

c. V, W and Z

d. V, Y and Z

5. If T is in Rajesh's group then which of the following is true?
 a. U cannot be in Ajay's group. b. X cannot be in Ajay's group.
 c. Y cannot be in Rajesh's group. d. Z must be in Rajesh's group.

Answers: Assumption:

1. First identify the groups: Ajay (A) and Rajesh (R).
2. Then identify the elements T, U, V, W, X, Y and Z.
3. Write various conditions in Mathematical notation
 - a. If U is in Ajay's group, W must be in Rajesh's group. i.e.,
 $U \subset A \rightarrow W \subset R$.
 - b. If X is in Ajay's group, Z must be in Rajesh's group. i.e.,
 $X \subset A \rightarrow Z \subset R$.
 - c. T and Z cannot be in the same group i.e., TZ^x
 - d. W and Y cannot be in the same group i.e., WY^x .

1) From condition (3b), $X \subset A \rightarrow Z \subset R$. Z must be in Rajesh's group. Since TZ^x from (3c), T cannot be in Rajesh's group. Hence answer is [a].

2) Choices [a] and [c] are ruled out since condition (3d) is violated. Choice [b] is ruled out since condition (3c) is violated. Hence answer is [d].

3) Since $U \subset A \rightarrow W \subset R$ and since WY , is not in Rajesh's group, but at the same time it is not necessary that Y should be in Ajay's group. Hence answer is [d].

4) $U \subset A \rightarrow W \subset R$ and $Y \notin R$
 $X \subset A \rightarrow Z \subset R$ and $T \notin R$
 Choice [c] satisfies these two conditions. Hence answer is [c].

5) If T is in Rajesh's group, then Z cannot be in Rajesh's group TZ^x . This means that X cannot be in Ajay's group because $X \subset A \rightarrow Z \subset R$. Hence answer is [b].