Q1. (5 points) Solve the first order linear differential equation if \( x^2 \frac{dy}{dx} + xy = x^2 e^x \) with \( y(1)=1 \).

Q2. (5 points) Find a condition under which \((x^2 + c_1 xy)dx + (x^2 + y^2)dy = 0\) is exact. Also, solve the equation.