How is A related to F in the given expression?

$$A \diamond B \div C \# D + E \diamond F$$
 - (1) Paternal Grandson
 - (2) Maternal grandson
 - (3) Paternal granddaughter
 - (4) Maternal granddaughter
 - (5) None of these
 3. How is A related to F in the given expression?

$$A \# B + C \diamond D - E \div F$$
 - (1) Brother (2) Cousin
 - (3) Sister (4) Father
 - (5) None of these
 4. How is A related to F in the given expression?

$$A \diamond B + C \div D + E \div F$$
 - (1) Brother (2) Sister
 - (3) Father (4) Uncle
 - (5) Cousin
 5. How is A related to F in the given expression?

$$A + B \div C \times D + E \# F$$
 - (1) Brother (2) Father
 - (3) Cousin (4) Husband
 - (5) None of these

6. How is F related to A in the given expression?

$$A \# B - C \diamond D + E + F$$
 - (1) Brother (2) Sister
 - (3) Cousin (4) Brother or Sister
 - (5) None of these
 7. How is F related to A in the given expression?

$$A \diamond B \times C \# D + E \diamond F$$
 - (1) Father
 - (2) Paternal grandfather
 - (3) Maternal grandfather
 - (4) Uncle
 - (5) None of these
 8. How is F related to A in the given expression?

$$A \diamond B \times C + D \times E - F$$
 - (1) Brother (2) Sister
 - (3) Cousin (4) Aunt
 - (5) None of these
 9. How is F related to A in the given expression?

$$A + B - C \times D + E \times F$$
 - (1) Paternal grandson
 - (2) Paternal granddaughter
 - (3) Maternal grandson
 - (4) Maternal granddaughter
 - (5) Maternal grandson or granddaughter
 10. How is F related to A in the given expression?

$$A \# B \times C + D \times E \# F$$
 - (1) Aunt (2) Mother
 - (3) Grandmother
 - (4) Sister
 - (5) None of these
- Directions (11 - 20): Read the following information carefully and answer the questions given below:**
- (i) $A + B$ means B is the father of A .
 - (ii) $A - B$ means B is the mother of A .
 - (iii) $A \times B$ means B is the brother of A .
 - (iv) $A + B$ means B is the sister of A .
 - (v) $A \diamond B$ means B is the son of A .
 - (vi) $A \# B$ means B is the daughter of A .

11. How is P related to U in the given expression?
 $U - T \# S + R \diamond Q \# P$
(1) Daughter (2) Sister (3) Niece
(4) Aunt (5) None of these
12. How is P related to U in the given expression?
 $U \times T + S \diamond R \div Q \diamond P$
(1) Brother (2) Son (3) Cousin
(4) Nephew (5) None of these
13. How is P related to U in the given expression?
 $U + T \times S \div R \times Q + P$
(1) Father
(2) Paternal grandfather
(3) Maternal grandfather
(4) Great grandfather
(5) None of these
14. How is P related to U in the given expression?
 $U + T \diamond S \times R - Q \times P$
(1) Father
(2) Paternal uncle
(3) Maternal uncle
(4) Grandfather
(5) None of these
15. How is P related to U in the given expression?
 $U - T \# S \div R + Q \div P$
(1) Sister (2) Mother
(3) Grandmother (4) Aunt
(5) None of these
16. How is U related to P in the given expression?
 $U \# T \times S \div R \times Q \times P$
(1) Paternal grandfather
(2) Paternal grandmother
(3) Maternal grandfather
(4) Maternal grandmother
(5) Data inadequate
17. How is U related to P in the given expression?
 $U \# T \times S \div R \times Q + P$
(1) Husband (2) Wife
(3) Sister (4) Mother-in-law
(5) None of these
18. How is U related to P in the given expression?
 $U \# T - S \# R \div Q \# P$
(1) Maternal grandfather
(2) Maternal grandmother
(3) Paternal grandfather
(4) Paternal grandmother
(5) Data Inadequate
19. In which of the given expression P is the brother of U?
(1) $U \times T \div S - R + Q \# P$
(2) $U \times T \times S - R + Q \times P$
(3) $U \div T - S + R + Q \times P$
(4) $U \div T - S \# R + Q \div P$
(5) $U \div T - S \# R + Q \diamond P$
20. In which of the given expression P is the mother-in-law of U?
(1) $U \diamond T \times S \div R - Q - P$
(2) $U \# T \div S \times R - Q + P$
(3) $P \diamond Q \times R \div S - T - U$
(4) $P \# Q \div R \div S - T + U$
(5) $U \# T - S \div R \diamond Q + P$
- Directions (21 - 25): Read the following information carefully and answer the questions which follow:**
- (i) A \times B means A is father of B.
 - (ii) A $+ B$ means A is daughter of B.
 - (iii) A $\div B$ means A is mother of B.
 - (iv) A $- B$ means A is brother of B.
21. If ' $P + Q - R \div T$ ', how is T related to P?
(1) Aunt (2) Brother (3) Father
(4) Grandmother (5) Cousin
22. Which of the following means that R is wife of P?
(1) $P \times R - Q - T$ (2) $P \div T + R - Q$
(3) $P \div R - Q + T$ (4) $P \times T - Q + R$
(5) None of these
23. If ' $P \times T \div Q + R$ ' how is R related to P?
(1) Daughter
(2) Husband
(3) Son-in-law
(4) Son-in-law or Daughter-in-law
(5) None of these

24. If ' $P \div R - Q \times T$ ', how is P related to T?
 (1) Grandmother
 (2) Mother-in-law
 (3) Sister
 (4) Grandfather
 (5) None of these
25. If ' $P \div Q + R \times T$ ' how is T related to Q?
 (1) Aunt (2) Sister
 (3) Brother (4) Grandson
 (5) Brother or Sister
- Directions (26 - 30): Read the following information carefully and answer the questions, which follow:**
- (i) A - B means A is father of B.
 - (ii) A + B means A is daughter of B.
 - (iii) A \div B means A is son of B.
 - (iv) A \times B means A is wife of B.
26. How is P related to T in the expression ' $P + S - T$ '?
 (1) Sister (2) Wife (3) Son
 (4) Daughter (5) None of these
27. In the expression ' $P \times Q - T$ ' how is T related to P?
 (1) Daughter (2) Son (3) Mother
 (4) Can't be determined
 (5) None of these
28. Which of the following means P is wife of T?
 (1) $P \times S \div T$ (2) $P \div S \times T$ (3) $P - S \div T$
 (4) $P + T \div S$ (5) None of these
29. Which of the following means P is maternal grandson of S?
 (1) $P + Q - S$ (2) $P \div Q \times S$ (3) $P \div Q + S$
 (4) $P \times Q \div S$ (5) None of these
30. In the expression ' $P + Q \times T$ ' how is T related to P?
 (1) Mother (2) Father (3) Son
 (4) Brother (5) None of these
- Directions (31 - 35): Read the following information carefully and answer the questions, which follow:**
- (i) A - B means A is daughter of B.
 - (ii) A + B means A is wife of B.
 - (iii) A \div B means A is father of B.
 - (iv) A \times B means A is son of B.
31. In the expression ' $P \times R - S$ ' how is P related to S?
 (1) Father (2) Grandfather
 (3) Maternal Grandson
 (4) Sister (5) None of these
32. Which of the following means S is son-in-law of P?
 (1) $P + R \times S$ (2) $P \div R \times S$ (3) $P - R \div S$
 (4) $P \div R + S$ (5) None of these
33. In the expression ' $P - Q + S$ ' how is S related to P?
 (1) Mother (2) Father
 (3) Brother (4) Sister
 (5) None of these
34. How is P related to S in the expression: ' $P \times Q \div S$ '?
 (1) Brother (2) Wife (3) Son
 (4) Sister (5) Can't be determined
35. How is S related to P in the expression ' $P + R \div S$ '?
 (1) Son (2) Daughter
 (3) Daughter-in-law
 (4) Sister (5) Can't be determined
- Directions (36 - 40): Study the following information carefully and answer the questions given below:**
- (i) $P \times Q$ means P is brother of Q.
 - (ii) $P - Q$ means P is mother of Q.
 - (iii) $P + Q$ means P is sister of Q.
 - (iv) $P \div Q$ means P is father of Q.
36. How is W related to M in the expression $W + T \div R \times M$?
 (1) Maternal aunt
 (2) Paternal aunt
 (3) Grandmother
 (4) Data inadequate
 (5) None of these
37. How is K related to D in the expression $D - J + M \div K$?
 (1) Grandson (2) Nephew (3) Niece
 (4) Data inadequate
 (5) None of these
38. How is R related to M in the expression $M + J \div T \times R$?
 (1) Nephew (2) Niece
 (3) Nephew or Niece
 (4) Data inadequate
 (5) None of these

39. Which of the following expression represents T is nephew of J?
 (1) $J \times M - F \times T$ (2) $J \times M - F + T$
 (3) $J \times M + F \times T$ (4) $J \times M + F + T$
 (5) None of these
40. Which of the following expression represents B is the paternal uncle of H?
 (1) $B \times M + H$ (2) $B + M + H$
 (3) $B \times M + H$ (4) $B + M - H$
 (5) None of these

Directions (41 - 45): These questions are based on the following information:

P © Q means Q is the brother of P.
 P # Q means P is the daughter of Q.
 P = Q means Q is the sister of P.
 P £ Q means P is the son of Q.
 P + Q means P is the father of Q.
 P @ Q means P is the mother of Q.

41. Which of the following is a **correct** conclusion drawn from the expression ' $Q \& N @ S \circ M = P?$ '
 (1) S is the brother of P.
 (2) N has two sons and two daughters.
 (3) S is the sister of Q.
 (4) P is the sister of Q.
 (5) None of these
42. What does the expression ' $P @ R = S \circ T \& V$ ' mean?
 (1) V is the husband of P.
 (2) R is the son of V.
 (3) R is the daughter of V.
 (4) V is the wife of P.
 (5) None of these

43. Which of the following indicates that 'C' is the paternal uncle of D?
 (1) $C \& V \# @ B \circ D$
 (2) $C \& V \circ L \circ N \circ D$
 (3) $D \& L \circ N @ V \circ C$
 (4) $D \& V \circ V @ L \circ C$
 (5) None of these

44. Which of the following indicates that 'Q' is the daughter of N?
 (1) $Q + P \# C @ N @ V$
 (2) $N + P \# C @ Q @ V$
 (3) $M @ N \# R + Q$
 (4) $M \circ Q = V \# N$
 (5) None of these

45. Which of the following is the **correct** conclusion drawn from the expression

- 'L = M # N \circ P + Q'?
 (1) Q is the grandson of M.
 (2) L is the uncle of N.
 (3) N is the uncle of Q.
 (4) Q is the niece of N.
 (5) None of these

Directions (46 - 50): These questions are based on the following information:

P = Q means Q is the father of P.
 P + Q means P is the sister of Q.
 P # Q means Q is the mother of P.
 P \$ Q means P is the brother of Q.
 P £ Q means Q is the son of P.
 P × Q means P is the daughter of Q.

46. Which of the following is not correct?
 (1) $L \$ M + O$ means O is the sister of L.
 (2) $M + O \circ P = Q$ means Q and O are husband and wife.
 (3) $P = Q + R$ means R is the grandmother of P.
 (4) $R \times S \# T$ means R is the granddaughter of T.
 (5) All are correct
47. Which of the following is **correct**?
 (1) $L \& M \$ R$ means R is the paternal uncle of L.
 (2) $M \$ R + D \# V$ means M is the son of V.
 (3) $D \# V \times T$ means D is the granddaughter of T.
 (4) $V \times T + P$ means P is the maternal uncle of V.
 (5) None is correct

48. Which of the following indicates 'A' is the grandfather of B?
 (1) $M \times A = N = B$ (2) $B \$ L \times Q \times A$
 (3) $L + B = S \$ Q = A$ (4) $B \times L \times A$
 (5) None of these
49. Which of the following means 'F' is the paternal uncle of G?
 (1) $L = F \$ Q \& G$ (2) $G \times M + F \$ L$
 (3) $N \$ F \$ L \times G$ (4) $G \times L \$ F \$ N$
 (5) None of these

50. ' $S \times M + B \& L = F \# Q$ ' reveals which of the following relations?
 (1) M is the maternal aunt of L.
 (2) L is the granddaughter of Q.
 (3) B is the paternal uncle of S.
 (4) F and B are brother and sister.
 (5) None of the above relations gets revealed.

Answers with explanations:

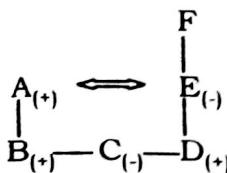
1 - 10 :

1 to 10 are questions related with **Forward Type** coding. In this type of coding, symbol focusses on the element which is at forward position. Here, P + Q means P is the father of Q.

The symbol '+' focusses on P, the element at forward position.

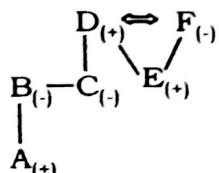
In this type of questions, you are advised to read the expression from left to right. Make a family tree carefully and answer the related questions.

1. 2;



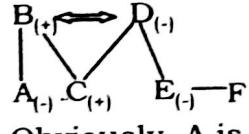
Obviously, A is the son-in-law of F.

2. 2;



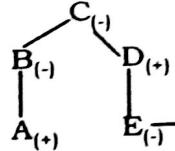
Obviously, A is the maternal grandson of F.

3. 3;



Obviously, A is the sister of F.

4. 5;



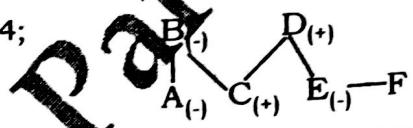
Obviously, A is the cousin of F.

5. 4;



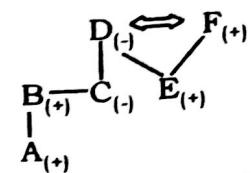
Obviously, A is the husband of F.

6. 4;



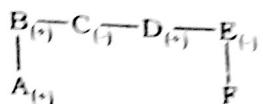
Here, the gender of F is not known.
Therefore, F is either brother or sister of A.

7. 2;



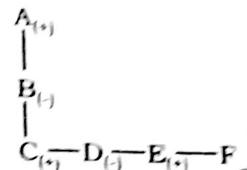
Obviously, F is the paternal grandfather of A.

8. 3;



Obviously, F is the cousin of A.

9. 5;



Here, the gender of F is not known.

Therefore, F is either maternal grandson or maternal granddaughter of A.

10. 1;



Obviously, F is the aunt of A.

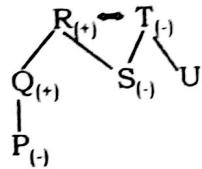
11 - 20:

11 to 20 are questions related with **Backward Type** coding. In this type of coding, symbol focusses on the element which is at backward position.

Here, A + B means B is the father of A. The symbol '+' focusses on B, the element at backward position.

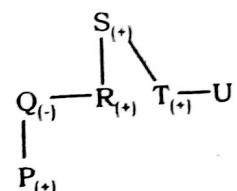
In this type of questions, you are advised to read the expression from right to left. Make a family tree carefully and answer the related questions.

11. 3;



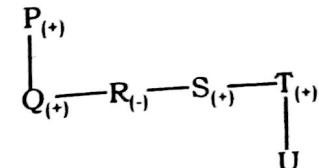
Obviously, P is the niece of U.

12. 4;



Obviously, P is the nephew of U.

13. 2;



Obviously, P is the paternal grandfather of U.