R18 Regulation *Subject code: 2P6DA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, July 2024

ANTENNAS AND WAVE PROPAGATION

(ECE)

Maximum Marks: 70 Date:19.07.2024 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 is the directivity of isotropic antenna?	1	L1
2	State the concept of Helmholtz theorem.	1	L1
3	Write the applications of Loop antenna.	2	L1
4	State applications of horn antenna.	2	L1
5	Define included angle in corner reflector antenna?	3	L1
6	What are the limitations of Micro strip Antenna.	3	L1
7	What are the advantages and disadvantages of binomial arrays.	4	L1
8	Differentiate near field region and far filed region in antenna measurements	4	L1
9	Define Wave Tilt.	5	L1
10	Write about Space wave propagation	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)			
11	Derive the all-field components of half wave dipole antenna. [10M]	1	L2
	OR		
12	Show that the radiation resistance of short dipole is $80\pi^2 (dl/\lambda)^2$. [10M]	1	L2
13	Explain the constructional details and radiation pattern of Yagi Uda Antenna with a neat diagram. [10M]	2	L2
	OR		
14	a) Explain various types of horn antennas. [5M] b) Explain the Fermat's principle. [5M]	2	L2
15	a) Explain the geometry of rectangular patch antenna. [5M] b) Evaluate the power gain, directivity and the required diameter of a paraboloid having BWFN of 10^0 at 3GHz [5M]	3	L2
	OR		
16	a) Explain various types of reflector antennas. [5M] b) Discuss the various feeds of parabolic reflector antenna. [5M]	3	L2

17	a) Sketch radiation pattern of 4 element linear array fed in phase spaced $\lambda/2$ by using principle of pattern multiplication. [5M] b) Explain about binomial arrays. [5M]	4	L2
	OR		
18	a) Explain gain measurement using direct method. [5M] b) List the different sources of errors in antenna measurements. [5M]	4	L2
19	Explain the following: i) M- Curves [5M] ii) Tropospheric propagation [5M]	5	L2
	OR		
20	a) How the field strength is varied according to the distance and height in space wave propagation. [5M] b) Explain the concept of Wave tilt. [5M]	5	L2