Blood Relation

INTRODUCTION

Problems based on blood relations are very important segment of analytical reasoning. The question papers of almost every competitive exams of objective type include questions based on blood relation. Particularly for getting jobs in banking sectors, one has a good skill of solving such questions. In this chapter, we are giving quicker approach to crack problems based on blood relation.

MEANING OF BLOOD RELATION

Blood relation does mean biological relation. Remember a wife and husband are not biologically related but they are biological parents of their own children. Similarly, brother, sister, paternal grandfather, paternal grandmother maternal grandfather, maternal grandmother, grandson, granddaughter, niece, cousin etc. are our blood relatives.

Types of Blood Relations

There are mainly two types of blood relatives:
(i)   Blood relation from paternal side
(ii) Blood relation from maternal side
Now, we will discuss both kind of relations one-by one.
(i)   **Blood relation from paternal side :** This type of blood relation can be further subdivided into three types:
  (a) Past generations of father : Great grandfather, great grandmother, grandfather, grandmother etc.
  (b) Parallel generations of father: Uncles (Brothers of father). aunts (sisters of father) etc.
  (c) Future generations of father: Sons, daughters, grandsons, granddaughters etc.
(ii) **Blood relation from maternal side:** This type of blood relations can also be subdivided into three types:
  (a) Past generations of mother: Maternal great grandfather, maternal great grandmother, maternal grandfather, maternal grandmother etc.
  (b) Parallel generations of mother: Maternal uncles, maternal aunts etc.
  (c) Future generations of mother: Sons, daughters, grandsons, granddaughters etc.
In the examinations, the questions are given in complicated way. In other words, in the given questions, the easy relationship takes the complicated form and examinees are expected to solve this complication in order to find out the correct answer. How does an examinee get aid of this complication? For this, an examinee sees the given data in the question with a serious eye; then tries to establish relation among elements of given data on the basis of certain logic and finally finds out the required answer. In fact complications in the asked question occur because of the given indirect relation. It does mean questions are in the form of indirect relation & one has to convert this indirect relation into direct relation. For example "only son of my father" does mean 'me' (myself). Here in place of 'me' indirect relation has been given in form of "only son of my father". Similarly, "the only daughter of the parents in laws of the husband of Vandana" does mean 'Vandana' herself. In this example also the sentence "the only daughter of the parents in laws of the husband of 'Vandana' has been given in the form of indirect relation. Below are given some indirect relation in the form of a list. Examinees are required to learn them by heart. If are keeps this list in one's mind, he/she will find it very easy to solve problems based on blood relations.

1.	Son of father or mother	:	Brother
2.	Daughter of father or mother	:	Sister
3.	Brother of father	:	Uncle
4.	Brother of mother	:	Maternal uncle
5.	Sister of father	:	Aunt
6.	Sister of mother	:	Aunt
7.	Father of father	:	Grandfather
8.	Father of father of father	:	Great grand father
9.	Father of grandfather	:	Great grandfather
10.	Mother of father	:	Grandmother
11.	Mother of mother of father	:	Great grandmother
12.	Mother of grandmother	:	Great grandmother
13.	Father of mother	:	Maternal grandfather
14.	Father of father of mother	:	Great maternal grand father
15.	Father of maternal grandfather	:	Great maternal grandfather
16.	Mother of mother	:	Maternal grandmother
17.	Mother of mother of mother	:	Great maternal grandmother
18.	Mother of maternal grandmother	:	Great maternal grandmother
19.	Wife of father	:	Mother
20.	Husband of mother	:	Father
21.	Wife of Grandfather	:	Grandmother
22.	Husband of Grandmother	:	Grandfather
23.	Wife of son	:	Daughter-in-law
24.	Husband of daughter	:	Son-in-law
25.	Brother of Husband	:	Brother-in-law
26.	Brother of wife	:	Brother-in-law
27.	Sister of Husband	:	Sister-in-law
28.	Sister of wife	:	Sister-in-law
29.	Son of brother	:	Nephew
30.	Daughter of brother	:	Niece

31.	Wife of brother	:	Sister-in-law
32.	Husband of sister	:	Brother-in-law
33.	Son of sister	:	Nephew
34.	Daughter of sister	:	Niece
35.	Wife of uncle	:	Aunt
36.	Wife of maternal uncle	:	Aunt
37.	Son/daughter of uncle/Aunt	:	Cousin
38.	Son/daughter of maternal uncle/maternal aunt	:	Cousin
39.	Son/daughter of sister of Father	:	Cousin
40.	Son/daughter of sister of Mother	:	Cousin
41.	Only son of grandfather	:	Father
42.	Only daughter of maternal grandfather	:	Mother
43.	Daughter of grandfather	:	Aunt
44.	Sons of grandfather other than father	:	Uncle
45.	Son of maternalgrandfather /maternal grand mother	:	Maternal Uncle.
46.	Only daughter in law of grandfather/ grandmother	:	Mother
47.	Daughters in law of grandfather/ grandmother	:	Aunt other than mother
48.	Daughters-in-law of maternal grandfather/ maternal grandmother	:	Aunt maternal grandmother
49.	Neither brother nor sister	:	Self

Note : 1. Any relation of Mother's side is called "Maternal".

2. Any relation of Father side is called "Pater nal ".

Some important information about blood relation

A. Without the information of gender, no relationship can be established between two people. For example, If given that R is the child of P & Q, then we can only say that P & Q are the parents of R. But we can not find out:

(i) R is the son of P & Q or R is the daughter of P & Q.

(ii) Who is mother of R and who is father of R.

But if we have given that P is a male, Q is a female and R is male, then we can easily say that R is the son of P and Q. Further we can also say that P is father of R and Q is mother of R.

B. Gender can not be decided on the basis of name. For example in Sikh community the names like Manjit, Sukhvinder etc. are the names of both male and female. Similarly, in the Hindu Community 'Suman' is the name of both male and female.

Remember: Solution Tips

(a) While solving blood relation based question, first of all find out that two persons between whom a relationship has to be established.

(b) Next, try to find out middle relation

(c) Finally findout the relationship between two persons to be identified for this purpose.

TYPE OF PROBLEMS

(1) General problems of blood relation

(2) Blood relation based on family tree

(3) Coded blood relationship.

Now, we will discuss all the three types of problems one by one

(1) GENERAL PROBLEM OF BLOOD RELATION

EXAMPLE ▸ **1. Pointing towards a photograph, Mr. Sharma said, "She is the only daughter of mother of my brother's sister." How is Mr. Sharma related to the lady in the photograph?**

    (a) **Cousin**   (b) **Sister**

    (c) **Aunt**   (d) **Daughter in law**

    (e) **None of these**

Sol. Here we have to find relationship between Mr. Sharma & the lady in the photograph.

Mother of my brother's sister does mean my (Mr. Sharma's) mother. Only daughter of Mr. Sharma's mother does mean "sister of Mr. Sharma". Hence option (b) is the correct answer.

(2) BLOOD RELATION BASED ON FAMILY TREE

EXAMPLE ▸ **2. Q is the brother of C and C is the sister of Q. R and D are brother and sister. R is the son of A while A and C are wife and husband. How is Q related with D.**

For such type of question a family tree is made in which some symbols are used as below:

'⇔' is used for husband & wife.
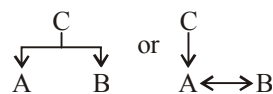
'—' or '↔' is used for brother & sister

' | ' is used for parents (father or mother). Parents are put on top while children are put at the bottom.

'–' (minus sign) or 'O' is used for female.

'+' (plus sign) or ▢ is used for male.

- Gender of A is unknown ⇒ A
- A and B are married to each other ⇒ A ⇔ B
- A and B are sebling ⇒ A ↔ B or A – B
- A and B are children of C.

$$\begin{array}{ccc} & C & \\ & \big| & \\ \downarrow & \quad \downarrow & \\ A & \quad B & \end{array} \quad \text{or} \quad \begin{array}{c} C \\ \big| \\ \downarrow \\ A \longleftrightarrow B \end{array}$$

- B is only child of A and A is mother of B.

$$\begin{array}{c} \text{Ⓐ} \\ \downarrow \\ B \end{array}$$

Now adopting and using the above given symbols we can make a family tree and solve the given problem, let us see the family tree for sample question:

EXAMPLE ▸ **3. Q is the brother of C and C is the sister of Q. R and D are brother and sister. R is the son of A while A & C are wife and husband. How is Q related with D.**

$$A^+ \longleftrightarrow C^- \text{———} Q^+$$
$$\big|$$
$$R^+ \text{———} D^-$$
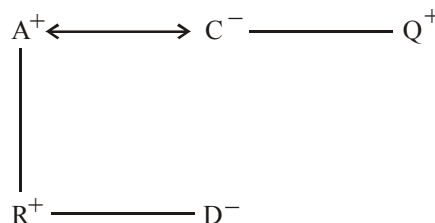
As per the above example, Q is the brother of C and C is the sister of Q. Hence relation between C & Q has been presented as $\left(\overset{-}{C} \text{ — } \overset{+}{Q}\right)$ where '–' sign above C makes it clear that C is a female and '+' sign above 'Q' makes it clear that Q is a male. Similarly for R and D. The presentation $\left(\overset{+}{R} \text{ — } \overset{-}{D}\right)$ has been made. Further according to the question.

A and C are having a husband and wife relationship and hence this has been presented as $\left(\overset{+}{A} \Leftrightarrow \overset{-}{C}\right)$. As it is already given that C is the sister of Q and A and C are wife and husband, this becomes clear that A is the male member of the family and this is the reason A has '+' as its gender sign. Lastly, the vertical line gives father

and son relationship and has been presented as $\left(\begin{matrix} \overset{+}{A} \\ | \\ \overset{+}{R} \end{matrix}\right)$. Now from this family tree it becomes clear that C is the mother of R and D and as Q is the brother of C, then Q will definitely be the maternal uncle of R & D. Hence we can say that Q is the maternal uncle of D and this is the required answer for our example question.

(3) CODED BLOOD RELATIONSHIP

EXAMPLE **4. Directions:** Read the following informations carefully to give the answers of following questions:

'P × Q' means P is the brother of Q
'P – Q' means P is the sister of Q
'P + Q' means P is the father of Q
'P ÷ Q' means P is the mother of Q.
Which of the following option is the presentation of M is the nephew of N?
(a) N – K + M
(b) N × K ÷ M
(c) N ÷ K × M
(d) N – K + M × T
(e) None of these.

Sol. To solve it we will use the symbols of family tree in place of mathematical signs (+ , – , × & ÷). Let us make family tree presentation for every option:
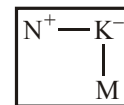
Presentation for option (a) [N – K + M]
Here gender of M can not be find out so, this option is rejected, point to be noted that even without making a family tree. You

$$N^- \text{———} K^+$$
$$|$$
$$M$$
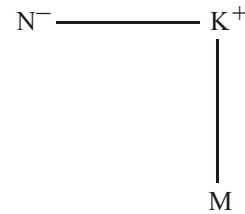
can find out that this option can not give you the gender of M. For this only a serious look at the option is enough.

Presentation of option (b) [N× K ÷ M]

$$\boxed{\begin{matrix} N^+ \text{—} K^- \\ | \\ M \end{matrix}}$$ This family tree presentation also does not give the gender of M. Like option (a) this option gives you a clear indication, only by a serious look, that gender of M can not be find out and for this making family tree is not necessary. Hence option (b) is also rejected.

Presentation of option (c) [N ÷ K × M]
Like option (a) and (b), option (c) is also rejected and only a serious look can make you clear that in this case also the gender of M can not be find out

$$\boxed{\begin{matrix} \overset{-}{N} \\ | \\ K^+ \text{—} M \end{matrix}}$$
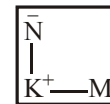
Presentation of option (d) [N – K + M × T]
This presentation makes it clear that N is the sister of K who is father of M. Here gender of M is clear that M is a male. Hence, M is clearly nephew of N.

$$\boxed{\begin{matrix} N^- \text{—} K^+ \\ | \\ M^+ \text{—} T \end{matrix}}$$
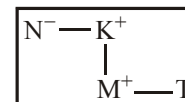
Hence for sample question option (d) is the correct answer. Now we have come to the conclusion of this chapter. Readers are advised to practice more and more to crack such questions quick as possible.

EXERCISE

1. Anil, introducing a girl in a party, said, she is the wife of the grandson of my mother. How is Anil related to the girl?
   (a) Father (b) Grandfather
   (c) Husband (d) Father-in-law
   (e) None of these

2. A man said to a woman, "Your mother's husband's sister is my aunt." How is the woman related to the man ?
   (a) Granddaughter (b) Daughter
   (c) Sister (d) Aunt
   (e) None of these

3. Introducing Rajesh, Neha said, "His brother's father is the only son of my grand father". How Neha is related to Rajesh?
   (a) Sister (b) Daughter
   (c) Mother (d) Niece
   (e) None of these

4. Vinod is the brother of Bhaskar. Manohar is the sister of Vinod. Biswal is the brother of Preetam and Preetam is the daughter of Bhaskar. Who is the uncle of Biswal?
   (a) Bhaskar (b) Manohar
   (c) Vinod (d) Insufficient data
   (e) None of these

5. A man said to a woman, "Your brother's only sister is my mother." What is the relation of the woman with the maternal grandmother of that man?
   (a) Mother (b) Sister
   (c) Niece (d) Daughter
   (e) None of these

6. Pointing to a photograph, a man said, "I have no brother or sister but that man's father is my father's son." Whose photograph was it?
   - (a) His own
   - (b) His son's
   - (c) His father's
   - (d) His nephew's
   - (e) None of these

7. Pointing to a photograph, a lady tells Pramod, "I am the only daughter of this lady and her son is your maternal uncle," How is the speaker related to Pramod's father?
   - (a) Sister-in-law
   - (b) Wife
   - (c) Sister
   - (d) Aunt
   - (e) None of these

8. Introducing a man, a woman said, "His wife is the only daughter of my mother." How is the woman related to that man?
   - (a) Aunt
   - (b) Wife
   - (c) Mother-in-law
   - (d) Maternal Aunt
   - (e) None of these

9. Deepak said to Nitin, "That boy playing with the football is the younger of the two brothers of the daughter of my father's wife." How is the boy playing football related to Deepak?
   - (a) Son
   - (b) Brother
   - (c) Cousin
   - (d) Nephew
   - (e) None of these

10. A is the mother of B. C is the father of B and C has 3 children. On the basis of this information, find out which of the following relations is correct :
    - (a) C has three daughters.
    - (b) C has three sons.
    - (c) B is the son.
    - (d) B is the daughter
    - (e) None of these.

11. 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?
    - (a) Cousin
    - (b) Sister-in-law
    - (c) Mother
    - (d) Mother-in-law
    - (e) None of these

12. A is the brother of B. A is the brother of C. To find what is the relation between B and C. What minimum information from the following is necessary?
    - (i) Gender of C
    - (ii) Gender of B
    - (a) Only (i)
    - (b) Only (ii)
    - (c) Either (i) or (ii)
    - (d) both (i) and (ii)
    - (e) None of these

13. Pointing to a girl, Abhishek said, "She is daughter of the only child of my father." How is Abhishek's wife related to that girl?
    - (a) Daughter
    - (b) Mother
    - (c) Aunt
    - (d) Sister
    - (e) None of these

14. Introducing Sarita, Meena said, "She is the only daughter of my father's only daughter." How is Meena related to Sarita?
    - (a) Niece
    - (b) Cousin
    - (c) Aunt
    - (d) Data inadequate
    - (e) None of these

15. Kalyani is mother-in-law of Veena who is Sister-in-law of Ashok. Dheeraj is father of Sudeep, the only brother of Ashok. How is Kalyani related to Ashok?
    - (a) Mother-in-law
    - (b) Aunt
    - (c) Wife
    - (d) Cousin
    - (e) None of these

16. If P $ Q means P is father of Q, P # Q means P is mother of Q, P * Q means P is sister of Q, then how is Q related to N in N # L $ P * Q?
    - (a) Grandson
    - (b) Granddaughter
    - (c) Nephew
    - (d) Data inadequate
    - (e) None of these

17. Pointing to a boy in a photograph, Akhil says, "He is the son of my mother's only son." How is Akhil related to that boy?
    - (a) Uncle
    - (b) Brother
    - (c) Father
    - (d) Cousin
    - (e) None of these

18. Pointing to a boy, Namrata says, "He is the son of my grandfather's only child." How is the boy related to Namrata?
    - (a) Brother
    - (b) Cousin
    - (c) Uncle
    - (d) Data inadequate
    - (e) None of these

19. Pointing to Kedar, Veena said, 'His mother's brother is the father of my son Nitin.' How is Kedar related to Veena?
    - (a) Niece
    - (b) Aunt
    - (c) Nephew
    - (d) Sister-in-law
    - (e) None of these

20. If 'P $ Q' means 'P is brother of Q', 'P # Q' means 'P is mother of Q' and 'P*Q' means 'P is daughter of Q', then who is the father in 'A # B $ C * D'?
    - (a) D
    - (b) B
    - (c) C
    - (d) Data inadequate
    - (e) None of these

21. Pointing to a boy, Meena says, "He is the son of my grandfather's only son." How is the boy's mother related to Meena?
    - (a) Mother
    - (b) Aunt
    - (c) Sister
    - (d) Data inadequate
    - (e) None of these

22. If '$A + B$' means 'A is brother of B', '$A - B$' means 'A is sister of B', '$A \times B$' means 'A is wife of B', and '$A \div B$' means 'A is father of B', then which of the following indicates 'S is son of P'?
    - (a) $P \times Q \div R + S - T$
    - (b) $P \times Q \div S - R + T$
    - (c) $P \times Q \div R - T + S$
    - (d) $P \times Q \div R - S + T$
    - (e) None of these

23. A + B means B is brother of A; A × B means B is husband of A; A − B means A is mother of B; and A ÷ B means A is father of B. Then which of the following expressions indicates 'P' is grandmother of 'T'?
    - (a) $Q - P + R \div T$
    - (b) $P \times Q \div R - T$
    - (c) $P \times Q \div R + T$
    - (d) $P + Q \div R - T$
    - (e) None of these

Directions (Qs. 24-25) : Read the following information carefully and answer the questions which follow.

(i)   If 'A × B' means 'A is the son of B'.
(ii)   If 'A + B' means 'A is the father of B'.
(iii) If 'A > B' means 'A is the daughter of B'.
(iv)   If 'A < B' means 'A is the wife of B'.

24. Which of the following pairs of people represent first cousins with regard to the relations given in the expressions, if it is provided that A is the sister of J : 'L > V < J + P' and 'S × A < D + F < E + K'
     (a) LP   (b) SP
     (c) SK   (d) SF
     (e) Can't be determined

25. What will come in the place of the question mark (?), if it is provided that M is the grandmother of F in the expression 'F × R < S' ? M'
     (a) >   (b) <
     (c) +   (d) ×
     (e) Can't be determined

Directions (Qs. 26-30) : Each of the questions below consists of a question and two or three statements given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.

26. Who is the uncle of L?
     A   P, brother of M, is father of L; M is father of S.
     B   R is father of L's cousin.
     (a) A alone is sufficient
     (b) B alone is sufficient
     (c) Either A alone or B alone is sufficient
     (d) Both A and B together are not sufficient
     (e) Both A and B together are necessary

27. How is A related to B?
     A   P, the only son of A, has two sisters.
     B   A's son is the brother of the only sister of B.
     C   B and P are children of A.
     (a) Both A and C are sufficient
     (b) Only B
     (c) Either A or B
     (d) Only C
     (e) None of these

28. How many daughters does W have?
     A   B and D are sisters of M.
     B   M's father T is the husband of W.
     C   Out of three children which T has, only one is boy.
     (a) Only A and C   (b) All A, B and C
     (c) Only B and C   (d) Only A and B
     (e) None of these

29. Is F grandaughter of B?
     A   B is father of M. M is the sister of T. T is the mother of F.
     B   S is the son of F. V is the daughter of F. R is the brother of T.
     (a) A alone is sufficient
     (b) B alone is sufficient
     (c) Either A alone or B alone is sufficient
     (d) Both A and B are not sufficient
     (e) Both A and B together are necessary.

30. How is P related to J?
     A   M is the brother of P and T is the sister of P
     B   P's mother is married to J's husband, who has one son and two daughters
     (a) A alone is sufficient
     (b) B alone is sufficient
     (c) Either A alone or B alone is sufficient
     (d) Both A and B are not sufficient
     (e) Both A and B together are necessary.

Directions (Qs. 31-32) : Study the following information carefully and answer the given questions based on it:

     (A) 'P × Q' means 'Q is mother of P'.
     (B) 'P + Q' means 'P is father of Q'.
     (C) 'P – Q' means 'P is brother of Q'.
     (D) 'P ÷ Q' means 'Q is sister of P'.

31. Which of the following means 'M is niece of T'?
     (a) M ÷ D + T × R   (b) T – D + R ÷ M
     (c) T × D + R ÷ M   (d) Cannot be determined
     (e) None of these

32. Which of the following statements is redundant to answer the question no. 31?
     (a) A only   (b) B only
     (c) Either A or B only   (d) Either C or D only
     (e) All are required

Directions (Qs. 33-34): Study the meaning of the given symbols and answer the questions based on it.

     (i)   'P × Q' means 'Q is mother of P'.
     (ii)   'P + Q' means 'P' is brother of Q'.
     (iii) 'P – Q' means 'P' is sister of Q'.
     (iv)   'P ÷ Q' means 'Q' is father of P'.

33. Which of the following definitely means R is grandson of K?
     (a) R × T ÷ K   (b) M + R × T ÷ K
     (c) M – R × T ÷ K   (d) Cannot be determined
     (e) None of these

34. Which of the following statements is superfluous to answer the above question?
     (a) None   (b) (i) Only
     (c) (ii) Only   (d) (iii) Only
     (e) (iv) Only

Directions (Qs. 35-36): Study the following information and answer the questions given below.

     (a) 'P ÷ Q' means 'Q is father of P'
     (b) 'P × Q' means `P is sister of Q'.
     (c) P + Q' means 'P is brother of Q'.
     (d) 'P – Q' means 'Q is mother of P'.

35. Which of the following means R is nephew of T?
     (a) R + N – Q × T   (b) R – Q × N × T
     (c) R – N × T   (d) T + M ÷ R
     (e) T – Q ÷ R

36. Which of the following is/are redundant to answer the above question?
     (a) (ii) only
     (b) (i) only
     (c) (i) and (iv) only
     (d) Either (i) and (iii) or (ii) and (iv)
     (e) Either (i) and (ii) or (iii) and (iv)

Directions (Qs. 37-38): Study the following information carefully and answer the given questions following it.

   (i)   '$P \times Q$' means 'Q' is the mother of 'P'.
   (ii)   '$P - Q$' means 'P' is the brother of 'Q'.
   (iii)   '$P + Q$' means 'P' is the father of 'Q'.
   (iv)   '$P \div Q$' means 'Q' is the sister of 'P'.

37. Which of the following means M is the daughter of K?
   (a) $K + R \div M$ (b) $K \div M + R$
   (c) $K \times R \div M$ (d) $K - R \times M$
   (e)   None of these

38. Which of the following statement(s) is redundant to answer the above question?
   (a)   Both (i) and (ii)   (b)   (i) only
   (c)   (ii) only   (d)   Either (i) or (iii) and (ii)
   (e)   None of these

Directions (Qs. 39-43): Read the following information carefully and answer the questions given below it.

(i)   There is a group of six persons A, B, C, D, E and F in a family. The are Psychologist, Manager, Lawyer, Jeweller, Doctor and Engineer.
(ii)   The Doctor is the grandfather of F who is a Psychologist.
(iii)   The Manager D is married to A.
(iv)   C, the Jeweller, is married to the Lawyer.
(v)   B is the mother of F and E.
(vi)   There are two married couples in the family.

39. What is the profession of E?
   (a)   Doctor   (b)   Jeweller
   (c)   Manager   (d)   Psychologist
   (e)   None of these

40. How is A relateed to E ?
   (a)   Brother   (b)   Uncle
   (c)   Father   (d)   Grandfather
   (e)   None of these

41. How many male members are there in the family?
   (a)   One   (b)   Three
   (c)   Four   (d)   Two
   (e)   Can't be determined

42. What is the profession of A?
   (a)   Doctor   (b)   Lawyer
   (c)   Jeweller   (d)   Manager
   (e)   None of these

43. Which of the following is one of the pairs of couples in the family?
   (a)   AB   (b)   AC
   (c)   AD   (d)   Can't be determined
   (e)   None of these

Directions (Qs. 44-48) : Read the following information carefully and answer the questions given below it.

P, Q, R, S, T and X are members of a family. There are two married couples. Q is an engineer and the father of T. X is the grandfather of R and is a lawyer. S is the grandmother of T and is a housewife. There is one engineer one lawyer, one teacher, one housewife and two students in the family.

44. Who is the husband of P ?
   (a)   R   (b)   X
   (c)   Q   (d)   S
   (e)   T

45. Which of the following are two married couples?
   (a)   XS, QP   (b)   XS, QT
   (c)   XS, RP   (d)   TS, RX
   (e)   None of these

46. Which of the following is definitely a group of a male members?
   (a)   Q, X, T   (b)   X, T
   (c)   Q, X, P   (d)   Q, X
   (e)   None of these

47. Who is the sister of T ?
   (a)   R   (b)   S
   (c)   P   (d)   Data inadequate
   (e)   None of these

48. Which of the following can be P's profession?
   (a)   Housewife   (b)   Engineer
   (c)   Teacher   (d)   Engineer or Teacher
   (e)   Housewife or Teacher

Directions (Qs. 49 and 50) : Read the following information carefully and answer the questions which follow.

(i)   If '$A \times B$' means 'A is father of B'.
(ii)   If '$A + B$' means 'A is wife of B'.
(iii)   If '$A \div B$' means 'A is daughter of B'.
(iv)   If '$A - B$' means 'A is son of B'.

49. What will come in the place of the question mark, to establish that Q is the nephew of T in the expression
               '$Q ? R \div S \times T$' ?
   (a)   +   (b)   ×
   (c)   –   (d)   ÷
   (e)   Either – or ÷

50. Which of the following relations are true based upon the relations given in the equation '$A - B \times C + D - E$'?
   (a)   C is mother of A   (b)   E is wife of B
   (c)   D is brother of A   (d)   E is mother-in-law of C
   (e)   None is true

ANSWER KEY

1	(d)	**6**	(b)	**11**	(c)	**16**	(d)	**21**	(a)	**26**	(c)	**31**	(b)	**36**	(b)	**41**	(e)	**46**	(d)
2	(c)	**7**	(b)	**12**	(d)	**17**	(c)	**22**	(d)	**27**	(a)	**32**	(a)	**37**	(a)	**42**	(a)	**47**	(d)
3	(a)	**8**	(b)	**13**	(b)	**18**	(a)	**23**	(b)	**28**	(c)	**33**	(e)	**38**	(a)	**43**	(c)	**48**	(c)
4	(c)	**9**	(b)	**14**	(e)	**19**	(c)	**24**	(b)	**29**	(d)	**34**	(a)	**39**	(e)	**44**	(c)	**49**	(c)
5	(d)	**10**	(d)	**15**	(e)	**20**	(a)	**25**	(e)	**30**	(e)	**35**	(a)	**40**	(d)	**45**	(a)	**50**	(e)

Hints & Explanations

1. **(d)** Clearly, the grandson of Anil's mother is son of Anil and wife of Anil's son is daughter in-law of Anil. Thus, Anil is the father-in-law of the girl.
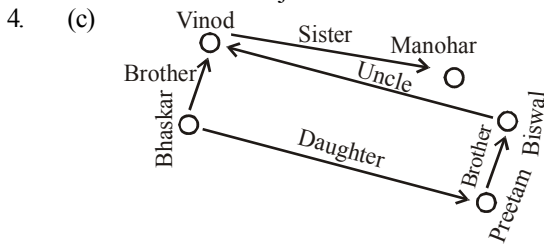
2. **(c)** Woman's Mother's husband

    ↓

    Woman's father

    Woman's father's sister ⟶ Woman's Aunt.
    Since, woman's aunt is man's aunt
    ∴ woman is sister of man.

3. **(a)** Father of Rajesh's brother is the father of Rajesh. Rajesh's father is the only son of Neha's grandfather. Hence, Rajesh's father is Neha's father. So, Neha is the sister of Rajesh.

4. **(c)**

    Thus, Vinod will be uncle of Biswal.

5. **(d)** The only sister of the brother of the woman will be the woman herself and she is the mother of that man. Thus, the woman is the daughter of the maternal grandmother of that man.

6. **(b)** Since the narrator has no brother, his father's son is he himself. So, the man who was talking is the father of the man in the photograph, i.e. the man in the photograph is his son.

7. **(b)** Clearly, the speaker's brother is Pramod's maternal uncle. So, the speaker is Pramod's mother or his father's wife.

8. **(b)** Clearly, only daughter of her mother is woman herself. So, that woman is the wife of man.

9. **(b)** Father's wife — Mother; Mother's daughter — Sister; Sister's younger brother — His brother. So, the boy is Deepak's brother.

10. **(e)**

    ∵ C has three children but we can't say that he has three daughters or three sons.
    So, options (a) and (b) are incorrect.
    Also, we don't know that B is a boy or girl.
    So, option (c) is also incorrect.

11. **(c)** Clearly, the lady is the grandmother of man's sister's son i.e., the mother of the mother of man's sister's son i.e., the mother of man's sister.
    So, the lady is man's mother.

12. **(d)** Without knowing the gender of C, we can't be determined whether B is sister of C or B is brother of C. Similarly without knowing the gender of B we can't be determined whether C is sister of B or C is brother of B. Therefore, both (i) and (ii) are necessary.

13. **(b)** Girl is daughter of the only child of Abhishek's father or, Girl is daughter of Abhishek
    Hence, girl is daughter of Abhisek's wife.

14. **(e)**

15. **(e)**
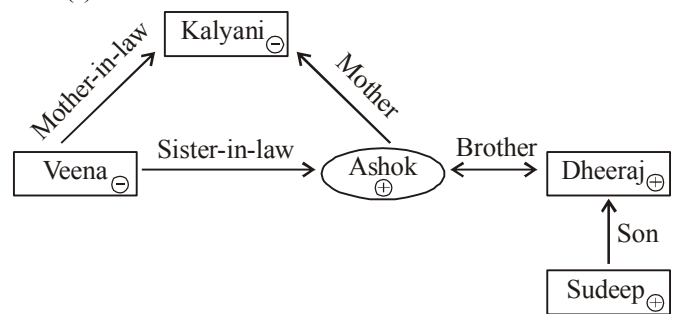
16. **(d)**

17. **(c)** Photograph is the son of Akhil's mother's only son.
    or, Photograph is the son of Akhil.
    or, Akhil is the father of the boy.

18. **(a)** Son of Namrata's grandfather's only child is Namrata's brother

19. **(c)**
    $$* \quad * \quad * \quad \text{Veena}$$
    $$(-) - (+) \Leftrightarrow (-)$$
    $$| \qquad\qquad |$$
    $$\text{Kedar}(+) \quad \text{Nitin}$$

    Hence, Kedar is Veena's nephew.

20. **(a)** Clearly, B and C are siblings. While A and D are parents. Now, A is the mother.,Hence, D must be the father.

21. **(a)** One's grandfather's only son ⇒ one's father. And the son of one's father ⇒ One's brother or oneself. Hence, the mother of the boy is Meena's mother.

22. **(d)** As 'S' is a female in options (a) and (b), they can be rejected directly. The gender of 'S' in option (c) is not known, hence, it can also be eliminated. Now, check option (d).
    $$(-)P \leftrightarrow Q(+)$$
    $$|$$
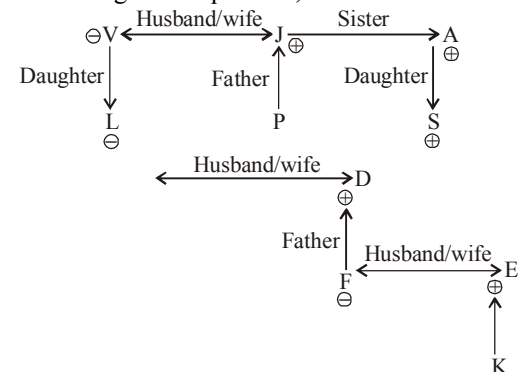 $$R(-) - S(+) - T$$
    [Clearly, S is son of P.]

23. **(b)** (c) is ruled out because we need two generation-change signs (– and ÷) between P and T. Same is the case with (a) . Again, (d) is ruled out because P + Q does not give the sex of P. Now, check (b)
    $$P(-) \leftrightarrow Q(+)$$
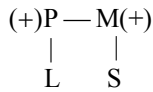 $$|$$
    $$R(-)$$
    $$|$$
    $$T$$

24. **(b)** According to the question,

    Here, S and P are first cousins.

25. (e) We cannot find the sex of M in any option. Hence, M is either grandfather or grandmother of F.

26. (c) From (A) above

$$(+)P — M(+)$$
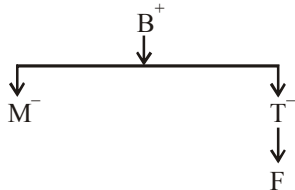$$\quad\ |\qquad\ |$$
$$\quad\ L\qquad S$$

Hence, 'M' is uncle of 'L'.
from (B) alone it is clear that
'R' is uncle of 'L'
Hence the statement can be answered by statement (A) alone or statement (B) alone.

29. (d) Using statement A :

$$B^+$$

$$M^-\qquad\qquad T^-$$

$$F$$

The gender of F is not known. So we can't say if F is granddaughter or grandson of B.
Using statement B :

$$F$$

$$S^+\qquad\qquad V^-\qquad R^+ \longleftrightarrow T$$
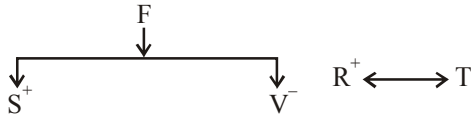
The name of B has not been mentioned. Using both the statement together. Still the gender of F cannot be determined.

30. (e) Using statement A :
We cannot find the relation using this statement as J's name is not even mentioned in it.
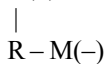Using statement B :

$$J^- \Leftrightarrow +$$

$$P$$
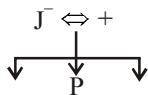
We can say that J is the mother of P but cannot decide whether P is the son or daughter of J.
Using both statements together :
We find, P is the daughter of J.

31. (b) $T(+) - D(+)$
$$\qquad\quad |$$
$$\quad R - M(-)$$

32. (a)

(33-34) :

33. (e) Reject option (a) because the equation does not tell about sex of R. Reject (b) and (c) also on the same basis. In equation 2) M is the grandson of K. This implies that with the help of the given information in the direction, it is possible to form an equation which can show that R is the grandson of K. Hence, reject (d) also.

34. (a)

35. (a) If R is nephew of T then the required equation must depict R as a male. Reject option (b) and (c) because in these equations the symbol '—' denotes the gender of Q and N respectively. The sex of R remains unknown.

Reject (d) and (e) because these equations depict R older than T. Now, check (a)
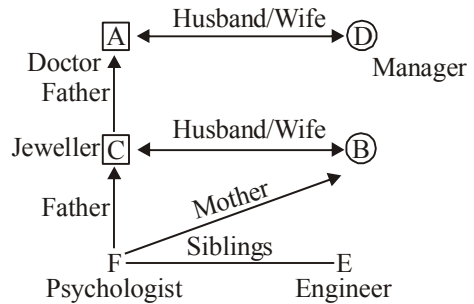
$$Q_{(-)} — T$$
$$\qquad\ |$$
$$R_{(+)} — N$$

Obviously, R is the nephew of T.

36. (b) $R + . N - Q \times T$ is the required equation to answer the previous question. Here the used symbols are '+', '−' and '×'. Therefore, redundant part of the symbols given in the direction is statement (i).

37. (a)
38. (a)

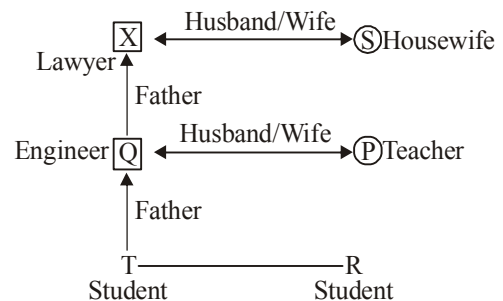**(39-43) :**

39. (e) E is an engineer.
40. (d) A is grandfather of E.
41. (e) Gender of F and E is not clear, hence total number of male cannot be determined.
42. (a) A is a doctor.
43. (c) A and D is the pair of couples in the family.

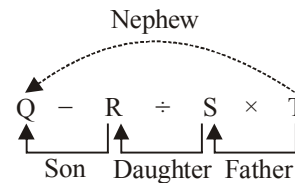**(44-48) :**

44. (c) Q is husband of P.
45. (a) XS and QP are the two married couples.
46. (d) Q and X are male members in the family.
47. (d) Gender of R is not clear. R may be sister or brother of T.
48. (c) P is a teacher.
49. (c) On putting sign (−) in place of question mark (?)

From the above figure, it is clear that Q is the nephew of T.

50. (e)

Hence, none of true.