

King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences

Math - 202 Semester - 062 Quiz # II

Name:

S. No.:

ID:

Maximum Marks: 10

Section:

Time Allowed: 15 Minutes

NOTE: Give the solution of any TWO questions.

1. (a) Determine whether $y_1(x) = e^{3x}$ and $y_2(x) = e^{-3x}$ are linearly independent. (3 Marks)
(b) Determine whether $y_1(x) = 2 + x$ and $y_2(x) = 2 + |x|$ are linearly independent. (2 Marks)
2. Determine whether the ODE $\left(\frac{1}{t} + \frac{1}{t^2} - \frac{y}{t^2 + y^2}\right) dt = \left(ye^y + \frac{t}{t^2 + y^2}\right) dy = 0$ is exact. (5 Marks)
3. Write the ODE $-ydx + (x + \sqrt{xy})dy = 0$ in the separable variables form by using an appropriate substitution. (5 Marks)

Solution.