Math-202 Semester-122 QUIZ II

NAME: S.No. ID:

Maximum Marks: 15 Section:10 Time Allowed: 40 minutes

(1) Find the integrating factor that makes the differential equation

$$y(\ln x - \ln y)dx - (x \ln x - x \ln y - y)dy = 0 \quad \text{exact.}$$

(2) Solve the differential equation by using an appropriate substitution

$$xdy = (y + \sqrt{x^2 + y^2})dx.$$

(3) Convert the differential equation into linear differential equation

$$x^2 \frac{dy}{dx} + 2xy = 5y^3.$$