King Fahd University of Petroleum and Minerals

Name: Serial: ID:

Q1. Evaluate the integral by reversing the order of integration

$$\int_0^{\sqrt{\pi}} \int_x^{\sqrt{\pi}} \cos(x^2)\,dx\,dy$$

Q2 Find the volume of the solid bounded by the coordinate planes and the plane
$3x + 2y + z = 6$.

Q3 Find the volume of the solid enclosed in the xy-plane by $y = 1 - x^2$, $y = x^2 - 1$ and by the planes $+y + z = 2$, $2x + 2y - z + 10 = 0$

Q4. Use polar coordinates to find the volume of the solid inside both the cylinder $x^2 + y^2 = 4$ and the ellipsoid $4x^2 + 4y^2 + z^2 = 64$.