

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI(OLD) – EXAMINATION – SUMMER 2019****Subject Code:161003****Date:10/05/2019****Subject Name: Antenna & Wave Propagation****Time:10:30 AM TO 01:00 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) Define (i) Directivity (ii) FNBW (iv) Radiation Resistance (v) Gain **07**
- (b) Give different definitions of antenna & also list out important functions of antenna. **07**
- Q.2** (a) Derive the formula of radiation resistance for dipole antenna. **07**
- (b) Write a short note on Antenna Radiation Pattern with necessary figure. **07**
- OR**
- (b) What is Hertzian dipole? Write the relation between a current element and an electric dipole writing suitable expressions. **07**
- Q.3** (a) Derive Friss Transmission Formula for radio link communication. **07**
- (b) Derive the Expressions of Maxima, Minima and Half power points for Broad Side Array. **07**
- OR**
- Q.3** (a) Explain Pattern Multiplication. **07**
- (b) Explain antenna polarization in brief. **07**
- Q.4** (a) Explain loop antenna of different shapes. **07**
- (b) What do you mean by Antenna Synthesis? Explain Schelkunoff theorem in brief. **07**
- OR**
- Q.4** (a) Explain helical antenna in detail. **07**
- (b) What is meant by resonant and non-resonant antenna? **07**
- Q.5** (a) Discuss feed Methods of Microstrip Patch antenna. **07**
- (b) Explain different types of Reflector antennas. **07**
- OR**
- Q.5** (a) Explain Ground Wave Propagation in Detail. **07**
- (b) Explain (i) Skip Distance (ii) Critical Frequency (iii) MUF **07**

\*\*\*\*\*