Roll No. | | | | | | | | | | |

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, APR / MAY 2025

DEPARTMENT OF ECE
IV Semester
EC23903 WIRELESS TECHNOLOGIES
(Regulation2023)

Time:3hrs Max.Marks: 100

CO1	To be able to analyze the wired and wireless communication and networks.
CO2	To be able to develop Internet of Things for various applications.
CO3	To be able to apply security protocols in Wireless Networks.
CO4	To be able to acquire the antenna systems for Wireless Technologies.
CO5	To be able to explain the Satellite Communication technologies.

BL – Bloom's Taxonomy Levels
(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

PART- A(10x2=20Marks)
(Answer all Questions)

Q.No.	Questions	Marks	CO	BL
1	What is the function of TCP and IP protocols in networks?	2	1	2
2	Define flow control	2	1	2
3	Define IoT networks	2	2	2
4	Why does 6LoWPAN do packet fragmentation and reassembly?	2	2	2
5	What is eavesdropping in Wi-Fi networks?	2	3	2
6	Which security technique was introduced as replacement due to security flaws of WEP? What is its salient feature?	2	3	2
7	What discrete component would you choose to model a lossless antenna? Why?	2	4	2
8	What are the requirements in the design of a RFID tag	2	4	2
9	Write down the names of the two types of transponders in satellites and mention any one difference between them	2	5	2
10	List the different types of beams based on their coverage in satellite communication?	2	5	2

PART- B(5x 13=65Marks)
(Restrict to a maximum of 2 subdivisions)

Q.No.	Questions	Marks	CO	BL
11 (a)	Explain the OSI (Open Systems Interconnection) Model in detail. Describe the function of each of the seven layers.	13	1	3
	OR			
11 (b)	Explain the evolution of cellular mobile communication from 1G to 5G. Highlight the key features, technologies used, data speeds, and applications of each generation.	13	1	3
12 (a)	Give a comprehensive and in-depth explanation of the architecture and layered components of the IEEE 802.15.4 protocol stack, including its specific functionalities and interactions across each layer?	13	2	4
	OR			

12 (b)	Draw the different network topologies and devices, Also bring out the salient features of Zigbee protocol.	13	2	4
13 (a)	Draw and explain the WEP protocol used for IEEE 802.11 security	13	3	3
	OR			
13 (b)	Write brief notes on (i) Cyber attacks & Jamming (ii) Difference between integrity and authentication	8 5	3	3
14 (a)	Write brief notes on the following (i) Arrays &Smart Antennas (ii) Effective area and Reflector antennas	5 8	4	3
	OR			
14 (b)	Write down the procedure to design a microstrip patch antenna and	13	4	3
15 (a)	Draw and analyse the working of a satellite communication link and bring out the differences between LEO, MEO and GEO satellites	13	5	3
	OR			
15 (b)	Explain in detail any one application of satellites	13	5	3

PART- C(1x 15=15Marks)

(Q.No.16 is compulsory)

Q.No.	Questions	Marks	CO	BL
16.	a. Satellite A orbits Earth at a height of 300 km above the surface. Satellite B orbits at 1200 km. Which satellitetravels faster and by how much?If the speed of Satellite A is 7730 m/s what would be the speed of Satellite B be? Let Earth's radius Re=6371 km	10	5	4
	b. Briefly explain the function of a AOC subsystem in a satellite	5		