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. (ECO) END SEMESTER EXAMINATIONS NOVEMBER - 2023
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.
   4x+3y=7
   3x-2y=9
2. Explain the various rules of differentiation.
3. Find the third Derivative of Y = $3x^6+2x^4+x^2$.
4. Find the Elasticity of Demand, if the demand function P=100-Q.
5. Write a brief application of Partial Derivatives in Economics.
6. Find the Total derivative of $Z=x^2+y^2-3xy$.
7. Write the properties of Linearly Homogeneous function.
8. Explain the importance of Cobb-Douglas Production Function.

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	Total
		A	B	Demand	Output
Selling	A	18	8	10	36
Sector	B	9	24	15	48

   Determine the total output, if the final demand changes to 30 for A and 40 for B.
10. Investigate the maximum or minimum value of the following function.
    $Z=48-4x^2-2y^2+16x+12y$.
11. Find the first and second order partial derivatives of the following function.
    $Z=2x^3+5x^2y+ xy^2+y^2$.

Contd...

12. Find the production function P= x^3+7x^2-12x+46, Calculate the marginal production function.

II - Compulsory question $(1 \times 10 = 10$ Marks)

13. Given the following revenue(R) and (C) function for a firm R=20q-q^2 and c=q^2+8q+2 find the equilibrium level of output, price, total revenue, Total cost and profit.

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