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B.E./B.Tech/ B.Arch (Full-Time) END SEMESTER EXAMINATIONS – April / May 2019
 B.E. Electronics and Communication Engineering
 EC8402 - ELECTROMAGNETIC FIELDS AND WAVES
 SEMESTER -IV
 Regulation 2012

Time: 3 Hrs

Answer ALL Questions

Max. Marks 100

PART – A (10 X 2 = 20 Marks)	
1.	Relate electric flux density and electric field intensity.
2.	State Stokes theorem.
3.	Write the significance of hysteresis loop.
4.	Write Gauss law for magnetic field.
5.	State Faradays law.
6.	What is the significance of Poynting vector?
7.	List the characteristics of a conducting medium, that determines the depth of penetration of electromagnetic waves.
8.	What is polarization?
9.	Outline the working principle of magnetic separator.
10.	List some applications of electromagnetic separator.

PART – B (5 X 16 = 80 Marks)			
11.	a.i	Derive the Maxwells Equations in point form and integral form.	10
	a.ii	Write the significance of Maxwell's equation.	6
12.	a.i	Derive the capacitance of a coaxial cable.	8
	a.ii	Using Gauss Law, find the electric field intensity of a conductor sphere.	8
		OR	
	b.	Derive the boundary conditions, for the EM wave in electric field to travel between two different mediams.	16



13.	a.	Find the magnetic field intensity B , at a point P , due to a, infinite long current carrying conductor.	16
		OR	
	b.	Derive the boundary conditions, for the EM wave in magnetic field to travel between two different mediums.	16
14.	a.	Derive the propagation constant, phase velocity and intrinsic impedance, if the uniform plane wave travels through i) lossy dielectric medium ii) free space.	16
		OR	
	b.	Derive the Brewster angel for parallel polarization, when EM wave incidence is oblique to a plane boundary.	16
15.	a.	With diagram, explain the operation of CRO.	16
		OR	
	b.i	Explain the working of Cyclotron with diagram.	8
	b.ii	Explain the working of mass spectrometer with diagram.	8

