King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math-201 Semester-143 QUIZ IV

NAME: S.No. ID:

Maximum Marks: 10 Section: Time Allowed: 40 minutes

(1) Find the linearization $L(x, y, z)$ of the function $f(x, y, z) = xy + yz + xz$ at $(1, 0, 0)$.

(2) Let $z = \ln(\sqrt{x^2 + y^2})$ and (x, y) changes from $(3, 4)$ to $(2.95, 4.1)$. Use differential to eliminate the change $\triangle z$ of z.

(3) Find and sketc the domain of $f(x,y) = \frac{e^{\sqrt{x^2+y^2-1}}}{3 + \sqrt{4-x^2-y^2}}$. Also find the range of f.

(4) Find the directional derivative of $f(x,y) = xe^y + \cos(xy)$ at the point $(2,0)$ in the direction of $\overrightarrow{v} = < -3, -4 >$.