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 isotopic 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]

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OR

11. Describe the troposphere and explain how ducts can be used for Microwave propagation. [10]

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