KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
DEPARTMENT OF MATHEMATICS AND STATISTICS
MATH 201 - MAKE UP QUIZ

Name:
Student ID #:

Question 1. Find if they exist, the local maximum and minimum values and saddle points of the function $f(x, y) = e^x \cos(y)$.

Question 2. Find the extreme values of $f(x, y) = e^{-xy}$ on the region described by the inequality $x^2 + 4y^2 \leq 1$.

Question 3. Consider the region $R : 1 \leq x \leq 2, 0 \leq y \leq \sqrt{2x - x^2}$ described in cartesian coordinates.

    (1) Describe the region R in polar coordinates,
    (2) Calculate the area of R using double integral and polar coordinates.

Your Solution.