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

Q.No.1:- Find all the values of c in $(-2,2)$ that satisfy the conclusion of the Mean Value Theroem for $f(x) = x^2 e^{-x^2}$ on $[-2,2]$.

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

Work Shown (**5 points**):

Q.No.2:- Find $\displaystyle\lim_{x \to 1}(2-x)^{\tan(\pi x/2)}$

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

Work Shown (**6 points**):

Q.No.3:- For the function $f(x) = \ln(1 - \log_{10} x)$,

(i) Find the domain of the function.

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

Work Shown (**2 points**):

(ii) Find the interval(s) where the function is decreasing.

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

Work Shown (**3 points**):

(iii) Find the possible point(s) of Inflection.

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

Work Shown (**4 points**):

With Best Wishes