Hall Ticket Number :										

R-13

Code: 1G234

II B.Tech. I Semester Supplementary Examinations August 2021

Electro Magnetic Fields

(Electrical and Electronics Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any **five** questions

All Questions carry equal marks (**14 Marks** each)

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1.	a)	Derive and explain Maxwell's first equation.	10M
	b)	List out any two application of gauss's law.	4M
2.	a)	Find the work done in a moving a point charge q from a to b along radial path centered at line charge density ρ C/m.	8M
	b)	Derive the relation between E and V	6M
3.	a)	State and prove the conditions at the boundary between two dielectrics.	9M
	b)	Derive point form of ohms law.	5M
4.	a)	Derive the MFI at center of the square carrying a current of I having side of the square is a meter.	8M
	b)	Explain the relationship between Magnetic flux, Magnetic flux density and MFI	6M
5.	a)	Using Ampere's law Determine the magnetic field intensity of coaxial cable	10M
	b)	List out limitation of Ampere's circuital law.	4M
6.	a)	Derive an expression for the force between parallel wire carrying current in the same direction.	8M
	b)	Express on Magnetic dipole and magnetic dipole moment	6M
7.	a)	Describe the classification of magnetic materials with examples.	8M
	b)	A toroid has 600 turns of coil, circular cross section of $6cm^2$ and a mean diameter of 38cm. The permeability of the toroid is 1000. Calculate the inductance of the coil.	6M
8.	a)	Derive the integral form of Maxwell equation from ampere's circuital law	8M
	b)	A single turn rectangular loop of enclosed area 2sqm is situated in air with its plane normal to the Magnetic field which weighs at a rate of $2wb/m^2sec$. Estimate emf induced in the loop.	6M

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