ST. XAVIER'S SENIOR SECONDARY SCHOOL, DELHI – 110 054

Std. 11 Time : 1 hr.

27-11-2014 Second Unit Test in MATHEMATICS M. Marks: 20

GENERAL INSTRUCTIONS:

1. Attempt all the questions.
2. Section - A consists of 4 questions of 1 mark each.
3. Section - B consists of 5 questions of 2 marks each.
4. Section - C consists of 2 questions of 3 marks each.

SECTION - A

1. Find 5^{th} term from the end in the expansion of $(x^2 + 1)^{10}$.

2. Find the distance between the parallel lines $3x - 4y + 7 = 0$ and $6x - 8y + 10 = 0$.

3. A line through the point $(-2, 6)$ and $(4, 8)$ is perpendicular to the line through the point $(8, 12)$ and $(x, 24)$. Find x.

4. Write the line, $\sqrt{3}x + y + 8 = 0$ in intercept form.

SECTION - B

5. Find the middle term in the expansion of $(3 - \frac{x^3}{6})^7$.

6. If p is the length of the perpendicular from the origin to the line whose intercepts on the axes are a and b, then prove that $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$.

7. Find a, if the 17^{th} and 18^{th} term in the expansion of $(2 + a)^{50}$ are equal.

8. Find n, if fourth term in the expansion of $(ax + \frac{1}{x})^n$ is 18.

9. Show that $9^{n+1} - 8n - 9$ is divisible by 64. $\forall\, n \in Z_+$.

SECTION - C

10. The coefficients of three consecutive term in the expansion of $(1+x)^n$ are in the ratio 1 : 7 : 42. Find n and r.

11. Find the distance of the line, $4x + 7y + 5 = 0$ from the point (1, 2) along the line $2x - y = 0$.

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