Code No: 136AF

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, November/December - 2020
ANTENNAS AND WAVE PROPAGATION
(Common to ECE, ETM)

Time: 2 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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1.a) Explain the Directivity, gain and resolution of antenna.
b) Derive the radiating resistance and radiated power of Quarter-wave monopole. [6+9]

2.a) Write the fields from oscillating dipole in detail.
b) An antenna whose radiation resistance is 300Ω operates at a frequency of 1 GHz and with a current of 3 ampere. Find the radiated power. [9+6]

3.a) Explain the operation of folded dipole and write their Characteristics.
b) Draw and explain about helical antenna and write its applications. [7+8]

4.a) Explain the operation of Yagi- uda antenna and write its applications.
b) The aperture dimensions of a pyramidal horn are 12 × 6 cm. It is operating at a frequency of 6GHz. Find the power gain and directivity. [9+6]

5.a) Explain the principle and operation of microstrip antenna and write its applications.
b) For paraboloid reflector antenna with 1.8m diameter operating at 2GHz. Find the power gain. [9+6]

6.a) Explain about rectangular patch antenna and write its Characteristics.
b) Explain about corner reflector with neat diagrams. [8+7]

7.a) Derive the field strength of a uniform linear array.
b) Write the expression of principle of pattern multiplication and consider an array of four Elements. [7+8]

8.a) Explain about space wave propagation and write the effect of the curvature of the earth.
b) Write a short note on:
i) Virtual height
ii) Critical frequency. [9+6]

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