

Roll No. _____

Total Pages : 3

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BT-5/D07

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. Define Antenna. How is radiation pattern dependent on various parameters of antenna ? Explain. 12
b. Draw and explain Half-wave dipole antenna. 8

2. a. Write short notes on the following :
 - i. Directivity
 - ii. Gain
 - iii. Beam width 15
- b. How is Bandwidth of antenna fixed ? Give brief explanation. 5

SECTION - II

3. a. Draw and explain the working of a Folded dipole and a (5th sem. Electronics) 5

Monopole antenna. 12

- b. What is a Chebyshev array ? Discuss its working and advantages. 8
4. a. What types of Antennas are used for TV signal transmission ? Discuss one of these. Can the similar antenna be also used for reception ? Support your answer: 15
- b. What are Broadside antennas ? What are its characteristics ? 5

SECTION - III

5. a. How are aperture type of antennas different from the conventional antennas ? Explain the theory of Radiation from a rectangular aperture: 12
- b. How is a Lens aperture formed ? What are its characteristics ? Discuss briefly. 8
6. a. Why are Antennas frequency dependent ? How is frequency independence achieved in antennas ? Explain a planar log spiral antenna. 15
- b. What are Reflector type of antennas ? What are their characteristics and use ? 5

SECTION -IV

7. a. What is the range of Radio waves ? What are the (5th sem. Electronics) 6

different modes of their propagation ? Explain ground waves. 15

- b. What waves are used for intercontinental communication? Why ? 5
8. a. How does ionosphere limits the communication to outer space ? 5
- b. Write short notes on the following :
- i. Maximum usable frequency
 - ii. Skip distance
 - iii. Critical frequency 15