SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF MATHEMATICS
18MAB101T CALCULUS AND LINEAR ALGEBRA
ASSIGNMENT-II (November 2020)

1.Identify the saddle point and extreme points of $f(x, y) = x^4 - y^4 - 2x^2 + 2y^2$

2.A rectangular box open at the top is to have volume of 32cubic feet. Find its dimensions if the total surface area is minimum.

3.a.If $u = x^2 + y^2$ where $x = s + 3t$ and $y = 2s - t$ find $\frac{\partial u}{\partial s}$ and $\frac{\partial u}{\partial t}$.

b.If $z = \sin\left(\frac{x}{y}\right), x = e^t, y = t^2$ $find$ $\frac{dz}{dt}$.

4.If $u = \frac{yz}{x}, v = \frac{zx}{y}, w = \frac{xy}{z}$ show that $\frac{\partial(u,v,w)}{\partial(x,y,z)} = 4$

5.Expand $e^{2x}cos2y$ in powers of x and y at $(0, \frac{\pi}{2})$ upto second degree terms.

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