

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE, APRIL - 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 'one' marks.**

**( 9 x 1 = 9 Marks)**

Module Outcome Cognitive level

1	List any two modes of radio wave propagation.	M 1.01	R
2	Ionospheric propagation is also known as .....	M2.01	R
3	Write the expression for critical frequency.	M2.02	R
4	Name any two layers in ionosphere.	M2.01	R
5	Define fading.	M2.03	R
6	..... is a metallic device used for radiating or receiving radio waves..	M3.02	R
7	Name any two wire antennas.	M4.01	R
8	Helical antenna provides ..... polarized waves.	M4.03	R
9	List any two applications of reflector antenna.	M4.03	R

**PART - B**

**II. Answer any eight questions from the following. Each question carries 'Three' marks.**

**( 8 x 3 = 24 Marks)**

Module Outcome Cognitive level

1	List the advantages of ground wave propagation.	M1.02	R
2	Define virtual height with necessary figure.	M2.02	R
3	Draw the schematic representation of ionospheric propagation.	M2.01	R
4	Explain any two diversity techniques.	M2.03	U
5	Illustrate the reflection of sky waves by ionosphere.	M2.01	U

6	Define radiation resistance and radiation efficiency of an antenna.	M3.03	R
7	Explain the principle of operation of long wire resonant antenna with necessary figure.	M4.03	U
8	Draw the schematic of dipole antenna.	M4.01	R
9	List the advantages of micro strip antenna.	M4.02	R
10	Illustrate the construction of slot antenna.	M4.02	U

**PART - C**

**Answer all the questions from the following. Each question carries 'seven' marks.**

**(6 x 7 = 42 Marks)**

Module Outcome Cognitive level

III.	Summarize the principle of space wave propagation with necessary figure. <b>OR</b>	M1.03	U
IV.	Illustrate the wave tilt in surface wave propagation.	M1.02	U
V.	Explain the effect of distance in the field strength of space wave with necessary diagram. <b>OR</b>	M1.03	U
VI.	Outline the factors affecting the field strength of ground waves.	M1.02	U
VII.	Define maximum usable frequency and skip distance and explain the relation between them. <b>OR</b>	M2.02	U
VIII.	Explain the propagation of sky waves with necessary figure.	M2.01	U
IX.	With necessary diagram, explain the radiation mechanism of an antenna. <b>OR</b>	M3.01	U
X.	Explain the principle of reciprocity of antenna.	M3.04	U
XI.	Explain antenna beam area and antenna half power beam width. <b>OR</b>	M3.03	U
XII.	Outline the concept of retarded potential in antenna.	M3.01	U
XIII.	Summarize the properties of linear antenna array with necessary figure. <b>OR</b>	M4.04	U
XIV.	Illustrate the construction of Yagi-Uda antenna.	M4.03	U

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