



IPE MODEL :: MATHS-A(40 Marks)

SYLLABUS:

SECTION - A

I. VSAQ: Answer ALL of the following questions. 5 x 2 = 10 M

1. Find the term in $\left(\frac{3a}{5} + \frac{5b}{7}\right)^8$ ($1 \leq r \leq 9$).
2. If ${}^{22}C_r$ is the largest binomial coefficient in the expansion of $(1+x)^{22}$ find the value of ${}^{13}C_r$.
3. Find the middle term in the expansion of $\left(\frac{3x}{7} - 2y\right)^{10}$.
4. Find the largest binomial coefficient (s) in the expansion of $(1+x)^{19}$.
5. Find the largest binomial coefficient (s) in the expansion of $(2x+3y)^7$.

SECTION - B

II. SAQ: Answer any FOUR of the following questions. 4 x 4 = 16 M

6. Find the coefficient of x^{-7} in $\left(\frac{2x^2}{3} - \frac{5}{4x^5}\right)^7$.
7. Show that the middle term in the expansion of $(1+x)^{2n}$ is $\frac{1.3.5.....(2n-1)}{n!}(2x)^n$.
8. If the k^{th} term is the middle term in the expansion of $\left(x^2 - \frac{1}{2x}\right)^{20}$, find T_k and T_{k+3} .
9. Find the numerically greatest term (s) in the expansion of $(3x+5y)^{12}$ when $x = \frac{1}{2}, y = \frac{4}{3}$.
10. Find the numerically greatest term(s) in the expansion of $(3x-4y)^{14}$ when $x = 8, y = 3$.

SECTION - C

III. LAQ: Answer any TWO of the following questions. 2 x 7 = 14 M

11. If the coefficient of r^{th} , $(r+1)^{th}$ and $(r+2)^{th}$ terms in the expansion of $(1+x)^n$ are in A.P then show that $n^2 - (4r+1)n + 4r^2 - 2 = 0$.
12. If a_1, a_2, a_3, a_4 are the coefficient of four consecutive terms respectively in the expansion of $(1+x)^n$ where n is a positive integer then show that $\frac{a_1}{a_1+a_2} + \frac{a_3}{a_3+a_4} = \frac{2a_2}{a_2+a_3}$.
13. If the sum of odd terms and the sum of even terms in the expansion of $(x+a)^n$ are P and q respectively then show that (i) $p^2 - q^2 = (x^2 - a^2)^n$ (ii) $4pq = (x+a)^{2n} - (x-a)^{2n}$.

**IPE MODEL :: ECONOMICS (50 Marks)****SYLLABUS:****SECTION - A****I. VSAQ: Answer any FIVE of the following questions.****5 x 2 = 10 M**

1. Irrigation
2. Agricultural productivity
3. Population pressure on land
4. Cropping pattern
5. Land reforms
6. Size of Holdings
7. Economic Factors
8. Land degradation

SECTION - B**II. SAQ: Answer any FOUR of the following questions.****4 x 5 = 20 M**

9. Examine the cropping pattern in India?
10. Describe the trends in agriculture production in India?
11. Explain about irrigation in agriculture sector?
12. Discuss the trends in agriculture productivity in India?
13. Examine the measures required to improve the productivity in agriculture sector?
14. Describe the objectives of land reforms in India?

SECTION - C**III. LAQ: Answer any TWO of the following questions.****2 x 10 = 20 M**

15. Explain the causes for low productivity in agriculture?
16. What are determining factors of cropping pattern. Explain?
17. Examine the land reform measures?

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