

**Model Question Paper**  
**Sets and Functions - Part II**

10th Standard

**Maths**

Reg.No. : 

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- I. Answer all the questions.
- II. Use Blue pen only.
- III. Question No 13 is compulsory.

Time : 00:45:00 Hrs

Total Marks : 35

4 x 1 = 4

**Section-A**

- 1) For two sets A and B,  $A \cup B = A$  if and only if  
(a)  $B \subseteq A$  (b)  $A \subseteq B$  (c)  $A \neq B$  (d)  $A \cap B = \emptyset$
- 2) If  $A \subset B$ , then  $A \cap B$  is  
(a) B (b)  $A \setminus B$  (c) A (d)  $B \setminus A$
- 3) For any two sets P and Q,  $P \cap Q$  is  
(a)  $\{x : x \in P \text{ or } x \in Q\}$  (b)  $\{x : x \in P \text{ or } x \notin Q\}$  (c)  $\{x : x \in P \text{ and } x \notin Q\}$  (d)  $\{x : x \notin P \text{ and } x \in Q\}$
- 4) If  $A = \{p, q, r, s\}$ ,  $B = \{r, s, t, u\}$ , then  $A \setminus B$  is  
(a)  $\{p, q\}$  (b)  $\{t, u\}$  (c)  $\{r, s\}$  (d)  $\{p, q, r, s\}$

**Section-B**

5 x 2 = 10

- 5) For the given sets  $A = \{-10, 0, 1, 9, 2, 4, 5\}$  and  $B = \{-1, -2, 5, 6, 2, 3, 4\}$ , verify that set union is commutative. Also verify it by using Venn diagram.
- 6) Given,  $A = \{1, 2, 3, 4, 5\}$ ,  $B = \{3, 4, 5, 6\}$  and  $C = \{5, 6, 7, 8\}$ , show that (i)  $A \cup (B \cap C) = (A \cup B) \cap C$
- 7) Let  $A = \{a, b, c, d\}$ ,  $B = \{a, c, e\}$  and  $C = \{a, e\}$ . (i) Show that  $A \cap (B \cap C) = (A \cap B) \cap C$ .
- 8) If  $A \subset B$ , then show that  $A \cup B = B$  (use Venn diagram).
- 9) If  $A \subset B$ , then find  $A \cap B$  and  $A \setminus B$  (use Venn diagram).

**Section-C**

4 x 5 = 20

- 10) Given  $A = \{a, b, c, d, e\}$ ,  $B = \{a, e, i, o, u\}$  and  $C = \{c, d, e, u\}$ . (i) Show that  $A \setminus (B \cap C) \neq (A \setminus B) \setminus C$ .
- 11) Let  $A = \{0, 1, 2, 3, 4\}$ ,  $B = \{1, -2, 3, 4, 5, 6\}$  and  $C = \{2, 4, 6, 7\}$ . (i) Show that  $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ .
- 12) For  $A = \{x : -3 \leq x < 4, x \in \mathbb{R}\}$ ,  $B = \{x : x < 5, x \in \mathbb{N}\}$  and  $C = \{-5, -3, -1, 0, 1, 3\}$ , Show that  $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$ .
- 13) a) Use Venn diagrams to verify  $(A \cap B)' = A' \cup B'$ .  

**(OR)**

b) Use Venn diagrams to verify De Morgan's law for set difference  $A \setminus (B \cap C) = (A \setminus B) \cup (A \setminus C)$ .

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