



R18 Regulation

Subject Code: 2P6DA

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech VI Semester Supplementary Examinations, June/July 2023

ANTENNAS AND WAVE PROPAGATION
(Electronics and Communication Engineering)

Maximum Marks: 70

Date:22.06.2023 Duration: 3 hours

- Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 Define Radiation pattern.
- 2 Write the applications of Loop antenna.
- 3 Define Folded dipole antenna?
- 4 Why Folded dipole antenna is used as driven element in Yagi – Uda antenna?
- 5 Define included angle in corner reflector antenna?
- 6 List the advantages of Micro strip antenna.
- 7 Define principle of pattern multiplication.
- 8 Draw the structure of Binomial array and what is the advantage of it.
- 9 Define Wave Tilt.
- 10 Define critical frequency.

Part-B

Answer All the following questions.

(10M X 5=50Marks)

- 11 Differentiate small loop antenna and large loop antenna? Derive radiation resistance of small loop antenna. [10]

OR

- 12 Show that the radiation resistance of short dipole is $80\pi^2 (dl/\lambda)^2$. [10]

- 13 Explain the constructional details and radiation pattern of Yagi Uda Antenna with a neat diagram. [10]

OR

- 14 Explain the design considerations of pyramidal Horn antenna with neat diagram. [10]

- 15 a) Explain the features of Micro strip Antenna. [5]
b) Explain the geometry of Rectangular patch antenna. [5]

OR

- 16 Explain the geometry of parabolic reflector antenna? [10]

- 17 a) Compare Broadside array and End fire array. [5]
b) Calculate the directivity of BSA and EFA consisting 8 isotropic elements separated by $\lambda/4$ distance. [5]

OR

- 18 a) Draw the neat set up for measuring gain of an antenna and discuss its operation. [5]
b) List the different sources of errors in antenna measurements. [5]

- 19 a) Explain different layers of Ionosphere. [5]
b) Explain briefly about scattering phenomenon. [5]

OR

- 20 a) Explain different modes of wave propagation. [5]
b) Derive relation between skip distance and MUF. [5]