

O.P. JINDAL SCHOOL, SAVITRI NAGAR
Periodic Test-1 (Round 1) 2025-2026

Class: XI Sci.

MM:20

Subject: Mathematics

Time :1Hour**General Instructions:**

- i) All questions are compulsory.
- ii) Question no. 1 to 8 carries 1 mark each, question no. 9 to 11 carries 2 marks each, question no. 12 and 13 carries 3 marks each.
- iii) There is no overall choice. However, internal choice has been provided.

SECTION A

- 1.) For any set A, (A') is equal to
 - a) A'
 - b) A
 - c) \emptyset
 - d) \cup
- 2.) Let A and B be two sets in the same universal set, Then $A - B =$
 - a) $A \cap B$
 - b) $A' \cap B$
 - c) $A \cap B'$
 - d) none of these
- 3.) The number of proper subsets of a set containing n elements is
 - a) n
 - b) 2^n
 - c) n^2
 - d) $2^n - 1$
- 4.) For any two sets A and B, $A \cap (A \cup B) =$
 - a) A
 - b) B
 - c) \emptyset
 - d) $A \cap B$
- 5.) The symmetric difference of $A = \{1, 2, 3\}$ and $B = \{3, 4, 5\}$ is
 - a) $\{1, 2\}$
 - b) $\{1, 2, 4, 5\}$
 - c) $\{4, 3\}$
 - d) $\{1, 2, 3, 4, 5\}$
- 6.) Let $A = \{x : x \in \mathbb{R}, x > 4\}$ and $B = \{x : x \in \mathbb{R}, x \leq 5\}$. Then $A \cap B =$
 - a) $(4, 5]$
 - b) $(4, 5)$
 - c) $[4, 5)$
 - d) $[4, 5]$
- 7.) For two sets $A \cup B = A$ iff
 - a) $B \subseteq A$
 - b) $A \subseteq B$
 - c) $A \neq B$
 - d) $A = B$
- 8.) Let $S = \{x : x \text{ is a positive multiple of 3 less than 100}\}$, $P = \{x : x \text{ is a prime number less than 20}\}$. Then $n(S) + n(P)$ is
 - a) 34
 - b) 41
 - c) 33
 - d) 30

SECTION B

- 9.) Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$ $A = \{1, 2, 3, 4\}$ $B = \{2, 4, 6, 8\}$ $C = \{3, 4, 5, 6\}$. Then find:
 - a) A'
 - b) $A \cap C$
 - c) $B - C$
 - d) $A' \cap B$

- 10.) Write down all the subsets of the following sets.

- a) $\{1\}$
- b) $\{2, 3\}$
- c) $\{a, b, c\}$
- d) \emptyset

OR

Write the given set in roaster form, $A = \{x : x \in \mathbb{N}, x \text{ is a multiple of 5 and } x^2 < 400\}$.

- 11.) If A and B are two sets containing 3 and 6 elements respectively, what can be the maximum number of elements in $A \cup B$? Also find the minimum number of elements in $A \cup B$?

SECTION C

12.) Draw venn diagram for the following

a) $(A \cup B)'$ b) $A - B$ c) A and B are disjoint sets.

OR

Verify Demorgan's law for the following:

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

13.) Write down the following as interval and also represent on the number line.

a) $\{x : x \in \mathbb{R}, -5 < x \leq 6\}$ b) $\{x : x \in \mathbb{R}, -11 < x \leq -9\}$.
