Name:

Sequence Number:

Teacher's Name: Rabab Alyusof

Section: 60233

Question Number	1	2	3	4	5	6	7	8	9	10
Answer	a	b	c	b	c	a	a	b	c	b

Choose the correct answer:

(1) The augmented matrix for the following linear system is

$$x - 2y + 3z = 7$$
$$2x + y + z - 4 = 0$$
$$-3x + 2y - 2z = -10$$

(a) $\begin{bmatrix} 1 & -2 & 3 & 7 \\ 2 & 1 & 1 & 4 \\ -3 & 2 & -2 & -10 \end{bmatrix}$,

(b) $\begin{bmatrix} 1 & -2 & 3 & 7 \\ 2 & 1 & 1 & -4 \\ -3 & 2 & -2 & -10 \end{bmatrix}$

(c) $\begin{bmatrix} 1 & -2 & 3 & 7 \\ 2 & 1 & 1 & 0 \\ -3 & 2 & -2 & -10 \end{bmatrix}$

(d) None of the previous

(2) Which of the following is a linear equation in x, y and z?

(a) $\pi x + 2y^{\frac{1}{2}} - \frac{1}{3}z = 0$

(b) $\pi x - 2^{\frac{1}{3}}y - \frac{1}{3}z = 0$

(c) $\pi x + 2^{\frac{1}{2}}y - \frac{1}{2}xz = 0$

(d) None of the previous

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(3) The matrix $\begin{bmatrix} 1 & 0 & 1 & 3 \\ 0 & -1 & 1 & 2 \\ 0 & 0 & 0 & 1 \end{bmatrix}$ is in

(a) row echelon form but not reduced row echelon form

(b) reduced row echelon form

(c) neither

(d) None of the previous

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(4) The linear system corresponding to the augmented matrix $\begin{bmatrix} 3 & 6 & -3 & | & -3 \\ 0 & -2 & 4 & | & 8 \\ 0 & 0 & 3 & | & 6 \end{bmatrix}$

(a) has infinitely many solutions

(b) has a unique solution

(c) is inconsistent

(d) None of the previous

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(5) Given a matrix below, which row operation must be performed to complete the process

$$\begin{bmatrix} -4 & 5 & 9 & | & -9 \\ 0 & 2 & -8 & | & 8 \\ 1 & -2 & 1 & | & 0 \end{bmatrix} \xrightarrow{???} \begin{bmatrix} 0 & -3 & 13 & | & -9 \\ 0 & 2 & -8 & | & 8 \\ 1 & -2 & 1 & | & 0 \end{bmatrix}$$

(a) $4 - R_1 \rightarrow R_1$

(b) $-4R_3 + R_1 \rightarrow R_1$

(c) $4R_3 + R_1 \rightarrow R_1$

(d) None of the previous

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(6) Which of the following statements is true?

(a) Each elementary row operation on an augmented matrix never change the solution set of the system.

(b) Tow matrices are equivalent if they have the same number of rows.

(c) If two linear systems have the same coefficient matrix, then they have the same solution set.

(d) None of the previous

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(7) The column vector of a matrix product AB can be written as a linear combination of:

(a) The column vector of A

(b) The column vector of B

(c) The row vectors of A

(d) None of the previous

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(8) if $B^T A^T$ is a 2×6 matrix and A is 6×4 then the size of B is:

    (a) 4×6 (b) 4×2 (c) 2×4 (d) None of the previous

(9) Let $A = \begin{bmatrix} 1 & -2 & 5 \\ 5 & -1 & -2 \\ 3 & 3 & -3 \end{bmatrix}$, $B = \begin{bmatrix} 3 \\ 2 \\ 2 \end{bmatrix}$, $C = \begin{bmatrix} 1 & 2 & 3 & 4 \end{bmatrix}^T$, then $\frac{1}{9} AB - B$ is:

    (a) $\begin{bmatrix} 2 \\ 1 \\ 1 \end{bmatrix}$ (b) $\begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$ (c) $\begin{bmatrix} -2 \\ -1 \\ -1 \end{bmatrix}$ (d) None of the previous

(10) If $A = \begin{bmatrix} 1 & 0 & 3 \\ -2 & 6 & 0 \\ 0 & -1 & 1 \end{bmatrix}$ then $tr\ (AA^T - 4A)$ is:

    (a) 18   (b) 20   (c) 35   (d) None of the previous

Good Luck ☺