King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math 101 Section 03   Quiz V (Term 142)

Name : .... **ID #**.................................... Serial #: ....

1. Find the value c that satisfies the Mean Value Theorem for the function
   $f(x) = x^4 - x$ on $[-1, 1]$.

2. Find the absolute maximum and absolute minimum values of the function
   $f(x) = x^3 - 3x^2 + 1, \ \dfrac{-1}{2} \le x \le 4$.

3. Suppose that $f'(x) \leq 1$ for $1 \leq x \leq 4$. Find the largest possible value of $f(4) - f(1)$.

4. For the function $f(x) = (x^2 - 3)\,e^x$
   a) Identify the intervals on which f is increasing and decreasing.
   b) Find the function's local extrema values.