

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. Each question carries 4 marks

(5x4=20M)

1. Uses of Mathematical method in Economics.
2. Define Partial Differentiation and give example.
3. Maximize TR. If $TR = 400\theta - 8\theta^2$. Find maximum TR
4. Evaluate $\int (x^3) dx$.
5. Write a definition of Square matrix and Give an example. ✓
6. If $A = \{2,3,4,5\}$, $B = \{1,3,5,7\}$ then Find $A \cup B = ?$
7. Find $\frac{dy}{dx}$. If $y = 3x^5$. ✓
8. $A = \begin{bmatrix} 1 & 6 & 2 \\ 3 & 0 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} 6 & 9 & 10 \\ 5 & 3 & 2 \end{bmatrix}$. Find $A + B$? ✓

SECTION - B

Answer All the Questions Each question carries 10 marks

(5x10=50M)

9. (a) Explain various types of sets?

(Or)

(b) $A = \{1,2,3,4\}$, $B = \{3,4,5,6\}$. Find $A \cap B$ through Venn diagram?
10. (a) What are the applications of Derivatives in Economics?

(Or)

(b) If $y = 6x^5 - 4x^3 + 5x + 3$ find $\frac{d^2y}{dx^2}$

11. (a) Find the maximum value of $x^2 + y^2 + z^2$ given that $xyz = a^3$

(Or)

(b) If $f(x) = 3x^3 - 9x^2 - 27x + 15$, Find Extreme values?

12. (a) Evaluate $\int (3x)(2x^2 + 5x - 4) dx$

(Or)

(b) If Marginal Revenue is $MR = 9 - 4x^2$ Find the demand function?

13. (a) If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ show that $A^2 - 5A + 7I = 0$

(Or)

(b) Solve the following equations by Cramer's Rule and find the value of x and y ?

$$2x + 3y = 11$$

$$x - 4y = 22$$
