BRAC
UNIVERSITY

Inspiring Excellence

MAT 215

Fall 2020

Assignment 05

SET: J

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*Please write your name and ID on the assignment script. The deadline for submitting the assignment is **16th December 2020**. Solve **all the problems**. You will receive 5 bonus marks for **submitting your assignment in LATEX**. **No Late submissions will be accepted**.*

Any information you need to solve this exam are given in the question.

*Be creative, use your intuition. Answer the questions by yourself. Cheating and Copying will lead to **50%** deduction from your total marks in the course and a Zero in the assignment. **Total marks is 50**. Each question carries 10 marks.*

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1. Evaluate $\oint_C \frac{dz}{z-2}$ around the circle $|z-1| = 9$.

2. Evaluate $\oint_C (\bar{z})^2 dz$ around the circle $|z| = 1$.

3. Evaluate $\int_C (x^2 - iy^2) dz$ along the straight line from $(1,1)$ to $(2,8)$.

4. Evaluate $\int_{(0,1)}^{(2,5)} (3x + y)dx + (2y - x)dy$ along the straight lines from $(0,1)$ to $(0,5)$ and then from $(0,5)$ to $(2,5)$.

5. Evaluate $\int_C (z^2 + 3z) dz$ along the circle $|z| = 2$ from $(2,0)$ to $(0,2)$ in a counter clockwise direction.