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:15 Time Allowed: 30 minutes

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

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

(3) If $f(x, y) = x^2 - 3xy + +5$, then find an upper bound for the error in the approximation of $f(x, y) \simeq L(x, y)$ over the rectangle $R : |x-2| \leq 0.1, \ |y-1| \leq 0.1$.

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