MATHEMATICS CLASS TEST ON BINOMIAL THEOREM

TIME: 1.5 HRs **MM: 60**

This paper contains 10 Subjective type questions. Each question carrying 6 marks mentioned beside each question. Partial marking will be awarded in case of relevant answers.

1. Find the coefficient of the x^3 term in the expansion of $\left(2-\frac{3x}{2}\right)^6$. **[6 Marks]**

2. The coefficient of x in the expansion $\left(x+\frac{1}{ax^2}\right)^7$ is $\frac{7}{3}$. Find the possible values of a. **[6 Marks]**

3. Find the coefficient of x^2 in the expansion of $(x+1)^2(2x-1)^4$. **[6 Marks]**

4. Consider the expression of $\left(2x^3+\frac{b}{x}\right)^8 = 256x^{24}+3072x^{20}+...+kx^0+...$ **[6 Marks]**

(a) Find b.

(b) Find k.

5. Find the term independent of x in the expansion of $(1-2x^2)^3\left(\frac{3}{x}+2x^2\right)^6$. **[6 Marks]**

6. In the expression of $(x+1)^n$, the coefficient of x^3 is twice the coefficient of x^2 Find n. **[6 Marks]**

7. Find the exact value of the constant term in the expansion of $\left(4x^2-\frac{3}{2x}\right)^{12}$. **[6 Marks]**

8. Determine the first three terms in the expansion of $(1-2x)^5(1+x)^7$ in ascending powers of x. **[6 Marks]**

9. Given that $\left(1+\frac{2}{3}x\right)^n(3+nx)^2 = 9+84x+...$, find the value of n. **[6 Marks]**

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10. Find the coefficient of x^7 in the expansion of $\left(3+\frac{1}{x^3}\right)\left(2x^2-\frac{1}{3x}\right)^5$. **[6 Marks]**

Bonus question: Find the middle term(s) in the expansion of $(x+2)^7$. **[+2 Marks]**