

B.E. / B.Tech (FullTime) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2011
 ELECTRONICS AND COMMUNICATION ENGINEERING BRANCH
 SIXTH SEMESTER

32

EC 9354 – ANTENNAS AND WAVE PROPAGATION

(REGULATION 2008)

Time: 3 Hours

Max.marks: 100

Answer ALL Questions

Part-A (10x2=20 Marks)

1. What is the significance of the radiation resistance?
2. Define antenna noise temperature.
3. Specify the merits and demerits of tapered aperture.
4. Define E Plane sectoral horn.
5. Give an example for pattern multiplication.
6. Give the significance of Adaptive arrays.
7. Draw the structure of helical antenna.
8. Mention the material parameters used for the design of dielectric antennas.
9. List the types of fading.
10. Define MUF.

Part-A (5x16=80 Marks)

- 11.(i) With mathematical substantiation explain the importance of input impedance. (8)
- (ii) Discuss the radiation resistance of half wave dipole antenna. (8)

- 12.(a)(i) Enunciate the principle of working of a parabolic reflector antenna. (6)
- (ii) Discuss the feed mechanisms to the parabolic reflector antenna. (6)
- (iii) Describe the constructional features of a micro strip antenna and its radiation mechanism. (4)

OR

- 12.(b) Obtain the expressions for the radiated fields from a rectangular aperture, mounted on an infinite ground plane. (16)

- 13.(a) Deduce expressions for the radiation pattern of a uniform linear array of N-half wave dipoles. Explain the meaning of end-fire and broadside arrays. (16)

OR

- 13.(b)(i) Describe the principle of working of phased arrays. (8)
- (ii) Specify the advantages of a binomial array and obtain the excitation levels of a binomial array for $n = 2$ to 9 where n is the number of elements. (8)

- 14.(a)(i) Explain the construction and working of a log periodic dipole array. (10)
(ii) Discuss the structure of reconfigurable antenna. (6)

OR

- 14.(b) Explain the following antenna measurements:
(i) Radiation pattern (8)
(ii) Polarization (8)

- 15.(a)(i) Describe briefly the salient features of ground wave propagation. (5)
(ii) What should be the polarization of the electromagnetic wave for the ground wave propagation? Justify your answer. (5)
(iii) Explain the term Wave Tilt of Surface Waves. (6)

OR

- 15.(b)(i) Give detailed description of the sky wave propagation. (10)
(ii) Define the terms Virtual height, Critical frequency and Skip distance. (6)
