SWOT INSTITUTE
BINOMIAL THEOREM
XI-TEST

Time : 1 hr.

1. Show that $9^{n+1} - 8n - 9$ is divisible by 64, whenever n is a positive integer.

2. Show that the middle term in the expansion of $(1 + x)^{2n}$ is $\dfrac{1.3.5....(2n-1)}{n!}$ 2n x^n, where n is a

    positive integer.

3. Find the 4th term in the expansion of $(x - 2y)^{12}$.

4. Find the 13th term in the expansion of $\left(9x - \dfrac{1}{3\sqrt{x}} \right)^{18}$, $x \neq 0$.

5. Find the middle terms in the expansion of

    $\left(3 - \dfrac{x^3}{6} \right)^7$

6. In the expansion of $(1 + a)^{m+n}$, prove that coefficient of a^m and a^n are equal.

7. Prove that the coefficient of x^n in the expansion of $(1 + x)^{2n}$ is twice the coefficient of x^n in the expansion of $(1 + x)^{2n-1}$.

8. Find a positive value of m for which the coefficient of x^2 in the expansion $(1 + x)^m$ is 6.

9. Find the term independent of x in the expansion of $\left(\dfrac{3}{2}x^2 - \dfrac{1}{3x} \right)^6$.