

SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956)

Course & Branch: B.E – ECE/E&C/ETCE

Title of the paper: Engineering Electromagnetics

Semester: III

Sub.Code: 425304/513304/6C0036 (2006/2007)

Date: 10-11-2008

Max. Marks: 80

Time: 3 Hours

Session: FN

PART – A

(10 x 2 = 20)

Answer All the Questions

1. State Coulomb's law.
2. State Gauss's law.
3. What is displacement current?
4. State continuity equation.
5. State Amperes circuital law.
6. What do you mean by energy stored in a magnetic field?
7. State Faraday's law of electromagnetic induction.
8. Write down Maxwell's equation in integral form.
9. Write down the wave equation in a dielectric medium.
10. Define characteristic impedance and propagation constant of a wave.

PART – B
Answer All the Questions

(5 x 12 = 60)

11. Obtain an expression for electric field intensity at a point due to a line charge distribution of infinite length.
(or)
12. Derive an expression to calculate the potential field due to
 - (a) line charge with a uniform density,
 - (b) Surface charge having uniform density.
13. Obtain the boundary conditions between two dielectrics which are subjected to an electric field.
(or)
14. Derive continuity equation and Ohm's law in its circuitry form from its point form.
15. Obtain the magnetic field intensity at a point due to circular current carrying conductor.
(or)
16. Obtain vector magnetic potential at a point due to a differential current element.
17. Define the term inductance. Obtain an expression to calculate the inductance of a solenoid and a coaxial conductor.
(or)
18. Derive Maxwell's equation in differential form.
19. Obtain the general wave equation in homogeneous free space.
(or)
20. Obtain the wave parameters while the plane wave propagates in a perfect dielectric.