

[05 - 3104]

III/IV B.E. DEGREE EXAMINATION.

First Semester

Electronics and Communication Engineering

ANTENNAS AND PROPAGATION

(Effective from the admitted batch of 1999-2000)

Time : Three hours

Maximum : 70 marks

Answer Question No. 1 and any Four questions from question 2 to question 8.

1. (a) The radiation resistance of an Antenna is 80Ω , loss resistance is 10Ω . What is its directivity, if the power gain is 20. (3)
- (b) Define Directivity and directive gain. What is the value of directivity for an isotropic antenna? (3)
- (c) Write about :
 - (i) Yagi uda antenna. (4)
 - (ii) Log - periodic dipole arrays. (4)
2. Deduce the expression for the radiation pattern of uniform linear array of 'N' half wave dipoles. Explain what is meant by end fire array and broad side array. Explain the principle of pattern multiplication. (14)

3. Design a 4 element broad side array of $\lambda/2$ spacing. The pattern is to be optimum with a side to be level of 18 dB down the main lobe maximum. (14)
4. Derive the expression for field pattern of parabolic reflector antenna and horn antenna. Define loop antenna. (14)
5. Explain the terms (a) Efficiency of antenna (b) MUF (c) Directivity (d) Rhombic antenna.
6. (a) How a radio wave is reflected by ionosphere? Explain in detail. Why it is required to change the frequency of transmission in short wave broadcasting? (8)
- (b) Write a short note on ground wave propagation. (6)
7. (a) Discuss the effect of earth on radiation pattern. (7)
- (b) List the advantages and disadvantages of loop antenna. (7)
8. (a) Define radiation resistance? Show that the radiation resistance of half wave dipole is 73Ω . (8)
- (b) How does increasing antenna height, increase the line of sight distance? (6)

[2500/12/1/08]