Department of Mathematics and Statistics KFUPM
MATH 101-06 Bonus Quiz, Time: 50 mins

Student's Name: _____ ID: _____Section No: _____

Q.No.1:- Find all points of Inflection when $f(x) = \cos x + \sqrt{3}\sin x$, $0 \le x \le 2\pi$.

Final Answer (**1 point**): _____

Work Shown (**2 points**):

Q.No.2:- Find absolute maxima and absolute minima of $f(x) = \left| x^3 - 9x \right|$ in $[-2, 3]$.

Final Answer (**1 point**): _____

Work Shown (**2 points**):

Q.No.3:- Find $\lim_{x \to \infty} \left(\frac{x+2}{x-1} \right)^x$

Final Answer (**1 point**): _____

Work Shown (**2 points**):

Q.No.4:- A window is in the form of a rectangle surmounted by a semicircle with total perimeter of 100π cm. . In order to have maximum light, find the dimensions of rectangle.

Final Answer (**1 point**): _____

Work Shown (**2 points**):

Q.No.5:- If $G(x)$ is an antiderivative of $g(x)=\frac{x\csc^2(\pi x)-x+1}{x}$, and the graph of $G(x)$ passes through the point $(\frac{1}{4},0)$. Find $G(x)$.

Final Answer (**1 point**): _____

Work Shown (**2 points**):

With Best Wishes