Department of Mathematics and Statistics, KFUPM
Math-333 Semester-181 QUIZ I

NAME: S.No. ID:

Maximum Marks: 8 Section:04 Time Allowed: 25 minutes

(1) Compute the directional derivative of $f(x, y, z) = \frac{y^2 - z^2}{x^2}$ at $(2, 4, -1)$ in the direction of $< 1, -2, 1 >$.

(2) Let $\mathbf{a}$ be a constant vector and $\mathbf{r} = < x, y, z >$.
Verify that $\nabla \times [(\mathbf{r}.\mathbf{r})\mathbf{a}] = 2(\mathbf{r} \times \mathbf{a})$.