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22ECU102N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BA DEGREE EXAMINATION MAY 2026
(First Semester)

Branch - **ECONOMICS**

MATHEMATICAL METHODS - I

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	Which curve shows the relationship between price and quantity demanded? (i) Supply curve (ii) Cost curve (iii) Demand curve (iv) Revenue curve	K1	CO1
	2	Which curve is U-shaped in the short run? (i) Average cost curve (ii) Marginal cost curve (iii Both i and ii (iv) Demand curve	K2	CO1
2	3	Find the distance between the points (5,-2) and (5,4) ? (i) 2 (ii) 4 (iii) 6 (iv) 8	K1	CO2
	4	Find the slope of the given line equation 3x-2y+5=0 ? (i) 3/2 (ii) -3/2 (iii) 2/3 (iv) -2/3	K2	CO2
3	5	A matrix in which all elements are zero is called (i) column matrix (ii) row matrix (iii) null matrix (iv) scalar matrix	K1	CO3
	6	If |A|=0 then the matrix is called (i) orthogonal (ii) identity (iii)singular (iv) non-singular	K2	CO3
4	7	The minor of any element of a 1 x 1 determinant is (i) 0 (ii) 1 (iii) element itself (iv) undefined	K1	CO4
	8	Which equation is used to solve cramer's rule ? (i) Differential equations (ii) Linear equations (iii) Quadratic equations (iv) polynomial equations	K2	CO4
5	9	Hawkins- Simon conditions are related to (i) Demand forecasting (ii) Linear programming (iii) Input-output analysis (iv) game theory	K1	CO5
	10	If leonteif condition fails, then the system is (i) Efficient (ii) viable (iii) infeasible (iv) optimal	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Write the importance of mathematical economics.	K3	CO1
		(OR)		
	11.b.	Explain indifference curves.		
2	12.a.	Find the distance between the points (1,2) and (-2,1) and the co-ordinates of the midpoint between them.	K3	CO2
		(OR)		
	12.b.	Find the center and radius of the given equation $(x-3)^2+(y+2)^2=16$.		
3	13.a.	Given $A=\begin{bmatrix}12 & 30\\ 8 & 15\end{bmatrix}, B=\begin{bmatrix}7 & 35\\ 4 & 8\end{bmatrix}$ Find A+B, A-B	K3	CO3
		(OR)		
	13.b.	Given $A=\begin{bmatrix}4 & 6 & 1\\ 2 & 5 & 2\\ 9 & 0 & 4\end{bmatrix}$ Find det(A)?		
4	14.a.	Find x and y using cramer's rule from the following set of simultaneous equation 5x+0.4y=12, 3x+3y=21	K3	CO4
		(OR)		
	14.b.	Find all the minor's and cofactors of the given matrix $A=\begin{bmatrix}3 & 4 & -1\\ 1 & 0 & 3\\ 2 & 5 & -4\end{bmatrix}$		
5	15.a.	Write the limitations of input and output analysis.	K3	CO5
		(OR)		
	15.b.	Derive Leontief production system.		

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	Difference between demand curve and revenue curve	K4	CO1
2	17	Find the equation of the straight line that passes through the points A(2,3) and B(6,11).	K4	CO2
3	18	Find the rank of the given matrix $A=\begin{bmatrix}1 & 2 & 3 & -4\\ -2 & 3 & 7 & -1\\ 1 & 9 & 16 & -13\end{bmatrix}$?	K4	CO3
4	19	Find the inverse matrix A^{-1} for $A=\begin{bmatrix}2 & 4 & 3\\ 3 & 5 & 0\\ 4 & 2 & 5\end{bmatrix}$?	K4	CO4
5	20	Suppose there are only three industries in an economy and we have to estimate the output of each industry with the given input coefficient matrix and final demand as follows: $A=\begin{bmatrix}0.3 & 0.5 & 0.2\\ 0.2 & 0 & 0.5\\ 0.1 & 0.3 & 0.1\end{bmatrix}, F=\begin{bmatrix}100\\ 40\\ 50\end{bmatrix}$.	K4	CO5

Z-Z-Z END