Class test – SET THEORY

1. Which of the following statements are true or false :

   (i) $\{1, 2, 3\} = \{1, \{2\}, 3\}$.

   (ii) $\{1, 2, 3\} = \{3, 1, 2\}$.

   (iii) $\{a, e, o\} = \{a, b, c\}$.

   (iv) $\{\phi\} = \{\ \}$

2. Write the set in Roster form represented by the shaded portion in the following.

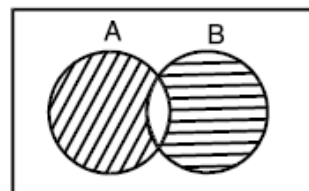   (i) $A = \{1, 2, 3, 4, 5\}$

   $B = \{5, 6, 7, 8, 9\}$

   Fig. 1.12

   (ii) $A = \{1, 2, 3, 4, 5, 6\}$

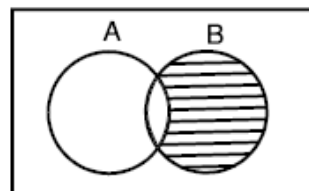 $B = \{2, 6, 8, 10, 12\}$

   Fig. 1.13

3. Represent the follwoing using Venn diagram.

   (i) $(A \cup B)'$ provided A and B are not disjoint sets.

   (ii) $(A \cap B)'$ provided A and B are disjoint sets.

   (iii) $(A - B)'$ provided A and B are not disjoint sets.

4. Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, $A\{2, 4, 6, 8\}$, $B = \{1, 3, 5, 7\}$

   Verify that

   (i) $(A \cup B)' = A' \cap B'$

   (ii) $(A \cap B)' = A' \cup B'$

   (iii) $(A - B) \cup (B - A) = (A \cup B) - (A \cap B)$.