

Roll No.

Total Pages : 03

July-22-00381

B. Tech. EXAMINATION, 2022

Semester VI (CBCS)

ANTENNA AND WAVE PROPAGATION

EC-602

Time : 3 Hours

Maximum Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt *Five* questions in all, selecting *one* question from each Section A, B, C and D. Q. No. 9 is compulsory.

Section A

1. What is the effective area of a half-wave dipole operating at 500MHz ? 10
2. Prove that the Radiation Resistance of Half-wave dipole is 73Ω . 10

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Section B

3. Derive the expression for resultant radiation pattern of two-element uniform array. 10
4. Write a short note on Helical Antenna. 10

Section C

5. Explain Parabolic Reflector Antenna with its operation and its salient features in detail. 10
6. Write a short note on MANETs. 10

Section D

7. Explain Ionospheric wave propagation along with the characteristics of different layer of Ionosphere. 10
8. What is the critical angle of propagation for D-layer if the transmitter and receiver are separated by 500 km ? 10

(Compulsory Question)

9. Answer the following : 10×2=20
 - (a) What is the efficiency of an Antenna ?
 - (b) Define Radiation intensity of Antenna.

- (c) What is log-periodic antenna ?
- (d) Write the disadvantages of Rhombic Antenna.
- (e) Explain BALUN.
- (f) What are the disadvantages of slot antenna ?
- (g) Give the drawbacks of smart antennas.
- (h) Explain critical frequency.
- (i) What are the limitations of ground and sky waves ?
- (j) Find the critical frequency if the maximum electron density is 1.3×10^6 electrons/cm³.