Department of Computer Science and Engineering
University of Liberal Arts Bangladesh
Mid Term Examination
Semester – Fall 2019
Course Title: Differential and Integral Calculus
Course Code : MAT 101 (Sec: 4)
Duration : 1:00 Hours

PLEASE ANSWER ALL QUESTIONS.   **Total 20 Marks**
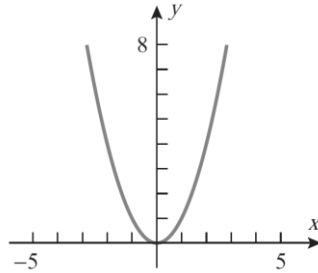
QUESTION 1   4 marks

The graph of $y = x^2$ is given below:

Sketch the graphs of the following functions:

    a) $y = (x - 2)^2$

    b) $y = (x - 2)^2 + 1$

QUESTION 2   3 marks

Find the limit of the following:

$$\lim_{x \to -\infty} \left(\frac{\sqrt{3x^4 + x}}{x^2 - 8} \right)$$

QUESTION 3   4 marks

What are the conditions for a function f to be continuous:

    a) at $x = c$

    b) on a closed interval $[a, b]$

QUESTION 4   5 marks

Compute the derivative $\dfrac{dy}{dx}$ of the following function:

$$y = \frac{1 + \csc(x^2)}{1 - \cot(x^2)}$$

QUESTION 5   4 marks

Proof that the derivative of a straight line is its' slope.

END OF QUESTIONS

Department of Computer Science and Engineering
University of Liberal Arts Bangladesh
Mid Term Examination
Semester – Fall 2019
Course Title: Differential and Integral Calculus
Course Code : MAT 101 (Sec: 4)
Duration : 1:00 Hours