Q.1 Write the order of each of the following matrices.(2 Marks)

a) $\begin{bmatrix} 2 & 3 \\ 4 & 5 \end{bmatrix}$

b) $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 8 & 10 \end{bmatrix}$

c) $\begin{bmatrix} 2 & 3 & 7 \end{bmatrix}$

d) $\begin{bmatrix} 4 & 4 \\ 8 & 2 \\ 9 & 1 \end{bmatrix}$

Q.2 In the matrix A…

$A = \begin{bmatrix} 3 & 5 & 1 & -2 \\ -5 & 1 & 3 & -4 \\ 3 & -2 & -3 & 2 \\ 1 & 8 & 1 & 7 \end{bmatrix}$

Find ….

a) Total Number Of Rows And Columns

b) the order of the matrix A

c) the total number of elements in the matrix A

d) A_{12} , A_{24} , A_{21} , A_{11} , A_{42} , A_{44} (2 Marks)

Q.3 Construct a 2×2 matrix whose elements in the i^{th} row and j^{th} column is given by

a) 2i + 5j

b) 3j + 4i (4 Marks)

Q.4 If $A = \begin{bmatrix} 2 & -2 & 4 \\ -3 & -7 & 8 \end{bmatrix}$ then find

a) 3A

b) -A

c) A' (6 marks)

Q.5 If $A = \begin{bmatrix} 1 & 3 \\ -2 & 4 \end{bmatrix}, B = \begin{bmatrix} 2 & 4 \\ -1 & 3 \end{bmatrix} and\ C = \begin{bmatrix} -1 & 5 \\ 2 & 3 \end{bmatrix}$ then Find

a) B – C

b) A – (B + C)

c) C + (A – B)

d) A + C

e) B – (C + B) (5 Marks)

Q.6 If $A = \begin{bmatrix} 2 & 1 \\ 2 & 3 \end{bmatrix} and\ B = \begin{bmatrix} -2 & 2 \\ 4 & 8 \end{bmatrix}$ then Find

a) (A + B)'

b) (A - B)'

c) (A' + B)

d) (B' – A)' (4 Marks)

Q.7 If $A = \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix} and\ I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ then verify that $A^2 - 2A - 3i = O$ (3 Marks)

Q.8 If $A = \begin{bmatrix} 2 & 2 & 1 \\ 4 & -3 & -1 \\ 2 & 6 & 3 \end{bmatrix} and\ B = \begin{bmatrix} 1 & 6 \\ -3 & 2 \\ 1 & -2 \end{bmatrix}$ find AB and BA. Is AB = BA? (4 Marks)

Q.9 $For\ A = \begin{bmatrix} 2 & -1 \\ 3 & 4 \end{bmatrix} and\ B = \begin{bmatrix} 2 & -3 \\ -1 & 0 \end{bmatrix}$ verify that $(AB)' = B'\ A'$ (3 Marks)

Q.10 Find the inverse of matrix $A = \begin{bmatrix} 2 & -1 \\ 3 & 4 \end{bmatrix}$ using elementary column operations (3 Marks)

Q.11 Find the inverse of matrix $B = \begin{bmatrix} 3 & -1 & -2 \\ 2 & 0 & -1 \\ 3 & -5 & 0 \end{bmatrix}$ using elementary column operations (4 Marks)

Q.12 Find the inverse of matrix $C = \begin{bmatrix} \cos x & \sin x \\ \sin x & \cos x \end{bmatrix}$ using elementary column operations (3 Marks)

Q.13 If $A = \begin{bmatrix} 1 & -1 \\ 2 & -1 \end{bmatrix} and\ B = \begin{bmatrix} x & 1 \\ y & -1 \end{bmatrix}$ and $(A + B)^2 = A^2 + B^2$ then find the value of x and y. (3 Marks)

Q.14 If $A = \begin{bmatrix} 1 & 2 & 1 \\ 2 & 2 & -2 \\ 1 & 2 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 5 & 3 \\ 2 & -1 & 1 \\ 1 & 2 & -1 \end{bmatrix}$ then Find

a) A'B

b) AB' (4 Marks)

Best Of Luck