

Answers for Term Test 2 March 14, 2016 Exam:

Q1 Maximum of f is 9 at $(1, 3, -1)$ and minimum of f is -9 at $(-1, -3, 1)$.

Q2 $\frac{\pi}{2} + \frac{16}{3}$.

Q3 $\frac{1}{2}(1 - \frac{1}{\sqrt{2}})(1 - \frac{1}{\sqrt{3}})$.

Q4 It diverges to ∞ .

Q5
$$\begin{aligned} & \int_{-1}^1 \int_0^{1-x^2} \int_0^y f(x, y, z) dz dy dx \quad , \quad \int_0^1 \int_{-\sqrt{1-y}}^{\sqrt{1-y}} \int_0^y f(x, y, z) dz dx dy \quad , \\ & \int_0^1 \int_{-\sqrt{1-z}}^{\sqrt{1-z}} \int_z^{1-x^2} f(x, y, z) dy dx dz \quad , \quad \int_{-1}^1 \int_0^{1-x^2} \int_z^{1-x^2} f(x, y, z) dy dz dx \quad , \\ & \int_0^1 \int_z^1 \int_{-\sqrt{1-y}}^{\sqrt{1-y}} f(x, y, z) dx dy dz \quad , \quad \int_0^1 \int_0^y \int_{-\sqrt{1-y}}^{\sqrt{1-y}} f(x, y, z) dx dz dy . \end{aligned}$$