# **Chapter-2**

**Partial Derivatives**

1. **Define first order & second order partial derivative.**
2. **Define Homogenous function.**
3. **Define Euler’s Homogenous function of first & second order.**
4. **Define implicit and explicit function.**
5. **If z= log(), prove that**
6. **If , prove that = 2**
7. **If , then show that**
8. **If , then find and show that =**
9. **If , show that**
10. **If , prove that**
11. **If u = x2 tan-1**
12. **If u = tan-1, show that 2u**
13. **Find when z = xy2 + x2y, x= at2, y = 2at. Also verify the direct substitution.**
14. **If u = , the prove that**
15. **Find the equation of the tangent plane and the normal to x y+z = a2 at(1,1,1).**
16. **Find the equation of the tangent plane and the normal line of the surface at the point (2, 3, -1)**

# **Chapter-3**

**MAXIMA AND MINIMA**

1. **Define working method for maxima and minima.**
2. **find stationary points and the maxima and minima of the function**
3. **Find the point on the surface , nearest to origin.**
4. **Define Largrange’s method of undetermined multiplier.**
5. **Define Advantages and Disadvantages of Largrange’s method of undetermined multiplier.**
6. **Find maximum and minimum value of subject to the condition**
7. **Find the shortest distance between the origin of the hyperbola**
8. **Find the minimum value of subject to the condition that**

# **Chapter – 4**

**Multiple integrals**

1. **Evaluate**
2. **What is the value of over the position quadrant of the circle**
3. **Change the order of the integration in**
4. **Change the order of the integration in**
5. **Evaluate**

# **Chapter -11**

**CAUCHY AND LEGENDRE’S EQUATION**

1. Write definition and solution for Cauchy’s linear equation
2. Find general solution for
3. Find general solution for
4. Solve
5. Solve the following differential equation
6. Solve the following differential equation
7. Solve the following differential equation