Std. 11   Time : 1 hr.
04-12-2015   Second Unit Test in MATHEMATICS   M. Marks: 20

General Instructions :
Question nos. 1 to 4 carry 1 mark each.
Question nos. 5 to 9 carry 2 marks each.
Question nos. 10 & 11 carry 3 marks each.

1.   Find the middle term in the expansion of $\left(\frac{2}{3}x^2 - \frac{3}{2x} \right)^{10}$.

2.   Find the value of k for which the line $(4 - k^2)x - (k - 3)y + k^2 - 7k + 6 = 0$ is parallel

     to y-axis.

3.   Find the distance between the parallel lines 3x - 4y + 8 = 0 and $\frac{3}{2}x - 2y + 5 = 0$.

4.   Find the new co-ordinates of the point (3, −5) if the origin is shifted to the point (−3, −2)
     by a translation of axes.

5.   If the lines y = 3x + 1 and 2y = x + 3 are equally inclined to the line y = mx + 4,
     find the value of m.

6.   Find the equation of right bisector of the line segment joining the points (3, 4) and (−1, 2).

7.   Find the value of k so that the term independent of x in the expansion of

     $\left(\sqrt{x} + \frac{k}{x^2} \right)^{10}$ is 405.

8.   P(a, b) is the midpoint of the line segment between the axes. Show that the equation
     of the line is $\frac{x}{a} + \frac{y}{b} = 2$.

9.   If the coefficients of $(r - 5)^{th}$ and $(2r - 1)^{th}$ terms in the expansion of $(1 + x)^{34}$ are equal,
     find r.

10. Find the distance of the line 4x - y = 0 from the point P(4, 1) measured along the line
     making an angle of 135° with the positive x-axis.

11. The 3rd, 4th and 5th terms in the expansion of $(x + a)^n$ are respectively 84, 280 and 560.
     Find the value of n.   -x-x-x-x-x-x-