

Special Test Questions

1.	By changing the order of integration, evaluate $\int_0^1 \int_y^{2-y} xy \, dx \, dy$.	CO 1 K2
2.	i) Evaluate $\int_0^2 \int_0^{\sqrt{2x-x^2}} \frac{x}{\sqrt{x^2+y^2}} \, dx \, dy$ by changing to polar coordinates. ii) Find the area enclosed by the curves $y^2 = 4x$ and $x^2 = 4y$.	CO 1 K2
3.	Find the Volume of the tetrahedron bounded by the plane $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 1$ and the coordinate planes.	CO 1 K2

4.	By changing the order of integration, evaluate $\int_0^1 \int_{x^2}^{2-x} xy \, dx \, dy$.	CO 1 K2
5.	Evaluate $\int_0^\infty \int_0^\infty e^{-(x^2+y^2)} \, dx \, dy$ by changing to polar coordinates. And hence find the value of $\int_0^\infty e^{-x^2} \, dx$.	CO 1 K2
6.	Find the Volume of the sphere $x^2 + y^2 + z^2 = a^2$ by using triple integration.	CO 1 K2

7.	i) By changing the order of integration, evaluate $\int_0^a \int_y^a \frac{x}{x^2+y^2} \, dx \, dy$. ii) Evaluate $\iint_R r \, dr \, d\theta$ where R is the area included between $r = 2 \cos \theta$ and $r = 4 \cos \theta$.	CO 1 K2
8	i) Evaluate $\int_0^a \int_0^{\sqrt{a^2-y^2}} (x^2 + y^2) \, dx \, dy$ by changing to polar coordinates. ii) Find the area of circle $x^2 + y^2 = a^2$.	CO 1 K2
9..	Find volume of the tetrahedron whose vertices are $(0,0,0)$, $(1,0,0)$, $(0,2,0)$ and $(0,0,3)$.	CO 1 K2