CLASS: - XI

M.M: 100

TIME: 3 HRS

GENERAL INSTRUCTION:
- (a) *All questions are compulsory.*
- (b) *This question paper consists of 26 questions divided into three section A, B, and C. Section A comprises 6 questions of one mark each, section B comprises 13 questions of four marks each and section C comprises 7 questions of six marks each.*
- (c) *All questions in Section A are to be answered in one word, one sentence or as per the exact requirement of the question.*
- (d) *There is no overall choice. However, internal choice has been provided in 03 questions of four marks each and 02 questions of six marks each. You have to attempt only one of the alternatives in all such questions.*
- (e) *Use of calculators is not permitted. You may ask for logarithmic tables, if required.*

SECTION –A

1. If $U = \{1,2,3,4,5,6,7,8,9,10,11,12\}$, $A = \{2,3,5,7,8,9,12\}$ and $B = \{1,2,3,5,6,12\}$ then find $A - B'$

2. If $A \times B = \{(a,x),(b,y),(b,x),(a,y)\}$, find sets A & B.

3. Find the value of $\left[i^{20} + \left(\dfrac{1}{i}\right)^{24} \right]^2$

4. Evaluate $\displaystyle\lim_{x \to 0} \dfrac{\sin ax}{\sin bx}$

5. How many chords can we draw through 21 points on a circle?

6. If $\cos x = -\dfrac{3}{5}$, x lies in third quadrant, find the value of $\sin x$.

SECTION –B

7. Write the contrapositive and converse of the following statements
   i) If x is a prime number, then x is odd.
   ii) x is an even number implies that x is divisible by 4

8. Find the equation of the set of the points P such that its distances from the points A (3, 4, -5) and B (-2, 1, 4) are equal.

9. Find the angle between the x – axis and the line joining the points (3, -1) & (4, -2).

OR

Find the equation of the line passing through (-3, 5) and perpendicular to the line through the points (2, 5) and (-3, 6)