Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (ECE) (Sem.–5)

ANTENNA & WAVE PROPAGATION

Subject Code : EC-303

M.Code : 57520

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Write briefly :

a. Explain FNBW of an antenna.

b. Explain beam area of an antenna.

c. Explain input impedance of an antenna.

d. Explain effective aperture area of an antenna.

e. Describe the refractive index of ionosphere.

f. Define the critical frequency in ionospheric propagation.

g. Define array factor.

h. What is the broadside array?

i. Explain the physical concept of radiation in single wire.

j. What is skip distance in ionospheric propagation?

SECTION-B

2. Explain infinitesimal dipole antenna in detail.

3. How mutual coupling between the antennas in an array affect the desired reception of the array? Explain this by considering an array of two antennas.

4. Explain field equivalence principle.

5. Differentiate between the far-field, radiating near field and reactive near-field generated by linear antenna.

6. Explain the process and difficulties arise in propagation of radio waves through ionosphere.

SECTION-C

7. Explain radiation pattern, HPBW, directivity, efficiency and gain of an antenna.

8. Explain the working of E-plane sectoral horn antenna.

9. Describe the operation of parabolic reflector antenna with the help of suitable diagram.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.