

ANNAI VIOLET ARTS AND SCIENCE COLLEGE

DEPARTMENT OF MATHEMATICS

CONTINUOUS INTERNAL ASSESSMENT – I (ODD SEM.)

SUBJECT : MATHEMATICS FOR ECONOMISTS

Class : II B.A.(Economics)

Max.Marks : 50

Date : 05.09.2022-FN

Sub. Code: AE23B

PART A (5 · 2 = 10 Marks)

Answer any FIVE questions

1. Write the definition of vector.

2. Add: $\begin{bmatrix} 57 & 35 \\ 25 & 24 \end{bmatrix} + \begin{bmatrix} 20 & -34 \\ -7 & 9 \end{bmatrix}$.

3. Take the transpose of a matrix $A = \begin{bmatrix} 2 & 2 & 6 \\ -1 & -2 & -5 \\ -2 & -2 & -8 \end{bmatrix}$

4. Verify the given matrix is singular or non-singular $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$

5. Find the minor of each element in the matrix $A = \begin{bmatrix} 2 & 3 \\ 4 & 5 \end{bmatrix}$

6. Compute the rank of the matrix $A = \begin{bmatrix} 2 & -4 \\ -1 & 2 \end{bmatrix}$

7. If $A = \begin{bmatrix} -1 & 2 \\ 1 & -4 \end{bmatrix}$ then what is $\text{adj } A$

PART B – (2 · 5 = 10 Marks)

Answer any TWO questions

8. Solve by matrix inverse method $2x - y = 7; 3x - 2y = 11$

9. If $\begin{bmatrix} 2x & 3x - y \\ 2x + z & 3y - w \end{bmatrix} = \begin{bmatrix} 3 & 2 \\ 4 & 7 \end{bmatrix}$ calculate x, y, z, w

10. If $A = \begin{bmatrix} 1 & 8 \\ 4 & 3 \end{bmatrix}; B = \begin{bmatrix} 1 & 3 \\ 7 & 4 \end{bmatrix}$ then prove that $AB \neq BA$.

PART C – (3 · 10 = 30 Marks)

Answer ALL questions

11. Compute A^{-1} , for a matrix $A = \begin{bmatrix} 3 & 1 & -1 \\ 2 & -2 & 0 \\ 1 & 2 & -1 \end{bmatrix}$

12. If $A = \begin{bmatrix} 0 & 6 & 7 \\ -6 & 0 & 8 \\ 7 & -8 & 0 \end{bmatrix}; B = \begin{bmatrix} 0 & 1 & 1 \\ 1 & 0 & 2 \\ 1 & 2 & 0 \end{bmatrix}; C = \begin{bmatrix} 2 \\ -2 \\ 3 \end{bmatrix}$ Calculate AC, BC

and $(A + B)C$. Also, verify that $(A + B)C = AC + BC$

13. Find the minors and co-factors of the elements of the determinant

$$\begin{vmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{vmatrix}$$

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