

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics

Math - 202 Semester - 062 Quiz # IV

Name:

S. No.:

ID:

Maximum Marks: 10

Section:

Time Allowed: 20 Minutes

NOTE: Give the solution of any TWO questions.

1. Determine singular points and classify as regular or irregular singular points of the ODE
 $(x^2 - 16)^2 y'' + (x + 4)y' + 2y = 0.$ (5 Marks)
2. Find the eigenvalues and eigenvectors of the matrix (5 Marks)

$$A = \begin{bmatrix} 0 & 4 & 0 \\ -1 & -4 & 0 \\ 0 & 0 & -2 \end{bmatrix}$$

3. Solve (5 Marks)

$$2x_1 + 6x_2 + x_3 = 7$$

$$x_1 + 2x_2 - x_3 = -1$$

$$5x_1 + 7x_2 - 4x_3 = 9$$

by using Gaussian elimination method (augmented matrix).

Solution.