

23BEC202
UG PROGRAM (4 YEARS HONOURS) WITH SINGLE MAJOR
AT THE END OF SECOND SEMESTER
ECONOMICS-MATHEMATICAL METHODS FOR ECONOMICS
(B.A HONOURS-MAJOR)
(w.e.f. Admitted Batch 2023-24)

Time: 3 Hours

Maximum: 70 marks

Section –A

Answer any Five Questions.

5x4=20

1. Types of mathematical economics
2. Rules of differentiation.
3. Explain the concept of optimization.
4. What is the simple rules of integration?
5. Explain the determinants in economics
6. Operations of mathematical economics.
7. Explain the unconstrained optimization.
8. Explain the basic concept of linear programming.

Section –B

Answer ALL Questions.

5x10=50

9. a) Draw the Graphical representation of Function $f(x)=x+2$ in $[1,3]$

(Or)

- b) Draw the Graphical representation of $Y=[X]$.

10. a) Explain the Continuity and Differentiability of a function.

(Or)

- b) Cost function is $c(x)=\frac{1}{3}x^3+5x^2+30x+10$ and $p=6$ then find the profit maximizing output level.

11. a) Find the dimension of a rectangular parallelepiped bar open at the top of max capacity whose surface area is 108 sq. inches.

(Or)

- b) Divide 84 into two parts, such that the product of one part and the square of other is Maximized.

12. a) No optimal solution in Graphical Method

$$\text{Max } z=3x_1+2x_2$$

subject to constraints

$$x_1+x_2 \leq 1$$

$$x_1+x_2 \geq 3 \text{ and } x_1, x_2 \geq 0$$

(Or)

- b) The standard weight to special purpose brick is 5 kg and it contains two basic ingredients B1 and B2. B1 costs Rs. 5 per Kg and B2 costs Rs. 8 per Kg. Strength consideration dictate that the brick should contain not more than 4 kg of B1 and minimum 2Kg of B2. Since the demand for the product is likely to be related to the price of the brick. Formulate the problem as L.P.P to minimize cost of brick.

13. a) Find the adjoint of the matrix $\begin{bmatrix} 2 & -2 & 4 \\ 2 & 3 & 2 \\ -1 & 1 & -1 \end{bmatrix}$

(Or)

b) Find the Inverse of the matrix $A = \begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$