King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math-301   Semester-132   QUIZ V

NAME: S.No.   ID:

Maximum Marks: 10   Section:03   Time Allowed: 40minutes

(1) Use separation of variables method to solve the problem

$$\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0 \quad 0 < x < 1, 0 < y < 1$$

$$u_x(0, y) = 0, u_x(1, y) = 0, \quad 0 < y < 1$$
$$u_y(x, 0) = 0, u(x, 1) = f(x), \quad 0 < x < 1.$$

(2) Classify the PDE as hyperbolic, parabolic or elliptic

$$\frac{\partial^2 u}{\partial x^2} - \frac{\partial^2 u}{\partial x \partial y} - 3\frac{\partial^2 u}{\partial y^2} = 0.$$