Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC– SEMESTER V– • EXAMINATION – SUMMER - 2016

Subject Code: X51101 **Date:22/11/2016**

Subject Name: Antenna & Wave Propagation

Time:10:30 AM to 1:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	I. Give a definition and functions of an antenna.	**03**
		II. Give at least two Comparisons between an antenna & transmission line.	**04**
	(b)	Write short notes on radiation patterns of antennas-field and power patterns.	**07**
Q.2	**(a)**	Explain any two antennas from antenna family.	**07**
	(b)	Brief details on following Antenna parameters. I. Beam area II. Half-Power Beam width (HPBW) III. Polarisation IV. Radiation Intensity V. Directivity VI. Radiation resistance VII. Effective height	**07**
		OR	
	(b)	Evaluate dipole derivations for E and H field components in spherical coordinate systems.	**07**
Q.3	**(a)**	Find a radiation resistance of Half wave dipole with derivation.	**07**
	(b)	Give at least two differences between Broad-side array and End-Fire array. Explain Broad-side array.	**07**
		OR	
Q.3	**(a)**	Explain Loop Antenna.	**07**
	(b)	Give Design considerations of Helical Antenna.	**07**
Q.4	**(a)**	Give details on Yagi-uda array-function and its design.	**07**

	(b)	What is an application of Parabolic reflector? Explain Parabolic reflector in detail.	**07**

OR

Q.4	**(a)**	What are the features of Microstrip (patch) antennas? Explain Rectangular Patch Antenna.	**07**
	(b)	Give details on Dielectric lens and artificial dielectric lens antennas	**07**
Q.5	**(a)**	Explain Log Periodic antenna.	**07**
	(b)	Write short notes on Antennas design consideration for satellite communication,	**07**

OR

Q.5	**(a)**	Give basic concepts on Antenna Measurement.	**07**
	(b)	Briefly explain following: I. Virtual height, II. MUF III. Skip distance IV. Sky wave propagation	**07**

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