**ASSIGNMENT NO.-8(BINOMIAL THEOREM)**

**(MATHEMATICS)**

1. By using Binomial Theorem,expand:

 $\left(i\right) (1-x+x^{2})^{4} \left(ii\right) \left(\sqrt{\frac{x}{a}}-\sqrt{\frac{a}{x}}\right)^{6}$

2. Find the 6th term in the expansion of $\left(\frac{4x}{5}-\frac{5}{2x}\right)^{9}$.

3. Find the 4th term from the end in the expansion of $\left(\frac{3}{x^{2}}-\frac{x^{3}}{6}\right)^{7}.$

4. Find the middle terms in the expansion of $\left(3x-\frac{x^{3}}{6}\right)^{7}$.

5. Find the coefficient of $x^{10}$ in the binomial expansion of $\left(2x^{2}-\frac{3}{x}\right)^{11},when x\ne 0.$

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

7. Find the value of $a$ so that the term independent of $x$ in $\left(\sqrt{x}+\frac{a}{x^{2}}\right)^{10}$ is 405.

8. If the middle term in the binomial expansion of $\left(\frac{1}{x}+x\sin(x)\right)^{10}$ is equal to $\frac{63}{8}$ , find the value of $x.$

9. Show that $2^{4n+4}-15n-16 ,$ where $n\in N$ is divisible by 225.

10. Which is larger $\left(1.01\right)^{1000000}$ or 10000 ?