VIT BHOPAL
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Date:

Tutorial 2

Name:……. **Maximum Marks-10**

Roll No: ……

1. Evaluate $\int_0^{2a} \int_0^{\sqrt{2ax-x^2}} (x^2+y^2)\, dxdy$

2. Evaluate $\iint_R\ xy(x+y)\, dxdy$,where R is the region bounded by the curve

$$y = x^2 \text{ and } y = x.$$

3. $\iint (x^2+y^2)\, x\, dx\, dy$ over the positive quadrant of the circle $x^2+y^2=a^2$ by changing to polar coordinates.

Ans. $\frac{a^2}{5}$

4. Evaluate the following integrals by converting them into polar coordinate $\iint_D xydA$, D is the portion of the region between the circles of radius 2 and radius 5 centred at the origin that lies in the first quadrant.
5. Find the volume of the ellipsoid $\frac{x^2}{a^2}+\frac{y^2}{b^2}+\frac{z^2}{c^2}=1$ by using triple integration.
6. Change the order of integration in the double integral and then evaluate :

$$\int_0^{2a} \int_{\sqrt{2ax-x^2}}^{\sqrt{2ax}} dydx$$