O. P. JINDAL SCHOOL, SAVITRI NAGAR

Weekly Test -1 (2026 – 2027)

Class : XI **Max Marks : 20**

Subject: Mathematics **Time: 1 Hour**

General Instructions:

(i) All the questions are compulsory.

(ii) The question paper consists of 13 questions divided into 3 sections. Section A has 8 questions of 1 mark each, section B has 3 questions of 2 marks and section C has 2 questions of 3 marks each.

(iii) There is no overall choice. However, internal choice has been provided in 2 questions You have to attempt only one of the alternatives in all such questions.

Section - A

1. Which one of the following is not a set?
   (a) The collection of all whole numbers less than 200
   (b) The collection of all boys in your class
   (c) The collection of talented actors in Hollywood
   (d) The collection of all books written by Chetan Bhagat

2. If A is a set containing 6 elements, the number of all possible non-empty subsets of A is:
   (a) 64 (b) 30 (c) 63 (d) 36

3. Let A be the set of parallelograms, B the set of rectangles, C the set of rhombuses, D the set of squares and E the set of trapeziums in a plane. Then A may be equal to
   (a) $B \cup C$ (b) $C \cup D \cup B$
   (c) $B \cup C \cup D \cup E$ (d) $A \cup B \cup C \cup D$

4. Which of the following is true for the complement of a set A?
   (a) $A \cup A' = \varphi$ (b) $A \cap A' = A$
   (c) $A \cup A' = U$ (d) $A \cap A' = A'$

5. If two sets A and B are disjoint, which one among the following is true?
   (a) $A \cup B = A$ (b) $A \cup B = B$ (c) $A \cap B = A$ (d) $A \cap B = \phi$

6. Write the set $\{x : x \text{ is a natural number and } x^2 - 9 = 0\}$ in roster form.
   (a) {3} (b) {-3} (c) {3,-3} (d) {9,3}

7. Which one of the following is the correct representation for the set $\{x: x \text{ is a positive integer and } x^3 < 50\}$ in roster form?
   (a) {0,1,2,3,4,5} (b) {-1,1,2,3} (c) {1,2,3} (d) {0,1,2,3}

8. Given two finite sets A and B such that n(A) = 3 and n(B) = 6, the minimum number of elements in $A \cup B$ is:
   (a) 3 (b) 6 (c) 9 (d) 18

Section – B

9. Let U = {1, 2, 3, 4, 5, 6}, A = {2, 3} and B = {3, 4, 5}.

   Find A′, B′, A′ ∩ B′, A ∪ B and hence show that $(A \cup B)' = A' \cap B'$.

10. Let $U = \{x : x \in N, x \leq 9\}$; $A = \{x : x \text{ is an even number}, 0 < x < 10\}$; $B = \{2, 3, 5, 7\}$. Find the set

(i) $(A - B)'$ (ii) $A \Delta B$

OR

Write the following intervals in set builder form and represent each on a real number line.

i) $(-2, 5]$ ii) $(-7, -2)$

11. Represent the following using Venn diagram:

(i) $A \cup B$ (ii) $A \cap B$ (iii) $A' \cap B'$ **(iv) A-B**

Section – C

12. In a library, 25 students are reading books on physics, chemistry, and mathematics. It was found that 15 students were reading mathematics, 12 reading physics and 11 reading chemistry, 5 students reading both mathematics and chemistry, 9 students reading both physics and mathematics, 4 students reading both physics and chemistry, and 3 students reading all three subjects.

(a) Find the number of students reading only Chemistry.

(b) Find the number of students reading only Mathematics.

(c) Find the number of students reading at least one of the subject and also find the number of students reading none of the subjects.

13. Let $A = \{1, 2, 3, 4\}$ $B = \{1, 2, 3\}$ and $C = \{2, 4\}$. Find all sets of X satisfying each pair of conditions:

(a) $X \subset B$ and $X \not\subset C$ (b) $X \subset B$, $X \neq B$ and $X \not\subset C$ (c) $X \subset A$, $X \subset B$ and $X \subset C$

OR

If $A = \{1\}$, $B = \{\{1\},2\}$, $C = \{\{1\}, 3\}$ and $\cup = \{\{1\}, \{2\}, \{3\},1,2,3\}$, then find

i) $A \cap B$

ii) $B \cap C$

iii) $n\{(A \cap B)' \cup (B \cap C)'\}$

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