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

Math 202 **Section .....** **Serial #: ....** **Quiz I(a) (Term 172)**

Name : ..... **ID** #..... **Marks** #: ...../8

1. For the differential equation $y''' + (y')^4 + \sin y = \tan x$:

   (a) Find order and independent variable

   (b) Is this DE linear or nonlinear

2. Solve the initial-value problem:

$$\sqrt{1-y^2}\,dx - \sqrt{1-x^2}\,dy = 0, \;\; y(0) = 1$$

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Math 202 **Section .....** **Serial #: ....** **Quiz I(b) (Term 172)**

Name : ..... **ID** #..... **Marks** #: ...../8

1. Show that $y = xe^x$ is an explicit solution of the differential equation $y'' - 2y' + y = 0$.

2. Solve $(x + 2y^3)\,\dfrac{dy}{dx} = y$.

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Math 202 **Section .....** **Serial #: ....** **Quiz I(c) (Term 172)**

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1. Is the differential equation $\frac{d^2y}{dt^2} + (y')^5 \sin t = 3e^{t^2}$ linear or nonlinear? What is its order?

2. Solve the initial-value problem:

$$\frac{dy}{dx} = \frac{-x}{y}, \quad y(3) = -4$$

3. Find general solution of the differential equation $\frac{dy}{dx} + \frac{y}{x} = \sin x$