B.A. (ODL)   Sem-III   CC-N2 – I

CALCULUS OF SEVERAL VARIABLES (MATHEMATICS)

Unit-1 Limits and Continuity

1.1 Functions of Several Variables :- Functions of two variables, Domain and Range, Graphs, Level Curves, Functions of Three or More Variables

1.2 Limits and Continuity.

Unit-2 Partial Derivatives and Differentiability

2.1 Definition and examples.

2.2 Higher Derivatives, Clairaut's Theorem (Statement Only) , Partial Differential Equations, Wave equation.

2.3 Differentiable function, Differentials

2.4 Chain Rule, Homogeneous Functions, Euler's theorem

Unit-3 Extreme Values

3.1 Extreme values of functions of two variables.

3.2 Necessary conditions for extreme values.

3.3 Second Derivative Test (without proof).

3.4 Lagrange Multipliers (with one constraints)

Unit-4 Multiple Integrals

4.1 Iterated Integrals, Fubini's Theorem (Statement only)

4.2 Double integral over general regions, Change of order of integration for two variables.

4.3 Double integral in Polar coordinates.

4.4 Triple integrals , Evaluation of triple integrals. Triple integrals in spherical coordinates

4.5 Jacobians , Change of variables in multiple integrals .(Results without proofs)