

# Σ XEMPLAR POINT® ΣP PVT. LTD.

## XI MATHS TEST ON SETS SET-1

TIME : 1 HR.

M.M : 30

1. Write  $\{1/2, 2/3, 3/4, 4/5, 5/6, 6/7, 7/8\}$  in the set builder form. 1
2. Are the sets  $A = \{x : x \in Z \text{ and } x^2 \leq 4\}$  ;  $B = \{x : x \in R \text{ and } x^2 - 3x + 2 = 0\}$  equal? 1
3. Find :  $P(P(P(\phi)))$ . 2
4. Suppose,  $A_1, A_2, \dots, A_{30}$  are thirty sets each having 5 elements and  $B_1, B_2, \dots, B_n$  are n sets each with 3 elements, let  $\bigcup_{i=1}^{30} A_i = \bigcup_{j=1}^n B_j = S$  & each element of S belongs to exactly 10 of the  $A_i$ 's and exactly 9 of the  $B_j$ 's. Then, find n. 2
5. Given  $A = \{x : x \text{ is a root of } x^2 - 1 = 0\}$  &  $B = \{x : x \text{ is a root of } x^2 - 2x + 1 = 0\}$  then is  $A \cup B = A$ . 2
6. There are 200 individuals with a skin disorder, 120 had been exposed to the chemical C1, 50 to chemical C2, and 30 to both the chemicals C1 and C2. Find the number of individuals exposed to (i) Chemical C1 but not chemical C2 (ii) Chemical C2 but not chemical C1 (iii) neither Chemical C1 nor chemical C2 4
7. Let  $A = \{1, 2, 3, 4\}$ ,  $B = \{1, 2, 3\}$  and  $C = \{2, 4\}$ . Find all sets X satisfying each pair of conditions :  
 a.  $X \subset B$  and  $X \not\subset C$       b.  $X \subset B$ ,  $X \neq B$  and  $X \not\subset C$       c.  $X \subset A$ ,  $X \subset B$  and  $X \subset C$  4
8. For any sets A and B, show that :  $P(A \cap B) = P(A) \cap P(B)$  4
9. Prove the De – Morgan's Law  $(A \cup B)' = A' \cap B'$ . 4

**OR**

Let A, B, and C be the sets such that  $A \cup B = A \cup C$  and  $A \cap B = A \cap C$ . Show that  $B = C$ .

10. In a survey of 60 people, it was found that 25 people read newspaper H, 26 read newspaper T, 26 read newspaper I, 9 read both H and I, 11 read both H and T, 8 read both T and I, 3 read all three newspapers. Find:
  - (i) the number of people who read at least one of the newspapers.
  - (ii) the number of people who read exactly one newspaper.
  - (iii) the number of people who read exactly two newspaper. 6