

MA DEGREE EXAMINATION MAY 2026
(Second Semester)

Branch - **ECONOMICS**

MATHEMATICS FOR ECONOMISTS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	What is the notation for the adjoint of matrix A? (i) adj A (ii) A^T (iii) $ A $ (iv) A^{-1}	K1	CO1
	2	Choose the matrix that has equal number of rows and columns. (i) Column matrix (ii) Square matrix (iii) Rectangle matrix (iv) Row matrix	K2	CO1
2	3	Which condition represents the minimum cost? (i) Total cost (ii) Marginal cost (iii) Average cost (iv) Marginal Revenue	K1	CO2
	4	What is the rule used to differentiate the sum of functions? (i) Product rule (ii) Chain rule (iii) quotient rule (iv) Sum rule	K2	CO2
3	5	Find the method to obtain a cross partial derivative. (i) Two different variables (ii) Constant (iii) Same variable twice (iv) One variable only	K1	CO3
	6	When is a partial derivative called second order? (i) When differentiated once (ii) When differentiated twice (iii) When not differentiated (iv) When differentiated thrice	K2	CO3
4	7	How is a first order differential equation characterized? (i) By derivatives up to second order (ii) only linear terms (iii) By derivatives up to first order (iv) By only one variable	K1	CO4
	8	Which of the following is explained by the Cobweb Model? (i) Consumer equilibrium (ii) National income determination (iii) Monopoly pricing (iv) Price fluctuations over time	K2	CO4
5	9	Identify an important application of definite integrals in Economics. (i) Profit maximization (ii) Cost minimization (iii) Price discrimination (iv) Utility maximization	K1	CO5
	10	What type of integral has limits of integration? (i) Indefinite integral (ii) Definite integral (iii) Improper integral (iv) Partial integral	K2	CO5

Cont...

Module No.	Question No.	Question	K Level	CO
1	11.a.	If $A = \begin{bmatrix} 1 & -3 & 0 \\ 4 & 0 & -1 \\ 0 & -2 & -4 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 3 & -2 \\ -4 & 0 & 1 \\ 0 & 2 & 4 \end{bmatrix}$. Find (i) A+B (ii) A-B	K2	CO1
		(OR)		
	11.b.	Find the inverse of matrix $A = \begin{bmatrix} 3 & 4 \\ 1 & 2 \end{bmatrix}$.		
2	12.a.	Differentiate the function, $y = (4x^2 + 2x)(8x^3 + 3x^2)$.	K3	CO2
		(OR)		
	12.b.	Find $\frac{dy}{dx}$, if $x = at^3$ and $y = 3at$.		
3	13.a.	Find the partial derivatives $z = 4x^2 + 4xy + y^2$.	K4	CO3
		(OR)		
	13.b.	Find total differentiation of $z = (x^2 + y)(2x - y^2)$.		
4	14.a.	Solve the equation $(x + y)dx + (x + 4y)dy = 0$.	K3	CO4
		(OR)		
	14.b.	Solve the difference equation $Y_t - 2Y_{t-1} = 3$.		
5	15.a.	Evaluate $\int (5x + 7)^8 dx$.	K4	CO5
		(OR)		
	15.b.	Find the area of x bounded by $y = 4x - x^2 - 3$, $x = 1$ and $x = 3$.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Solve for x, y and z from the following linear equations $x - 2y + 3z = 1$, $3x - y + 4z = 3$, $2x + y - 2z = -1$ by Crammer's Rule.	K4	CO1
2	17	Differentiate $y = \frac{(x-2)(2x+3)}{(x+7)(1-x)}$.	K5	CO2
3	18	Discuss the applications of partial derivative Economics.	K5	CO3
4	19	Solve $\frac{dy}{dx} + xy = x$.	K4	CO4
5	20	Integrate $x \sin x$.	K2	CO5

Z-Z-Z

END