MTL101
LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS
QUIZ 2

Total Marks: 10 **Time: 30 Minutes**

Question 1: (5 Marks) Find the eigenvalues and corresponding eigenspaces of the following matrix of real numbers.

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

Determine whether the matrix is diagonalizable.

Question 2: (5 Marks) Solve the following IVP

$$t^2x'' + 5tx' + 4x = 0, \quad x(1) = 0, \quad x'(1) = 1.$$