



THE WISDOM ACADEMY

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Class: 9th

Test#03: Math

Total Marks: 40

Chap#03

Student Name: _____

Roll No: _____

Q: 01 Encircle the correct option: (1x10)

1	The power set of a set A is::	a) The set of all elements in A	b) The set of all subsets of A	c) The set of all super sets of A	d) The set of all equal sets to A
2	The set of prime number is:	a) $\{0, \pm 1, \pm 2, \dots\}$	b) $\{\pm 1, \pm 3, \pm 5, \dots\}$	c) $\{0, \pm 2, \pm 4, \dots\}$	d) $\{3, 5, 7, 11, 13, 17, \dots\}$
3	The symbol \cap means and	a) \cap	b) \vee	c) \cup	d) \wedge
4	$A \cup A' = \text{_____}$:	a) U	b) A	c) A'	d) $\{\}$
5	Using a Venn diagram, if the overlapping portion of set A and set B is empty then $A \cap B$:	a) A	b) B	c) \cup	d) $\{\}$
6	If $n(A \cup B) = 40$, $n(A) = 25$, $n(B) = 30$ then $n(A \cap B) = \text{_____}$:	a) 15	b) 25	c) 30	d) 40
7	Which of them is the set of all elements that belongs to both A and B	a) Power set	b) Union of two sets	c) Intersection of two sets	d) Universal set
8	If $A = \{\}$, then $P(A)$ is:	a) $\{\}$	b) $\{1\}$	c) $\{\{\}\}$	d) \emptyset
9	If $U = \{1, 2, 3, 4, 5\}$, $A = \{1, 2, 3\}$ and $B = \{3, 4, 5\}$, then $U - (A \cap B)$ is:	a) $\{1, 2, 4, 5\}$	b) $\{2, 3\}$	c) $\{1, 3, 4, 5\}$	d) $\{1, 2, 3\}$
10	Which is correct for $A' = \text{_____}$	a) $U - A$	b) $U - U$	c) $A - A$	d) $A - U$

Q: 02 Write the Answers of these Short Questions: (2x10)

- 1) Is $\{\}$ equal to $\{0\}$? Explain.
- 2) If $U = \{1, 2, 3, \dots, 20\}$, $B = \{2, 4, 6, 8, 10\}$ $C = \{1, 3, 5, 7, 9, 11\}$. Find $B^c \cap C^c$
- 3) If $A = \{2, 4, 6, 8, 10\}$, $B = \{1, 3, 5, 7, 9, 11\}$, $C = \{1, 2, 3, 5, 7, 10\}$. Find $(A \cap C) \cup (B \cap C)$
- 4) Write the Morgan's laws?
- 5) If $A = \{3, 6, 7, 8, 9\}$, $B = \{1, 2, 3, 4, 6\}$ $C = \{2, 4, 5, 6, 8\}$ find $A \cup (B \cup C)$
- 6) If $U = \{1, 2, 3, \dots, 100\}$, $A = \{1, 2, 3, \dots, 30\}$ $B = \{31, 32, 33, \dots, 55\}$, $C = \{76, 77, 78, \dots, 100\}$ then find $A \cup (B \cup C)^c$.
- 7) If $A = \{1, 2, 3\}$, $B = \{4, 5, 6\}$ then find $A \cup B$.
- 8) Define disjoint sets.
- 9) Use Ven Diagram to verify following: $A - B = A \cup B$
- 10) Define Universal set and power set?

Q:03 Solve these Long Questions:(5x2)

- A) If $U = \{a, b, c, d, e, f, g, h, i, j\}$ $A = \{a, b, c, d, g, h\}$, $B = \{c, d, e, f, j\}$ then prove the Morgan's law for these sets. Draw Ven Diagram.
- B) If $U = \{1, 2, 3, \dots, 20\}$, $A = \{1, 3, 5, \dots, 19\}$ then verify the following
 - (i) $A \cup A' = U$
 - (ii) $A \cap A' = \emptyset$