23104750

QP CODE: 23104750

Reg No : .....

Name : .....

B.A DEGREE (CBCS) REGULAR/IMPROVEMENT/REAPPEARANCE EXAMINATIONS, FEBRUARY 2023

First Semester

B.A Economics Model I

Complementary Course - EC1CMT03 - MATHEMATICS FOR ECONOMIC ANALYSIS

2017 Admission Onwards

F7625674

Time: 3 Hours Max. Marks : 80

Part A

*Answer any **ten** questions.*

*Each question carries **2** marks.*

1. What is a non -singular matrix
2. Find the value of the determinant. A= $\begin{pmatrix} 2 & 3 & -4 \\ 0 & -4 & 2 \\ 1 & -1 & 5 \end{pmatrix}$
3. Explain continious variables using an example
4. Consumption Function
5. Solve $5x^2 - 125 = 0$
6. Find the second order derivatives of the following function. $y=80-2x+x^2$
7. What is indefenite integral
8. Define economic interdependence
9. Explain the open model in input output analysis
10. Mention the uses of LPP
11. Mention Basic Assumptions of LPP
12. Primal

(10×2=20)

Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. Find 5A where A =

14. Find A(BC), (AB)C and show that A(BC) = (AB)C. A= $\begin{pmatrix} 1 & 1 & -1 \\ 2 & 0 & 3 \\ 3 & -1 & 2 \end{pmatrix}$ B= $\begin{pmatrix} 1 & 3 \\ 0 & 2 \\ -1 & 4 \end{pmatrix}$ C= $\begin{pmatrix} 1 & 2 & 3 & -4 \\ 2 & 0 & -2 & 1 \end{pmatrix}$

15. Using Crammers rule solve 2x-3y=3
    4x-y=11

16. Find the rank of the matrix $\begin{pmatrix} 2 & 3 & 1 \\ 2 & 0 & 1 \\ 1 & 2 & 3 \end{pmatrix}$

17. Differentiate the following function. $Y=3x^2(4x+8)$

18. GIVEN $r=3000-(3-X)^2$ ·What is R maximum

19. Compare closed and open models of input output analysis

20. Explain limitation of LPP

21. What are the important applications of LPP

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **15** marks.*

22. In a perfect competition ,the demand function of a commodity ids $D =19-3P-P^2$ and supply function is S=5P -1.Find the equilibrium price and quantity

23. A production function is given as $x=aL^pK^q$ where x is the quantity of production, L and K are the quantities of the two factors of production. Find (1) Marginal Productivity with respect to L (2) Marginal Productivity with respect to K (3) Marginal rate of substitution.

24. Construct an input output table. The following table gives inter industry transactions for an economy with 3 sectors A,B,C (i) What are the final demands of each sector (ii) what are the priomary inputs (iii) write down Leontief's input output table.

	A	B	C	Total Output
A	100	50	50	400
B	80	100	20	600
C	200	100	300	1200

25. Solve the following by simplex method.

Max $Z= 5x_1+3x_2$

S.t $x_1+x_2 \leq 2$

$5x_1+2x_2 \leq 10$

$3x_1+8x_2 \leq 12$

$x_1,x_2 \geq 0$

(2×15=30)