

ING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
DEPARTMENT OF MATHEMATICAL SCIENCES
MATH 260-04
Quiz # 5
January 15, 2007

NAME:

ID#:

SHOW ALL YOUR WORK

1. (5point) Let A be the matrix

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

Show that A is not diagonalizable.

2. (5point) Suppose A is the matrix

$$A = \begin{bmatrix} p & 1-p \\ 1-q & q \end{bmatrix},$$

where $0 < p < 1$ and $0 < q < 1$. Show that $\lambda = 1$ is an eigenvalue for A . What is the other eigenvalue? What are the corresponding eigenvectors.