



R20 Regulation

Subject code:3P6DB

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Supplementary Examinations, December 2024

ANTENNAS AND WAVE PROPAGATION (ECE)

Maximum Marks: 70

Date:30.12.2024

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 which carries 10M.
 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		CO	Bloom Tx
1	What are the fields from oscillating dipole?	1	L1
2	Define Reciprocity Theorem applicable to Antennas.	1	L1
3	Differentiate normal mode and axial mode in helical antenna	2	L1
4	List the types of horn antennas.	2	L1
5	Define included angle in corner reflector antenna?	3	L1
6	What are the limitations of Micro strip Antenna.	3	L1
7	Write the directivity of EFA.	4	L1
8	Define Linear array and Uniform linear array.	4	L1
9	Define wave tilt?	5	L1
10	Define Critical frequency.	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		CO	Bloom Tx
11	Derive radiation resistance of half wave dipole antenna. [10M]	1	L2
OR			
12	Calculate the radiation resistance of Quarter wave Monopole Antenna. [10M]	1	L2
13	Analyze the structural and operational characteristics of a folded dipole antenna. Derive Impedance transformation ratio of Folded dipole antenna. [10M]	2	L2
OR			
14	A) Distinguish various types of horn antennas. [5M] B) Analyze the Fermat's principle. [5M]	2	L2
15	A) Demonstrate the features of Micro strip Antenna. [5M] B) Illustrate the geometry of Rectangular patch antenna. [5M]	3	L2
OR			
16	A) Classify various feed methods of Parabolic reflector antenna. [5M] B) Classify various types of reflector antennas. [5M]	3	L2

17	A) Sketch and Illustrate radiation pattern of 4 element linear array fed in phase spaced $\lambda/2$ by using principle of pattern multiplication. [5M] B) Illustrate about binomial arrays. [5M]	4	L2
	OR		
18	Illustrate the 3- antenna method for gain measurement in antenna measurements. [10M]	4	L2
19	A) Compare the different modes of wave propagation. [5M] B) Build the relation between skip distance and MUF. [5M]	5	L2
	OR		
20	A) Classify and explain different layers of Ionosphere. [5M] B) Illustrate briefly about multi hop propagation. [5M]	5	L2