

Code No: P18ECT11

HALL TICKET NUMBER

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PACE INSTITUTE OF TECHNOLOGY & SCIENCES::ONGOLE
(AUTONOMOUS)

III B.TECH I SEMESTER END REGULAR EXAMINATIONS, DEC/JAN – 2022/23
ANTENNA AND WAVE PROPAGATION
(ECE Branch)

Time: 3 hours

Max. Marks: 60

Note: Question Paper consists of Two parts (Part-A and Part-B)

PART-A

Answer all the questions in Part-A (5X2=10M).

Q.No.	Questions	Marks	CO	KL
1.	a) Define Beam Efficiency and Aperture Efficiency.	[2M]	1	2
	b) Write the applications of Binomial Arrays.	[2M]	2	2
	c) List out the advantages and limitations of micro strip antennas?	[2M]	3	2
	d) Classify and draw the horn antenna structure?	[2M]	4	1
	e) What is Tropospheric Scattering?	[2M]	5	3

PART-B

Answer One Question from each UNIT (5X10=50M)

Q.No.	Questions	Marks	CO	KL
UNIT-I				
2.	a) Explain antenna radiation mechanism with a two wire line.	[5M]	1	2
	b) Derive the field components and rms power radiated from half wave dipole. Calculate the radiation resistance of a half wave dipole.	[5M]	1	3
OR				
3.	a) Define the following Antenna parameters: i. Radiation Patterns ii. Radiation Intensity. iii. Directivity and Gain iv. Effective Height	[5M]	1	3
	b) Explain about Current Distribution on a thin wire antenna.	[5M]	1	2
UNIT-II				
4.	a) Find the radiation pattern of four isotropic elements fed in phase, spaced $\lambda/2$ apart by using pattern multiplication.	[5M]	2	2
	b) What are the various differences between binomial and linear arrays?	[5M]	2	3
OR				
5.	a) How a unidirectional pattern is obtained in an end fire array and explains in detail?	[5M]	2	3
	b) What are the various differences between broad side and End-fire arrays?	[5M]	2	3
UNIT-III				
6.	a) Draw the geometry of microstrip antenna and explain its working.	[5M]	3	2
	b) Explain the construction and working of Helical antenna in axial mode. Mention the required equations.	[5M]	3	1
OR				
7.	a) Explain the working principle of a helical antenna in normal mode?	[5M]	3	1
	b) What are the advantages and limitations of Microstrip antennas?	[5M]	3	2



UNIT-IV					
8.	a)	Explain in detail the function and design of a horn antenna?	[5M]	4	1
	b)	Explain the working principle of lens antenna.	[5M]	4	1
OR					
9.	a)	Explain in detail about pyramidal horn antenna.	[5M]	4	1
	b)	Derive the field gain of a 90° corner reflector.	[5M]	4	3
UNIT-V					
10.	a)	Explain different modes of wave propagation.	[5M]	5	1
	b)	Mention the characteristics of ionosphere.	[5M]	5	4
OR					
11.	a)	What is the wave tilt and how does it affect the field strength received at a distance from the transmitter?	[5M]	5	3
	b)	Explain the ionospheric abnormalities for variations in ionosphere.	[5M]	5	1
