

EDUVISTA

Class XI Mathematics - Chapter: Sets (NCERT Based)

Maximum Difficulty Test (Within NCERT Syllabus)

Time: 45 Minutes Max Marks: 25

- Q1. Let $A = \{\text{prime numbers less than 20}\}$. Find A' if $U = \{1, 2, \dots, 20\}$.
- Q2. State True/False: If $A \subseteq B$ then $A \cap B = A$.
- Q3. Write the power set of $A = \{a, b\}$.
- Q4. If $n(A) = 12$, $n(B) = 15$, $n(A \cup B) = 20$, find $n(A \cap B)$.
- Q5. Let $A = \{1, 2, 3, 4, 5\}$, $B = \{2, 4, 6, 8\}$, $C = \{1, 2, 6\}$. Find $A \cap (B \cup C)$ and $(A \cap B) \cup (A \cap C)$. Verify equality.
- Q6. Prove: $A - (B \cup C) = (A - B) \cap (A - C)$.
- Q7. In a class of 60 students, 35 study Mathematics, 28 Physics, 15 both. Find only Mathematics and neither.
- Q8. If $A = \{x: x^2 - 7x + 10 = 0\}$, $B = \{x: x^2 - 5x + 6 = 0\}$, find $A \cup B$, $A \cap B$ and $A - B$.
- Q9. Prove De Morgan's Law: $(A \cup B)' = A' \cap B'$ using membership table.
- Q10. If $n(U) = 100$, $n(A) = 48$, $n(B) = 52$, $n(A \cap B) = 20$, find $n(A')$, $n(B')$ and $n((A \cup B)')$.
- Q11. Case Study: Among 80 students, 42 like Cricket, 38 Football, 18 both. Find only Cricket, only Football, at least one, neither, and draw a Venn diagram.

Instructions: Attempt all questions. Use proper notation. Draw Venn diagrams wherever required. Questions are strictly based on NCERT.