

R13

Code No: 115DQ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, November/December - 2016

ANTENNAS AND WAVE PROPAGATION

(Common to ECE, ETM)

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A**(25 Marks)**

- 1.a) What is meant by Beam Area? [2]
- b) What is meant by Polarization? [3]
- c) Why folded dipole antenna is used in yagi antenna? [2]
- d) What is axial mode of radiation? [3]
- e) What is Lunenburg lens? [2]
- f) What are the various feeds used in reflectors? [3]
- g) Define isotropic source. [2]
- h) What is reciprocity of an antenna? [3]
- i) What are the types of Ground wave? [2]
- j) What are the factors that affect the propagation of radio waves? [3]

PART - B**(50 Marks)**

2. Find the radiation resistance of elementary dipole with linear current distribution. [10]
- OR**
3. Derive the expression for far field components of a small loop antenna. [10]
4. What is Yagi-uda Antenna? Explain the construction and operation of Yagi-uda Antenna. Also explain its general characteristics. [10]
- OR**
5. Explain the Half-Wavelength Folded Dipole. [10]
6. Describe the parabolic reflector used at micro frequencies. [10]
- OR**
7. Explain the different types of lens antennas. [10]
8. State reciprocity theorem for antennas. Prove that the self-impedance of an Antenna in transmitting and receiving antenna are same. [10]
- OR**
9. What is linear array? Compare Broad side array and End fire array. [10]
10. Deduce an expression for the critical frequency of an ionized region in terms of its Maximum ionization density. [10]
- OR**
11. Describe the troposphere and explain how ducts can be used for Microwave propagation. [10]

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