1079

B. Engg. (Electronics & Comm. Engg.)
3$^{rd}$ Semester
EC-301: Electromagnetic Theory

Time allowed: 3 Hours

Max. Marks: 50

NOTE:

*Attempt five questions in all, including Q. No. 1 which is compulsory and selecting atleast two questions from each Unit.*

-\*-\*-\*-

I. Define the following: -

a) Quality Factor of waveguide

b) Faraday's Law

c) Intrinsic Impedance

d) Current Equations of a transmission line

e) Divergence Theorem

(5×2)

## UNIT-I

II. Define electrostatic energy. Explain Uniqueness Theorem for electric field solutions.

(10)

III. State and explain Maxwell's equations in integral and differential form. Also explain their physical interpretation.

(10)

IV. (a) Describe the relation between E and H.

(b) Explain the wave equations in perfect dielectric medium.

(4+6)

## UNIT-II

V. What are the Primary and Secondary Constants of a transmission line? Explain.

(10)

VI. (a) What do you mean by TE waves? State their characteristics

(b) State the differences between TEM and TM waves.

(7+3)

VII. What do you mean by TM Mode? Derive an expression for its guide wavelength while propagating in circular and rectangular waveguides.

(10)

-\*-\*-\*-