

國立虎尾科技大學九十七學年度第一學期平時考(一)試題

班級:技電三甲 科目:線性代數 時間:2008/9/25(星期四) 12:10-13:10

1. Consider the linear system  $\begin{cases} x + y - z = 2 \\ x + 2y + z = 3 \\ x + y + (k^2 - 5)z = k \end{cases}$ . For which value of

$k$  is the system inconsistent?

2. Find all solutions of the equations using Gauss-Jordan elimination.

$$\begin{cases} x + y - 2z = 5 \\ 2x + 3y + 4z = 2 \end{cases}$$

3. Write the system  $\begin{cases} x + 2y + 3z = 1 \\ 4x + 5y + 6z = 4 \\ 7x + 8y + 9z = 9 \end{cases}$  in matrix form.

4. Find a  $3 \times 3$  matrix  $A$  such that  $A \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix} = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$ ,  $A \begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix} = \begin{bmatrix} 4 \\ 5 \\ 6 \end{bmatrix}$  and

$$A \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 7 \\ 8 \\ 9 \end{bmatrix}.$$