C.U.SHAH UNIVERSITY Summer Examination-2019

Subject Name : Electromagnetics Subject Code : 4TE05EMS1 Semester : 5 Date : 16/03/2019

Branch: B.Tech (EC) Time : 10:30 To 01:30

Marks:70

(14)

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

Q-1 Attempt the following questions:

- a) What is a vector quantity?
- **b**) What is scalar product
- c) Draw diagram of Parallelogram vector addition.
- d) Give Gauss's Law.
- e) Can Magnet have monopole?
- **f**) What is permittivity?
- g) State Skin effect.
- **h**) What does Poynting vector give?
- i) State equation of Stokes' Theorem.
- j) Give unit of electric flux.
- **k**) State Charge conservation law.
- I) Give Ampere's Circuital Law.
- m) What are extrinsic semiconductor materials?
- **n**) What is the value of free space impedance?

Attempt any four questions from Q-2 to Q-8

Q-2		Attempt all questions	(14)
	(a)	Give conversion from Spherical coordinate system to Cartesian coordinate system and vice versa.	06
	(b)	What is Polarization? Explain nature of dielectric materials.	08
Q-3		Attempt all questions	(14)
	(a)	Illustrating neat diagram, describe Ampere's Circuital Law.	07
	(b)	Describe the retarded potentials.	07
Q-4		Attempt all questions	(14)
	(a)	Describe solution Laplace equation using capacitance example.	07
	(b)	Explain parallel plate capacitor; derive the equation of capacitance in terms of	07
		potential difference between conducting sufface.	



Q-5		Attempt all questions	(14)
	(a)	Explain wave propagation in dielectrics.	07
	(b)	Describe Force on differential current element.	07
Q-6		Attempt all questions	(14)
	(a)	Using neat sketch define position vector. By giving example, explain Gradient, Divergence and Curl	08
	(b)	What is your interpretation of field? Draw diagram and explain. State an example of scalar field and vector field each.	06
Q-7		Attempt all questions	(14)
	(a)	Explain electric dipole and from this explanation define dipole moment.	07
	(b)	Describe Dielectric Boundary conditions.	07
Q-8		Attempt all questions	(14)
	(a)	Describe Poynting's Theorem.	07
	(b)	Describe Magnetic Boundary conditions.	07

