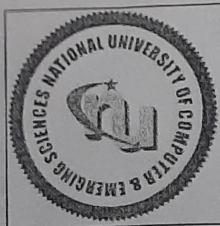


National University of Computer and Emerging Sciences, Lahore Campus



Course: Linear Algebra
Program: BS(CS)
Duration: 60 Minutes
Paper Date: September-19
Section: ALL
Exam: Midterm-I

Course Code: MT104
Semester: Fall 2019
Total Marks: 10
Weight: 12.5
Page(s): 1
Roll No: [REDACTED]

Instruction/Notes: Attempt All Questions.

Question # 1: (CLO: 1,2, 3) If $A = \begin{pmatrix} -1 & 7 & -1 \\ 0 & 1 & 0 \\ 0 & 15 & -2 \end{pmatrix}$

- a) [10] Find A^{-1} by using inversion algorithm,
- b) [10] Show that A can be expressible as a product of elementary matrices,

c) [2] If $AX = b$ and $X = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$, $b = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$, then find the value of X by using A^{-1}

d) [3] Find an elementary matrix E that satisfies the stated equation

$$EA = \begin{bmatrix} -1 & 7 & -1 \\ 0 & 1 & 0 \\ -2 & 29 & -4 \end{bmatrix}$$

e) [5] Use the row reduction to evaluate the determinant of $B = \begin{bmatrix} 1 & 3 & 1 & 5 & 3 \\ -2 & -7 & 0 & -4 & 2 \\ 0 & 0 & 1 & 0 & 1 \\ 0 & 0 & 2 & 1 & 1 \\ 0 & 0 & 0 & 1 & 1 \end{bmatrix}$