TED (21) 6201A
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, NOVEMBER - 2024

ANTENNA AND WAVE PROPAGATION

[Maximum marks: 75] [Time: 3 Hours]

PART A

I. Answer all the following questions in one word or one sentence. Each question carries 1 mark.

(9 x 1 = 9 Marks)

		Module outcome	Cognitive level
1	List any two modes of radio wave propagation.	M1.01	R
2	LOS stands for ……..	M1.02	R
3	Define virtual height.	M2.02	R
4	…… is the highest frequency that returns from ionosphere at vertical incidence.	M2.02	R
5	Define multihop propagation.	M2.03	R
6	Define gain of antenna.	M3.03	R
7	The field which is near to the antenna is called ……..	M3.01	R
8	Write any 2 applications of microstrip antenna.	M4.02	R
9	List any 2 types of wire antenna.	M4.01	R

PART B

II. Answer any eight questions from the following. Each question carries 3 marks.

(8 x 3 = 24 Marks)

		Module outcome	Cognitive level
1	List any 3 advantages of ground wave propagation.	M1.02	R
2	Define ray path and critical frequency.	M2.02	R
3	Outline the effects of ionospheric absorption.	M2.01	U
4	What is the relation between MUF, critical frequency and skip distance?	M2.02	R
5	Explain sky wave propagation.	M2.01	U
6	State any 3 uses of antenna.	M3.02	R
7	Write any 3 advantages of microstrip antenna.	M4.01	R
8	Write notes on helical antenna.	M4.03	U
9	Write notes on half wave dipole antenna.	M4.01	R
10	List any 3 advantages of antenna arrays.	M4.04	R

PART C

Answer all questions. Each question carries seven marks.

(6 x 7 = 42 Marks)

		Module outcome	Cognitive level
III	Explain ground wave propagation.	M1.02	U
	OR		
IV	Illustrate space wave propagation.	M1.03	U
V	Summarize the factors affecting the field strength of ground wave propagation.	M1.02	U
	OR		
VI	Explain duct propagation.	M1.03	U
VII	Define fading and explain any 2 types of fading.	M2.03	U
	OR		
VIII	Describe the structure of ionosphere with neat diagram.	M2.01	U
IX	Describe the radiation mechanism of an antenna.	M3.01	U
	OR		
X	Define the following antenna parameters. (1) Signal to noise ratio (1 mark) (2) Beamwidth of antenna (2 marks) (3) Radiation resistance of antenna (2 marks) (4) Directivity of antenna (2 marks)	M3.03	R
XI	Explain the principle of duality of antennas.	M3.04	U
	OR		
XII	Explain radiation pattern and effective aperture of an antenna.	M3.03	U
XIII	Explain the working of Yagi-Uda antenna.	M4.03	U
	OR		
XIV	Explain the working of horn antenna.	M4.01	U

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