

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)

Chromepet, Chennai - 600 044.

M.A. Economics - END SEMESTER EXAMINATIONS APRIL - 2025

SEMESTER - II

22PECCT2006 - Mathematical Methods for Economics

Total Duration : 2 Hrs. 30 Mins.

Total Marks : 60

Section B

Answer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. Solve the following pairs of simultaneous equation.

$$3x + 2y = 13$$

$$2x - 3y = 12$$

2. What are the various rules of differentiation?
3. Find the third Derivative of $Y = 5x^4 + 2x^3$.
4. Find the Elasticity of Demand, if the demand function $Q = 200 - 4P$.
5. Write a brief application of Partial Derivatives in Economics.
6. Find the Total derivative of $V = 3x^2 + xy - 2y^3$.

7. Find the inverse of $A = \begin{bmatrix} 1 & 4 & 3 \\ 4 & 2 & 1 \\ 3 & 2 & 2 \end{bmatrix}$.

8. Write a brief application of Matrix Algebra.

Section C

I - Answer any **TWO** questions ($2 \times 10 = 20$ Marks)

9. In an economy of two industries A and B, the data in millions of rupees is given below:

		Buying sector		Final Demand	Total Output
		A	B		
Selling sector	A	12	6	6	24
	B	6	3	9	18

Determine the total output, if the final demand changes to 18 for A and 36 for B.

10. Investigate the maximum or minimum value of the following function.

$$Z = 3x^4 - 10x^3 + 6x^2 + 5.$$

Contd...

11. Find the first and second order partial derivatives of the following function.

$$U=x^2y^2+x^5+y^6.$$

12. Find the production function $U=3x^2+9x+8$, Calculate the marginal production function.

II - Compulsory question (1 × 10 = 10 Marks)

13. Solve the equation by using Cramer's Rule

$$2x-3y+4z=5$$

$$x+2y-3z=8$$

$$x-y-z=1$$
