12/12/24, AN

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

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. / B. Tech (Full Time) - END SEMESTER EXAMINATIONS, NOV/DEC 2024

Computer Science and Engineering

CS7703 & Wireless Networks

(Regulation 2015)

Time: 3hrs

Max.Marks: 100

PART- A (10 x 2 = 20 Marks)

(Answer all Questions)

Q. No	Questions	Marks
1	What is attenuation in wireless networks, and how does it affect signal strength?	2
2	What is the primary function of the Data Link Layer in a WLAN, and how does it ensure reliable communication?	2
3	What is Ultra-Wideband (UWB) technology, and mention two of its key applications?	2
4	What is Zigbee technology, and how is it commonly used in wireless communication?	2
5	What does GSM stand for, and what is its primary use in wireless communication?	2
6	Define software handoff.	2
7	What is UMTS Security?	2
8	What are HSDPA?	2
9	List some challenges in cognitive radio.	2
10	What is the principle of Spatial Multiplexing in MIMO, and how does it improve data throughput in wireless communication?	2

PART- B (5 x 13 = 65 Marks)

(Restrict to a maximum of 2 subdivisions)

Q. No	Questions	Marks
11 (a) (i)	Describe in detail the Bluetooth architecture and protocol stack with illustrative diagrams.	13
	(OR)	
11 (b) (i)	Explain in detail IEEE 802.11 protocol architecture with illustrative diagrams.	13
12 (a) (i)	Explain in detail IEEE 802.16 working mechanism along with the challenges.	13
	(OR)	
12 (b) (i)	Describe in detail the ZigBee architecture and protocol stack with illustrative diagrams.	13
13 (a) (i)	Explain GSM network architecture in detail. Also, explain how call routing and handoff mechanism works.	13
	(OR)	
13 (b) (i)	Compare and contrast the different MAC access schemes in Wireless Networks.	13
14 (a) (i)	Compare and contrast UMTS/WCDMA and CDMA2000 in terms of their	13

	technical features, performance, and applications.	
	(OR)	
14 (b) (i)	Describe HSDPA (High-Speed Downlink Packet Access) and elaborate on how it enhances data rates and user experience in UMTS networks.	13
15 (a) (i)	Discuss the concept of Cognitive Radio (CR) and its significance in modern wireless communication. Highlight the potential applications of Cognitive Radio in fields like IoT, public safety communications, and broadband services.	13
	(OR)	
15 (b) (i)	Describe in detail the different smart antennas techniques used in 4G cellular networks.	13

PART- C (1 x 15 = 15 Marks)

(Q.No. 16 is Compulsory)

Q. No	Questions	Marks
16 (i)	Discuss the key features and challenges associated with 4G mobile networks. Explain the major technological advancements that 4G brings over its predecessors (3G, 2G).	15