Std. 11 Time : 1 hr.
23-11-2016 Third Unit Test in MATHEMATICS M. Marks: 20

GENERAL INSTRUCTIONS:
i) Question nos. 1 to 4 are of 1 mark each.
ii) Question nos. 5 to 9 are of 2 marks each.
iii) Question nos. 10 & 11 are of 3 marks each.

1. Reduce the equation $x - \sqrt{3}y - 8 = 0$ into normal form.
2. Find the distance of the point (–1, 1) from the line 12(x + 6) = 5(y – 2).
3. Find the fifth term from the end in the expansion of $\left(3 - \frac{x^3}{6}\right)^{17}$.
4. If the co-efficients of $(r-5)^{th}$ and $(2r-1)^{th}$ terms in the expansion of $(1 + x)^{34}$ are equal, find r.
5. Find the equation of line passing through the point (2,2) and cutting off intercepts on the axes whose sum is 9.
6. If p and q are the lengths of perpendiculars from origin to the lines $x\cos\theta - y\sin\theta = k\cos 2\theta$ and $x\sec\theta + y\operatorname{cosec}\theta = k$ respectively, prove $p^2 + 4q^2 = k^2$.
7. Find the term independent of x in the expansion of $\left(\sqrt[3]{x} + \frac{1}{2\sqrt[3]{x}}\right)^{18}$, $x > 0$.
8. If the angle between two lines is $\pi/4$ and slope of one of the lines is $1/2$, find the slope of other line.
9. If a and b are distinct integers, using binomial theorem, prove $a - b$ is a factor of $a^n - b^n$, whenever n is a positive integer.
10. Find the distance of the line $4x + 7y - 2 = 0$ from the point (-1,1) along the line $x + 2y - 3 = 0$.
11. The co-efficients of $(r – 1)^{th}$, r^{th} and $(r + 1)^{th}$ terms in the expansion of $(1 + x)^n$ are in the ratio 1:7:42, find n.

-x-x-x-x-x-x-