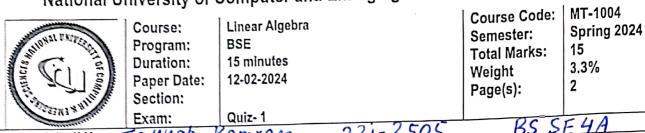
National University of Computer and Emerging Sciences, Lahore Campus



221-2505 Name & Roll No: Tayyab Kamran Question 1: (10 marks) Determine whether the following statements are true or false.

Justify your answer (No mark will be awarded without justification)

i. If
$$A = \begin{bmatrix} 5 & 1 & 5 & 9 \\ 1 & 1 & 8 & 5 \\ 0 & 2 & 2 & 1 \end{bmatrix}$$
 and $B = \begin{bmatrix} 5 & 1 & 5 & 9 \\ 1 & -1 & 6 & 4 \\ 0 & 2 & 2 & 1 \end{bmatrix}$ are row equivalent. Thus

As $R3 \circ BA$ is equal to $R3 \circ B$.

 $R_2 \cdot R_3 \circ A$

 $A = \begin{bmatrix} 0 & 2 & -1 \\ -2 & 0 & 0 \\ 1 & 0 & 1 \end{bmatrix}$ is skew symmetric. **Folse** $A \neq -A^{\pm}$, in R3 the element at A33 don't match.

iii. If A is invertible then the system Ax = b may have infinitely many solutions. Follows 9f A is invertible then IAI = 0 and it has July one trivial solution.

iv. If
$$A = \begin{bmatrix} 2a & b & c \\ d & 10e & f \\ g & h & 3i \end{bmatrix}$$
 then $tr(A) = 60aei$. Type

As we can see by multiplying the main diagonal

we get $60aei$.

v. Following system will be consistent regardless the value of k.

$$2x + 3y = 5$$

$$2x + 3y = k$$
This system will we consistent if and only if $K = 5$.

Question 2: (CLO 2) (5 marks) Use the inverse of the matrix to solve the following system.

Question 2: (CLO 2) (S marks) Osc the involve of the hards
$$x_1 - x_2 + +x_3 + 2x_4 = 0$$

$$-2x_1 + x_2 + 5x_3 + x_4 = 0$$

$$-3x_1 + 2x_2 + 2x_3 - x_4 = 0$$

$$4x_1 - 3x_2 + x_3 + 3x_4 = 0$$

et
$$T = \begin{bmatrix} 1 & -1 & 1 & 2 & 0 \\ -2 & 1 & 5 & 1 & 0 \\ -3 & 2 & 2 & -1 & 0 \end{bmatrix}$$

Rz = Rz +2R1 R3 = R3 + 3R1 R4 = R4 + (-4R1)