

Section-A

- Q1. Emp' (a) Finite set
 Q2. (b) 8
 Q3. (a) 10
 Q4. (a) and (c)
 Q5. (a) 2^n

Section-B

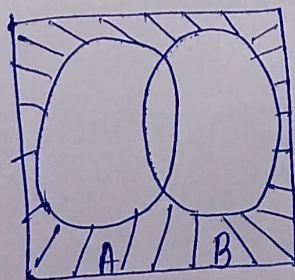
- Q6. (i) $\{x \in \mathbb{R} \mid -12 < x < -10\} = (-12, -10)$
 (ii) $\{x \in \mathbb{R} \mid 3 \leq x \leq 4\} = [3, 4]$

- Q7. $A = \{2, 3, 5, 7, 9, 11\}$ and $B = \{7, 9, 11, 13\}$
 $\therefore A \cap B = \{7, 9, 11\}$ and $A - B = \{2, 3, 5\}$

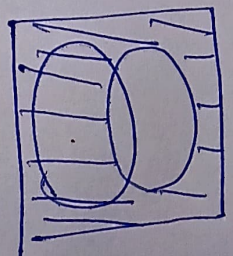
Section-C

- Q8. $A = \{2, 4, 6, 8\}$ & $B = \{2, 3, 5, 7\}$ and $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$
 $\therefore A \cap B = \{2\}$, $A' = \{1, 3, 5, 7, 9\}$
 $A' \cup B = (A \cap B)' = U - (A \cap B) = \{1, 3, 4, 5, 6, 7, 8, 9\}$

- Q9. (i) $(A \cup B)'$



- (ii) $A' \cup B'$



Q10.

Let $x \in (A \cup B)'$

$$\Leftrightarrow x \notin A \cup B$$

$$\Leftrightarrow x \notin A \text{ and } x \notin B$$

$$\Leftrightarrow x \in A' \text{ and } x \in B'$$

$$\Leftrightarrow x \in A' \cap B'$$

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