

KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
DEPARTMENT OF MATHEMATICS AND STATISTICS
MATH 260 - MAKE UP

Name:

Student ID #:

Question 1. Transform the differential equation $(t + 1)^2 x'' + e^{t^2} x' + \tan(t)x = \sqrt{t^2 + 1}$ into an equivalent system of first order differential equations.

Question 2. Solve the initial value problem

$$X'(t) = \begin{bmatrix} -2 & 1 \\ -1 & -2 \end{bmatrix} X(t), \quad X(0) = \begin{bmatrix} 4 \\ 5 \end{bmatrix}$$

Your Solution.