

Department of Electrical Engineering
Final Assignment
Date: 23-06-2020

Course Details

Course Title: Electro Magnetic Field Theory Module: _____
 Instructor: _____ Total Marks: 50

Student Details

Name: _____ Student ID: _____

Q1: Solve the following short Question	(a)	Determine the magnetic field at the center of the semicircular piece of wire with radius 0.20m. The current carried by the semicircular of wire is 150A.	Marks 10
			CLO 2
	(b)	A circular coil of radius 5×10^{-2} m and with 40 turns is carrying a current of 0.25 A. Determine the magnetic field of the circular coil at the center.	Marks 10
			CLO 2
Q2:	(a)	Compute the magnetic field of a long straight wire that has a circular loop with a radius of 0.05m. 2amp is the reading of the current flowing through this closed loop.	Marks 07
			CLO 2
	(b)	Within the cylinder $\rho = 2, 0 < z < 1$, the potential is given by $V = 100 + 50\rho + 150\rho \sin\phi$ V. (a) Find V, E, D , and ρ_v at p (1, 60° , 0.5) in free space. (b) How much charge lies within the cylinder?	Marks 08
			CLO 2
Q3:	(a)	Given the time-varying magnetic field $B = (0.5a_x + 0.6a_y - 0.3a_z) \cos 5000t$ T and a square filamentary loop with its corners at (2, 3, 0), (2,-3,0), and (-2,3,0) and (-2,-3,0), find the time-varying current flowing in the general a_ϕ direction if the total loop resistance is $400k\Omega$.	Marks 15
			CLO 3