

Exam.Code:0928

Sub. Code: 6587 ✓

2054

B.E. (Electronics and Communication Engineering)

Fourth Semester

EC-408: Electromagnetic Theory ✓

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit. Use of scientific calculator is allowed.

x-x-x

I. Attempt the following:-

- a) What are the source of electric field and magnetic fields?
- b) Under what conditions will the field intensity be solenoidal and irrotational?
- c) Name few applications of Gauss law in electrostatics
- d) List the types of magnetic materials.
- e) Define propagation constant.

(5x2)

UNIT - I

II. a) Define divergence, gradient, curl in spherical co-ordinate system with mathematical Expression.

b) Develop the concept of displacement current using Maxwell's equations. (2x5)

III. a) Explain Poissons and Lapace's equations.

b) State and prove Stokes Theorem. (2x5)

IV. a) Calculate the inductance of a solenoid of 300 turns wound tightly on a cylindrical tube of 6cm diameter. The length of the tube is 70cm and the solenoid is air.

b) Define and explain Biot –Savart law. (2x5)

UNIT - II

V. a) Write short notes on faradays law of electromagnetic induction.

b) What is a waveguide? What is its importance and applications? (2x5)

VI. a) Discuss about the plane waves in lossless dielectrics.

b) Discuss the use of UHF lines as circuit elements. (2x5)

VII. Explain the wave behavior in guiding structure.

(10)

x-x-x