

**KFUPM--Term 151**

Math 201

Quiz 4(a)

Time: 20 minutes

Date: 24-11-15

Name	ID	Sr	Sec	Marks:- /8
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Q 1. Find the equation of the tangent plane and normal line at the point  $(-2, 1, -3)$  to the ellipsoid

$$\frac{x^2}{4} + y^2 + \frac{z^2}{9} = 3.$$

Q2. Find the absolute maximum and minimum values of  $f(x, y) = 2x + 2y - x^2 - y^2$  on the triangular region in the first quadrant bounded by the lines  $x = 0$ ,  $y = 0$  and  $y = 5 - x$ .

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Quiz 4(c)

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Q 1. By about how much will  $f(x, y, z) = e^x \cos yz$  change as the point  $P(x, y, z)$  moves from the origin a distance of  $ds = 0.1$  unit in the direction  $2\mathbf{i} + 2\mathbf{j} - 2\mathbf{k}$  ?

Q2. Find the local extreme values of the function  $f(x, y) = x^3 - y^3 - 2xy + 6$ .

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Quiz 4(d)

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Q 1. Find the linearization of  $f(x, y) = x^2 - xy + \frac{1}{2} y^2$  at the point (3,2).

Q2. Find the absolute maximum and minimum values of  $f(x, y) = 1 + 2x + 2y - x^2 - y^2$  on the triangular region in the first quadrant bounded by the lines  $x = 0, y = 0$  and  $y = 7 - x$ .