Roll No. ..... **Total Pages : 02**

BT-4/M-20 **34006**

FIELDS & WAVES

ECE-206-E (Opt. 1)

Time : Three Hours] [Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit.

Unit I

1. What do you understand by boundary conditions ? Explain with suitable expressions boundary conditions for electric field. **20**

2. (a) State and explain the Gauss's law. Explain the applications of Gauss's law with example.

(b) Write a short note on Uniqueness Theorem. **20**

Unit II

3. Write short notes on the following :

(a) Force and torque on a closed circuit

(b) Magnetic vector potential. **20**

4. State and prove Maxwell's equations in differential and integral form. Give their physical interpretation. **20**

Unit III

5. State Poynting's theorem and derive the expression for Poynting vector. **20**

6. Derive the wave equations from the Maxwell's equations for free space. **20**

Unit IV

7. With constructional details explain the working of rectangular wave guide. Also find the expression of fields in Rectangular Wave guide. **20**

8. Find the input impedance of the distortionless transmission line at radio frequencies in both open, circuited and short circuited cases. **20**