

Roll No: _____

Department of Computer Science & Engineering
School of Engineering Sciences & technology
Jamia Hamdard
Even Semester Examination 2023

Time: 3 Hrs

Subject Name: Antenna and Propagation

Note: Please do proper numbering of Attempted Questions.

Marks: 75

Subject Code: BTECE 406

Section A

Note: All the Questions are Compulsory. Each question carry equal marks

[7 x 5 marks = 35 marks]

Q.No	Question	CO	BL
Q1.	What do you mean by near and far field regions in wave propagation?	CO1	L2
Q2.	What are the different components of a Yagi-Uda antenna? Based on these components, what are the different types of Yagi-Uda antenna	CO3	L3
Q3.	Explain the concept behind radiation of signals through wire and loops?	CO2	L3
Q4.	How is a log spiral antenna developed?	CO4	L2
Q5.	What are different types of Horn antenna?	CO3	L1
Q6.	What are the significance of auxiliary potential functions? Explain with the help of an example.	CO1	L3
Q7.	Explain the concept behind development of Huygen's Principle with the help of a diagram.	CO3	L4

Section B

Note: Attempt any Four (4) Questions only. Each question carry equal marks

[4 x 10 marks = 40 marks]

Q. No	Question	CO	BL
Q1.	Derive the mathematical relationship between transmitted and received power? What is this relationship called? A radio link has a 15 W transmitter connected to an antenna of 2.5m^2 effective aperture at 5GHz. The receiving antenna has an effective aperture of 0.5m^2 . The line of sight between the two antennas is 15 km. find the power delivered to the receiver?	CO1	L5
Q2.	With the help of a suitable figure, explain the Babinet's principle	CO3	L3
Q3.	What are the different characteristics of a Micro-Strip antennas? Discuss some of the applications where these antennas are used over conventional antenna	CO4	L3
Q4.	With the help of a neat diagram, explain different concepts related to the radiation pattern.	CO1	L4
Q5.	Write a short note on any two (2) of the following a) use of reflectors in antenna b) directivity and gain of an antenna c) Log-Periodic Antenna	CO5	L1
Q6.	For an infinitesimal dipole antenna, determine the electric field. Assume the related conditions?	CO4	L5

BL – Bloom's Taxonomy Levels

(1- Remembering, 2- Understanding, 3- Applying, 4- Analyzing, 5- Evaluating, 6- Creating)

CO – Course Outcomes

***** End of Paper *****