Math-202 Semester-133 QUIZ I

NAME: S.No. ID:

Maximum Marks: 30 Section:06 Time Allowed: 50 minutes

(1) Find the value of m so that the function $y = x^m$ is a solution of differential equation

$$x^3y''' + 5x^2y'' + 7xy' + 8y = 0.$$

(2) Solve the differential equation $dy + x^2dx = x^2e^{3y}dx$.

(3) Solve the differential equation $(1 + y^2)dx = (tan^{-1}y - x)dy$.

(4) Find the largest region R containing a point (x_0, y_0) in the xy-plane for which the IVP

$$\frac{dy}{dx} = \frac{\sqrt{3 + 2y - y^2}}{ln\ x}; \quad y(x_0) = y_0$$

would have a unique solution.