



IPE MODEL :: MATHS-IIA (40 Marks)

SYLLABUS: Partial Fractions, Quadratic Expressions.

SECTION-A

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

- Find the quadratic equation whose roots are $7 \pm 2\sqrt{5}$.
- If x_1, x_2 are the roots of $ax^2 + bx + c = 0$ then find the value of $(ax_1 + b)^{-2} + (ax_2 + b)^{-2}$.
- If α, β are the roots of $ax^2 + bx + c = 0$ then find the value of $\alpha^2 + \beta^2$.
- Find the value of $\sqrt{3}x^2 + 10x - 8\sqrt{3} = 0$.
- Solve $x^{2/3} + x^{1/3} - 2 = 0$.

SECTION-B

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

- Resolve into partial fractions $\frac{x^2 + 13x + 15}{(2x + 3)(x + 3)^2}$.
- Resolve into partial fraction $\frac{1}{(x - 1)^2(x - 2)}$.
- Resolve into partial fraction $\frac{3x - 18}{x^3(x + 3)}$.
- Find the coefficient of x^3 in the power series expansion of $\frac{5x + 6}{(x + 2)(1 - x)}$ specifying the region in which the expansion is valid.
- Find the coefficient of x^4 in the expansion of $\frac{3x^2 + 2x}{(x^2 + 2)(x - 3)}$ specifying the region in which the expansion is valid.

SECTION-C

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

- (i) Resolve into partial fractions $\frac{2x^2 + 3x + 4}{(x - 1)(x^2 + 2)}$.
(ii) Resolve $\frac{3x^3 - 2x^2 - 1}{x^4 + x^2 + 1}$ into partial fractions.
- Resolve into partial fractions (i) $\frac{x^4}{(x - 1)(x - 2)}$, (ii) $\frac{x^3}{(x - a)(x - b)(x - c)}$.
- Resolve into partial fractions (i) $\frac{x + 4}{(x^2 - 4)(x + 1)}$, (ii) $\frac{x^2 + 5x + 7}{(x - 3)^3}$.

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**IPE MODEL :: ECONOMICS (50 Marks)**

SYLLABUS: *Economic Growth, Economic Development, Indicators of Economic development, Objects of Economic development, Hindrances of Economic development, Characteristic of developing economies.*

SECTION-A

- I. Answer any TWO of the following questions. 2 x 10 = 20 M**
1. Characteristic features of developing economies with special reference to India – Discuss.
 2. Explain the indicators of Economic development.
 3. Explain the factors hindering economic development.

SECTION-B

- II. Answer any FOUR of the following questions. 4 x 5 = 20 M**
4. Characteristics of developed economies.
 5. Explain the objectives of Economic development.
 6. What are the differences between Economic growth and Economic development?
 7. Explain about Social Progress Index.
 8. Explain about Vicious circle of poverty.
 9. Explain about Human Development Index (HDI).

SECTION-C

- III. Answer any FIVE of the following questions. 5 x 2 = 10 M**
10. Self-reliance
 11. Modernization
 12. Inclusive Growth
 13. Physical quality of life Index.
 14. National Income
 15. Percapita Income
 16. Human Capital.

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