Department of Electrical Engineering
Mid term exam
Date: 21/08/2020

Course Details

Course Title: Complex & Multivariable Calculus **Module:** 03
Instructor: _____ **Total Marks:** 30

Student Details

Name: _____ **Student ID:** _____

Q1.	(a)	**Express** -3 + 4i in polar form and represent it graphically.	Marks 06 +06
	(b)	Given that u (x, y) = $(x^3 + 3xy^2) + i\,(3x^2y - y^3)$. **Determine** if the function is analytic or not?	CLO 1
Q2.		If $z_1 = 5 + 3i$ and $z_2 = 4 - 2i$, **evaluate** $z_1\, z_2$ and z_1/z_2	Marks 06
			CLO 1
Q3.		Given that u (x, y) = $x^3 - 3xy^2 - 5y$. **Determine** if the function is harmonic**?** If so, **evaluate** the conjugate harmonic function of u.	Marks 08
			CLO 1
Q4.	i.	**Differentiate** the following: $f(z) = z^2 / (5z+2)$	Marks 04
	ii.	$f(z) = 3z^4 - 5z^3 + 2z + 1$	CLO 1