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Roll No. : 01

THIRD TERM UNIT TEST - 2014-15

SUBJECT - MATHEMATICS

CLASS - XI

Time : 1½ Hrs.

M.M. 40

SECTION A (1 MARK)

1. Find distance between points $(-1,3,-4)$ & $(1,-3,4)$
2. Evaluate : $\lim_{x \rightarrow 0} \frac{\sin ax}{bx}$
3. A coin is tossed & a die is thrown. Write Sample space.
4. Evaluate : $\lim_{x \rightarrow -1} \frac{x^{10} + x^5 + 1}{x - 1}$

SECTION B (4 MARKS EACH)

5. Find the equation of set of points P, the sum of whose distances from A $(4,0,0)$ & B $(-4,0,0)$ is equal to 10.
6. Find 'Co-ordinates of a point on y-axis which are at a distance of $5\sqrt{2}$ from the point P $(3,-2,5)$
7. Two dice are thrown & events A,B & C are as follow :
 - A : getting an even no. on the first die
 - B : getting an odd no. on the second die
 - C : getting the sum of numbers on dice ≤ 5

[P.T.O.]

Describe the events

- (i) A but not C
 (ii) B or C
 (iii) $A \cap B \cap C'$
8. Verify that $(-1, 2, 1)$, $(1, -2, 5)$, $(4, -7, 8)$ & $(2, -3, 4)$ are the vertices of a parallelogram.
9. A letter is chosen at random from the word ASSASSINATION. Find the probability that letter is :
 (i) a vowel (ii) a consonant
10. Evaluate : $\lim_{x \rightarrow 0} \frac{\sin ax + bx}{ax + \sin bx}$ $a, b, a + b \neq 0$

SECTION C (6 MARKS EACH)

11. Find the probability that when hand of 7 cards is drawn from a well shuffled deck of 52 cards it contains :
 (i) all kings
 (ii) 3 kings
 (iii) at least 3 kings

12. If $f(x) = \begin{cases} mx^2 + n & x < 0 \\ nx + m & 0 \leq x \leq 1 \\ nx^3 + m & x > 1 \end{cases}$

For what integers m & n does both $\lim_{x \rightarrow 0} f(x)$ & $\lim_{x \rightarrow 1} f(x)$ exist?
