National University

of Computer & Emerging Sciences Peshawar Campus

Program: BS (CS)
Semester: Fall-2019
Course: MT104-Linear Algebra
Instructor Name: Mr. Osama Sohrab

Examination: Assignment # 02
Total Marks: 10, Weightage: **02**
Date of Submission: 28 / 10 / 2019
Batch : 18

Note: Attempt all questions.

Q1. Solve the following linear system by Gauss-Jordan Elimination.

$$\begin{aligned} f_1 + f_2 + f_3 &= 500 \\ f_1 + f_4 + f_6 &= 400 \\ f_3 + f_5 - f_6 &= 100 \\ f_2 - f_4 - f_5 &= 0 \end{aligned}$$

Q2. If $\det A = 2$ and $\det B = 5$, calculate $\det(A^3 B^{-1} A^T B^2)$.

Q3. Use Row Reduction to evaluate the determinant of the matrix

$$A = \begin{bmatrix} 2 & 0 & 1 & 3 & -2 \\ -2 & 1 & 3 & 2 & -1 \\ 1 & 0 & -1 & 2 & 3 \\ 3 & -1 & 2 & 4 & -3 \\ 1 & 1 & 3 & 2 & 0 \end{bmatrix}.$$

Q4. A forester wants to estimate the age (in years) of a tree by measuring the diameter of the trunk (in cm). She obtains the following data:

	Tree 1	Tree 2	Tree 3
Trunk Diameter	5	10	15
Age	3	5	6

Estimate the age of a tree with a trunk diameter of 12 cm.