

King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math 301 – Term 181 – Quiz 5

Name:

Student ID #:

Section #: 2

Question 1. Solve the problem using separation of variables

$$\frac{\partial^2 u}{\partial t^2} = 9 \frac{\partial^2 u}{\partial x^2}, \quad 0 < x < 1, \quad t > 0$$

$$u(0, t) = 0, \quad u(1, t) = 0, \quad t \geq 0$$

$$u(x, 0) = 0, \quad 0 < x < 1$$

$$u_t(x, 0) = \cos \pi x, \quad 0 < x < 1.$$