

JK Lakshmipat University Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Mid Term Examination-I, September 2014
M. Tech. in Electronics & Communication Engineering, Semester III



Roll No.....

MTEC421: ANTENNA & WAVE PROPAGATION

Time: 1.5 hours

Max. Marks: 40

Theory & Techniques

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

- Q.1A Each Question is carrying 1 Mark. 05
- i. What are the two types of radiation pattern?
 - ii. What is a monopole antenna?
 - iii. What is meant by uniform linear array?
 - iv. What is retarded current?
 - v. Define radiation resistance of an antenna.
- Q.1B Each part is carrying 2.5 Mark. 05
- i. Define Antenna Efficiency. Derive the expression for it.
 - ii. A thin dipole antenna is $\lambda/4$ long. If the loss resistance is 3.5 ohm. Find radiation resistance and the efficiency?
- Q.2A Derive the Maxima and Minima directions for array of two point source with equal amplitude and phase. 05
- Q.2B What is Antenna Polarization? Explain the types of Antenna Polarization. 05
- Q.3A Explain antenna bandwidth with suitable diagrams and Equations. 05
- Q.3B Derive the expression of E_r for small Current Element. 05
- OR
- Q.3B Derive the expression of E_θ for small Current Element. 05
- Q.4A Define Directivity. Derive the expression for it. Calculate the directivity of an isotropic source. 05
- Q.4B Explain Broadside Array and draw its radiation pattern 05
- OR
- Q.4B For an end fire array consisting several half wavelength long isotropic radiators is to have a directive gain of 30. Find the array length and width of the major lobe. What will be these values for a broad side array? 05