King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics

Math 201 **Section#: .....** **Serial #: ....** **Quiz 3(a) (Term 181)**

Name : ..... **ID** #..... **Marks** ...../6

1. For $f(x,y) = \sqrt{x} + \sqrt{y} + \ln(9 - x^2 - y^2)$, find:

   (a) Domain of $f(x,y)$ and its sketch.

   (b) Level curve of $f(x,y)$ that passes through $(2,2)$.

2. Check whether or not $\lim\limits_{(x,y)\to(0,0)} \dfrac{x^2y}{x^4+y^2}$ exists. Justify your answer.

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Math 201 **Section#: .....** **Serial #: ....** **Quiz 3(d) (Term 181)**

Name : ..... **ID** #..... **Marks** ...../6

1. For $f(x, y, z) = \ln(16 - 4x^2 - 4y^2 - z^2)$, find and sketch domain of f.

2. Determine set of points at which $f(x, y) = \dfrac{e^x + e^y}{e^{xy} - 1}$ is continuous.

3. If $x - z + 1 = \tan^{-1}(yz)$, then find $\dfrac{\partial z}{\partial x}\Big|_{(\frac{\pi}{4},1,1)}$

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Math 201 **Section#: .....** **Serial #: ....** **Quiz 3(c) (Term 181)**

Name : ..... **ID** #..... **Marks** ...../6

1. For $f(x,y) = \sqrt{1-x^2+y^2}$, find and sketch domain of f.

2. Evaluate: $\lim\limits_{(x,y)\to(0,0)} \dfrac{x^2-y^2}{\sqrt{x^2+y^2}}$.

3. For $F(x,y) = x\cos y + \sin(xy)$, find $F_{xyx}\left(1, \frac{\pi}{2}\right)$.

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Math 201 **Section#: .....** **Serial #: ....** **Quiz 3(b) (Term 181)**

Name : ..... **ID** #..... **Marks** ...../6

1. Find and sketch domain of $f(x, y) = 4 \ln(3 - 2x^2 - y^2)$. Also find level curve of $f(x, y)$ that passes through $(1, 0)$.

2. For $z = \dfrac{x^2 + y^2}{x + y}$, find $x\dfrac{\partial z}{\partial x} + y\dfrac{\partial z}{\partial y}$