Fast**National University of Computer & Emerging Sciences, Karachi  
Fall-2021 FAST School of Computing  
Re-Final Examination**

**January2021**

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| **Course Code: MT – 1003** | **Course Name: Calculus and Analytical Geometry** | |
| **Instructor Name: Dr. Khusro Mian/ Dr. Fahad Riaz/ Ms. Asma Masood/ Mr. Nadeem Khan/ Ms. Afreen Naz/ Ms. Urooj/ Ms. Alishba Tariq/ Ms. Javeria Iftikhar/ Ms. Sadia Khan** | | |
| **Student Roll No:** | | **Section No:** |

Instructions:

* Return the question paper.
* **Attempt all questions. There are 08 Questions and 02 pages.**.
* **Solve the paper according to the sequence given in the question paper.**
* Graphical Calculator is not allowed.

**Time: 180 minutes Max Marks: 100**

**Question 01: 10+10=20**

1. Find the absolute extrema, if any, of the function on the interval
2. Evaluate the integral
3. Find the value of that will make the function continuous everywhere.
4. For the given and g(x), is is continuous at ?

and

**Question 02: 05+05=10**

Find the derivative of the given functions

**Question 03: 05+05=10**

1. Sketch and find area bounded by the following curves:

**and**

1. Find the volume of the solid obtained by rotating the region bounded by the curves about the y axis

**Question 04: 05+05=10**

For the curve

1. Use implicit differentiation to find .
2. Find the equation of a tangent line at **.**

**Question 05: 05+05=10**

Evaluate limits for the following functions.

**Question 06: 05\*4=10**

Integrate the following:

|  |  |
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|  |  |
|  |  |

**Question 07: 05+05=10**

Find the angles of intersection and line of intersection between the planes.

**Question 08: 02\*5=10**

1. Show that the given lines are skew and find the distance between them.

**The End** 😊