Name:.....
Roll No:.....

MAR ATHANASIUS COLLEGE OF ENGINEERING
KOTHAMANGALAM – 686666
(Govt. Aided Autonomous Institution)
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

B. TECH SECOND SERIES EXAMINATION, OCTOBER 2026

(S7 ECE A &B) ECT401 MICROWAVES AND ANTENNAS

Max. Marks: 40 Duration: 1.5 Hours

PART A

Answer all questions. Each question carries 3 marks.

1. The electromagnetic field around an antenna varies with distance. Identify the different field zones and mention the distinguishing characteristics of each. (CO3)

2. A communication engineer wants to choose between linear, circular, and elliptical polarization for an antenna system. State different characteristic that distinguishes each type of polarization. (CO3)

3. Compare coaxial probe feeding and microstrip-line feeding of a patch antenna with practical advantage of each. (CO4)

4. In a Cassegrain parabolic reflector antenna, explain the arrangement of the main reflector, secondary reflector, and feed, and describe how electromagnetic waves are directed between them. (CO4)

PART B

Answer all questions. Each question carries 14 marks.

5. a. A transmitting antenna and a receiving antenna are interchanged in a communication system. Using appropriate principle explain how the transmitting and receiving characteristics of the antenna are related. (CO3)

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	b.	Half-wave dipole antenna is used for transmitting a radio signal. Explain how radiation resistance is related to the power radiated by the antenna and derive its value.	(CO3)
6.	a.	A helical antenna can produce different radiation characteristics by changing its geometry. Explain its construction and operating modes with suitable diagrams.	(CO4)
	b.	Design a rectangular microstrip patch antenna operating at 2.4GHz on a substrate of relative dielectric constant 4.4 and height 1.6 mm.	(CO4)

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