Department of Electrical Engineering
Assignment
Date: 14-04-2020

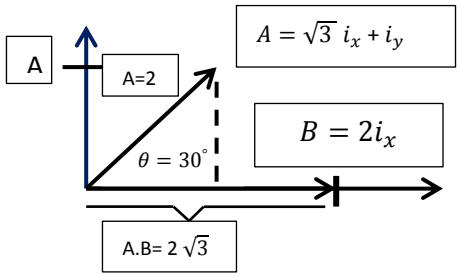
Course Details

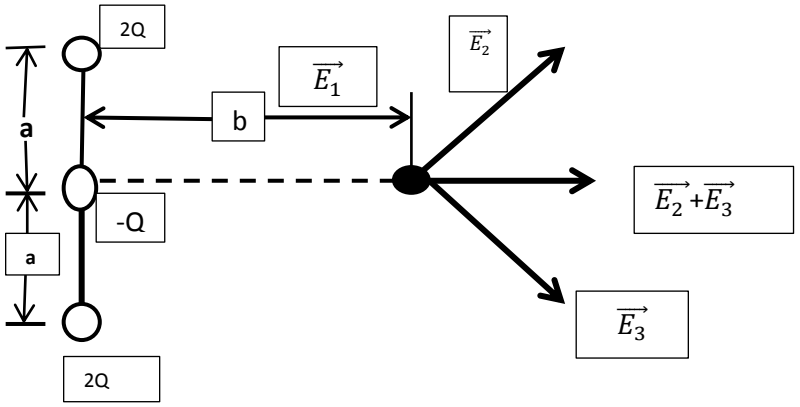
Course Title: Electro Magnetic Field Theory **Module:** _____

Instructor: _____ **Total Marks:** 30 .

Student Details

Name: _____ **Student ID:** _____

Q1: Solve the following short Question	(a)	Transform the vector $B = yi\ (x+z)j$ located at point (-2,6,3) into cylindrical coordinates	Marks 2 CLO 1
	(b)	Convert the point (3,4,5) from Cartesian to spherical coordinates	Marks 2 CLO 1
	(c)	Find the spherical coordinates of A(2,3,-1)	Marks 2 CLO 1
	(d)	Find the Cartesian coordinates of B(4.25,120)	Marks 2 CLO 1
	(e)	Find the force between two charges when they are brought in contact and separated by 4cm apart, charges are 2nC and -1nC, in µN.	Marks 2 CLO 2
	(f)	Find the electric field intensity of two Charges -2C and -1C separated by a distance 1m in air	Marks 2 CLO 2
	(g)	Determine the charge that produce an electric field strength of 40 v/cm at a distance of 30cm in vacuum (in 10^{-8}c)	Marks 2 CLO 2
	(h)	A charge of $2 * 10^{-7}$ C is acted upon by a force of 0.1N. determine the distance to the other charge of $4.5 * 10^{-7}$C, both the charges are in vacuum	Marks 2 CLO 2
Q2:	**(a)**	**Find the angle between the vectors shown in figure.** 	**Marks 4** **CLO 1**

	(b)	**Find the gradient of each of the following functions where a and b are constant** **(i)** $f = ax^2 + by^3z$ **(ii)** $f = ar^2 \sin \emptyset + brz \cos 2 \emptyset$	**Marks 4** **CLO 1**
Q3:		**Three pointer charges are placed on the y-axis as shown. Find the electric field at point P on the x-axis.**  	**Marks 6** **CLO 2**