King Fahd Univ. of Petroleum and Minerals
Faculty of Sciences
Department of Mathematical Sciences

QUIZ No. 4
(MATH. 260-053 Sections 2 and 3)

Name:
ID:

<u>Prob. 1</u>
Find a general solution for

$$y'' + y = x\cos^3 x$$

<u>Prob.2</u>
Find the eigenvalues and eigenvectors of

$$\begin{pmatrix} 0 & -4 \\ 36 & 0 \end{pmatrix}$$

<u>Prob. 3</u>
The matrix

$$A = \begin{pmatrix} 1 & 1 \\ 0 & 1 \end{pmatrix}$$

is not diagonalizable. (Why not?) Write $A = I + B$, show that $B^2 = 0$ and

$$A^n = \begin{pmatrix} 1 & n \\ 0 & 1 \end{pmatrix}$$