

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 and sketch 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 .
- (2) Find the directional derivative of $f(x, y) = xe^y + \cos(xy)$ at the point $(2, 0)$ in the direction of $\vec{v} = \langle 1, -4 \rangle$.

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