

Roll No. _____

Total Pages : 2

9522

BT-5/D08

ANTENNA AND WAVE PROPAGATION

PAPER - ECE-301E

Time : 3 Hrs.

Maximum Marks : 100

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

SECTION- I

1. a. Why do you need an antenna ? 4
b. Draw and explain the radiation pattern from a short dipole antenna. 10
c. What is Directivity ? How is directivity fixed for an antenna ? 6
2. a. Define Radiation resistance and Antenna temperature for an antenna. How do these govern the working of the antenna ? 10
b. Does a current distribution give an antenna type of behaviour ? Why ? Compare it to a short dipole type. 10

SECTION - II

3. a. Draw the structure, radiation pattern and explain the working of a helical antenna. 10
b. Compare the structure, radiation patterns and working of Yagi and turnstile type of antennas. 10
4. a. How is a binomial array formed ? Explain its properties and working. 12

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- b. Compare the working of uniform and broadside type of arrays. 8

SECTION - III

5. a. How is a lens aperture type of antenna formed ? Explain its working. 10
b. Draw the structure, radiation pattern and explain the working of a broadband antenna. 10
6. a. Explain the working of a H-plane horn antenna. 8
b. Why are antennas frequency dependent ? How is frequency independence achieved in antennas ? Explain a log periodical antenna. 12

SECTION - IV

7. a. Explain the propagation of surface radio waves ? Why does it occur at lower radio wave frequencies ? 10
b. What waves are used for intercontinental communication ? Why ? 5
8. a. Does ionosphere limit the communication to outer space ? Support your answer. 5
b. Write short notes on :
i. Maximum usable frequency
ii. Skip distance 10
- c. What is radio noise ? Why does it occur ? What are its effects ? 5