

SRM Institute of Science and Technology
DEPARTMENT OF MATHEMATICS
18MAB102T-Advanced Calculus and Complex Analysis

2020-2021 Even

Unit I: Multiple Integrals

Assignment-1

Answer **ALL** Questions (5 × 12 = 60 Marks)

1. Evaluate $\int_0^{\log_a} \int_0^x \int_0^{x+y} (e^{x+y+z}) dz dy dx$. —(6M)
Using double integration find the area enclosed by the curves $y = 2x^2$ and $y^2 = 4x$. —(6M)
2. Evaluate $\int \int r^2 dr d\theta$ area between the circles $r = a \cos \theta$ and $r = 2a \cos \theta$.
3. Change the order of integration in $\int_0^a \int_{\frac{x^2}{a}}^{2a-x} xy dx dy$ and hence evaluate.
4. Evaluate $\int \int \int dx dy dz$, Where V is the volume of the tetrahedron whose vertices are (0,0,0), (0,1,0), (1,0,0) and (0,0,1).
5. Change into polar co-ordinates and then evaluate $\int_0^2 \int_0^{\sqrt{2x-x^2}} \frac{x}{\sqrt{x^2+y^2}} dx dy$.

*****ALL THE BEST*****