King Fahd University Of Petroleum and Minerals
College of Sciences
Mathematics and Statistics Department
Math 260-02
Quiz#2

Name:..... ID#:..... Serial#:.....

1. Find the eignevalues and associated eigenvectors of $A = \begin{bmatrix} 2 & -2 & 0 \\ 2 & -2 & -1 \\ -2 & 2 & 3 \end{bmatrix}$

2. Use the Cayley-Hamilton theorem to find A^{-1} and A^3 of the matrix $A = \begin{bmatrix} 1 & -2 & 1 \\ 0 & 1 & 0 \\ 0 & -2 & 2 \end{bmatrix}$

3. Find the complex conjugate eigenvalues and corresponding eigenvectors of the matrix $A = \begin{bmatrix} 0 & -6 \\ 6 & 0 \end{bmatrix}$

4. (a) Determine whether or not $A = \begin{bmatrix} 2 & -2 & 1 \\ 2 & -2 & 1 \\ 2 & -2 & 1 \end{bmatrix}$ is diagonalizable. If it is, find a diagonalizing matrix P and a diagonal matrix D such that $P^{-1}AP = D$.

   (b) Use the previous part to find A^{10}.