

BT-5/D12

ANTENNA AND WAVE PROPAGATION

Paper-ECE-301-E

Time allowed : 3 hours] [Maximum marks : 100

Note : (i) Answer any five questions, selecting at least one question from each unit.

(ii) All questions carry equal marks.

Unit-I

1. (a) Describe the following terms :
 - (i) Radiation resistance
 - (ii) Beam width
 - (iii) Antenna temperature
 - (iv) Effective aperture
 - (v) Directivity. 10
- (b) Explain the concept of retarded vector and scalar potentials. 10
2. (a) Discuss the significance of radiation and induction fields. 10
- (b) Using suitable schematic, explain the concept of radiation from elementary dipole. 10

Unit-II

3. (a) Explain the principle of pattern multiplication using suitable example. 10
- (b) Compare Broadside arrays and End fire arrays. 10

4. (a) Explain the construction and operation of Turnstile antenna. Also, give its merits and demerits. 10
- (b) Compare Binomial and Chebyshev Array. 10

Unit-III

5. Describe the following in detail :
 - (i) Pyramidal Horn.
 - (ii) Lens Antenna. 10+10=20
6. Discuss the working of the following :
 - (i) Log periodic antenna.
 - (ii) Conical spiral antenna. 10+10=20

Unit-IV

7. Explain the following terms : 20
 - (i) MUF
 - (ii) Critical frequency
 - (iii) Skip distance
 - (iv) Virtual height
 - (v) Fading.
8. Write short note on the following :
 - (i) Different modes of propagation
 - (ii) Multipath fading of radio waves. 10+10=20