King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math-201 Semester-131 QUIZ I

NAME: S.No. ID:

Maximum Marks:10 Section:11 Time Allowed: 30 minutes

(1) Find the rate of change of $f(x,y) = xe^y$ at the point $P(2,0)$ in the direction from P to $Q(\frac{1}{2},2)$.

(2) If $z = f(x,y)$ has continous second partial derivatives and $x = r^2 + s^2$ and $y = 2rs$, find $\frac{\partial^2 z}{\partial r^2}$.

(3) If $f(x,y) = x^2 - xy + \frac{1}{2}y^3 + 3$, then find an upper bound for the error in the approximation of $f(x,y) \simeq L(x,y)$ over the rectangle $R : |x-3| \leq 0.1, \ \ |y-2| \leq 0.1$.

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