Assignment # 01 MTH501 (Spring 2024)

Section In-Charge: Dr. Nimra Jamil

Marks: 20
Due Date: May 17, 2024

DON'T MISS THESE: Important instructions before attempting the solution and submission of this assignment:

- **Lecture 9-16 are encompassed in Assignment 1.**
- **Only students in Section: Dr. Nimra Jamil shall complete this Assignment.**
- **The course is segmented into two sections, each of which is supervised by a different faculty member.**
- **A distinct assignment file has been given to each section, resulting in four separate assignment files. The relevant assignment file can be downloaded from the announcement section of the course. It is important to note that students can only view the announcements relevant to their respective sections.**
- **You will prepare the solution of the assignment on Word file and upload it to the assignment interface on LMS as per usual practice.**
- **If you upload the assignment file of any other sections, it be awarded with zero mark.**
- **You can download the assignment file of your section from the announcement.**

Question 1:

$$A = \begin{bmatrix} 1 & -3 & -6 & 2 \\ 0 & 2 & -2 & 3 \\ 0 & 0 & 0 & 4 \end{bmatrix}$$

Does T maps R^4 onto R^3. Is T a one-one mapping?

Question 2:

Find the entries of 2nd row of AB where

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \\ 10 & 11 & 12 \end{bmatrix}; B = \begin{bmatrix} 2 & 7 \\ 3 & 9 \\ 5 & 11 \end{bmatrix}$$

Question 3:

Find the multiplicative inverse of the matrix by using row operations

$$\begin{bmatrix} 1 & 0 & 2 \\ 1 & 2 & 2 \\ 0 & 0 & 2 \end{bmatrix}$$

Question 4:

Consider

$$A = \begin{bmatrix} 2 & 0 & 0 & 0 & 0 & 2 \\ 0 & 2 & 0 & 0 & 0 & 2 \\ 0 & 0 & 2 & 0 & 0 & 2 \\ 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 \\ 1 & 1 & 1 & 0 & 0 & 1 \end{bmatrix}$$

Find A^2 by using partitioning of matrix technique.

Best of Luck 😊