Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ECE) (Sem.–4)

ELECTROMAGNETIC FIELD THEORY

Subject Code : EC-208

M.Code : 57513

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Q1. Answer briefly :

a) What are equipotential surfaces?

b) What is the significance of Stoke's theorem?

c) Define polarization.

d) Define the terms dielectric constant and refractive index.

e) State Coulomb's law of force between any two point charges.

f) What are uniform plane waves?

g) What are the characteristics of TE waves?

h) Explain Ampere's law.

i) What is the attenuation factor of TE waveguide?

j) Show that UHF line acts as lossless line.

SECTION-B

Q2. Derive the continuity equation and displacement current equation.

Q3. State Poynting Theorem. Give an expression for Poynting Theorem.

Q4. Write Maxwell's equations in free space for time varying fields both in differential & integral form.

Q5. State and prove Gauss's Divergence theorem.

Q6. Define wave impedance. Derive the expression of wave impedance for TM waves that propagate in rectangular waveguide.

SECTION-C

Q7. Explain the wave between parallel planes. Derive the expression for the attenuation in parallel plane guide.

Q8. Explain propagation characteristics of TE, TM and TEM waves in rectangular waveguide.

Q9. What do you mean by transmission line? Derive an expression for transmission line equations.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.