

King Fahd University of Petroleum & Minerals  
Department of Mathematics and Statistics  
(Semester 132) Math 301.2 Quiz # 6

Name: \_\_\_\_\_ I.D. # \_\_\_\_\_ Sr. # \_\_\_\_\_

Use Laplace Transform to solve

$$u_{xx} = u_{tt}, \quad x > 0, \quad t > 0, \quad u(0, t) = 0, \quad u(x, 0) = e^{-x}, \quad u_t(x, 0) = 0, \quad \lim_{x \rightarrow \infty} u_x(x, t) = 0$$

$$[\text{Note: } \ell(f''(x)) = s^2 F(s) - s f(0) - f'(0), \quad \ell(f(x-a) u(x-a)) = e^{-as} F(s)]$$