Code No.: 3078

FACULTY OF ENGINEERING

B.E. III/IV Year (ECE) II Semester (Main) Examination, May/June, 2011

ANTENNAS & PROPOGATION

Time : 3 *Hours*] [*Max. Marks* : 75

Answer **all** *questions from Part A.*

Answer any **five** *questions from Part B.*

Part A – (Marks : 25)

1. Find the directivity and HPBW of an antenna having a unidirectional cosq radiation intensity pattern. 3
2. What is an atmosphere duct. 2
3. Find the relative excitation levels of a binomial array of 3 elements. 3
4. Explain pattern multiplication. 3
5. Write all the precautions to be taken while conducting antenna measurements. 3
6. A lossless half wave dipole with input impedence of 73W is to be connected to a transmission line having 50W characteristic impedence. Calculate the efficiency. 3
7. List the advantages of Lens antenna. 2
8. Write the important applications of Helical antenna. 2
9. Define antenna polarization. 2
10. Distinguish between far field and near field of an Antenna. 2

Part B – (Marks : 5 × 10 = 50)

11. (a) Explain "directivity of an antenna." How does "directivity" differ from the "maxmimum power gain" of an antenna 5

    (b) Calculate the directivity of a Hertzian dipole. 5

12. Derive the equation for the magnetic Vector potential for a half wave dipole antenna ? 10

13. What is a log periodic antenna.

    (a) Show that it is a frequency independent antenna. 6

    (b) Explain the wide band characteristics of helical antenna. 4

14. (a) Derive an expression for radiated electric field of a n–element array with uniform excitation and inter element spacing l/2.5

    (b) Explain about lens antenna. 4

[P.T.O.

15. (a) With neat diagrams, explains the concept of duct propargation and list the associated formulae. 6

(b) Describe a method of measurement of antenna impedance. 4

16. (a) Derive the Friss transmission Formula. 6

(b) Write notes on Antenna temperature. 4

17. Write short notes on : 10

(a) Yagi–Uda–Antenna.

(b) Ground wave propagation.

(c) Horn Antenna.