GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII EXAMINATION – SUMMER 2025

Subject Code:3170710   **Date:16-05-2025**

Subject Name:Mobile Computing and Wireless Communication

Time:02:30 PM TO 05:00 PM   **Total Marks:70**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	What are LANs, MANs, and WANs & PANs?	**03**
	(b)	Define channel capacity and explain its significance in communication systems.	**04**
	(c)	Discuss the different types of transmission media and their advantages and disadvantages.	**07**
Q.2	**(a)**	Define frequency hopping spread spectrum (FHSS).	**03**
	(b)	What is Automatic Repeat Request (ARQ) in error control?	**04**
	(c)	Describe the propagation modes and their impact on wireless communication with their advantages & disadvantages.	**07**
		OR	
	(c)	What is handoff in mobile communication, and why is it important for maintaining call quality and connection continuity? Explain the different types of handoffs used in cellular networks.	**07**
Q.3	**(a)**	What are the functions of HRL, VRL & AUC in GSM?	**03**
	(b)	Define IMSI, IMEI, and MS-ISDN, and explain the significance of each in mobile communication systems.	**04**
	(c)	How is call routing handled in a GSM network? Outline the steps involved in routing a call from one mobile user to another.	**07**
		OR	
Q.3	**(a)**	What is hidden terminal problem? How it can be avoided?	**03**
	(b)	Explain the additional network elements introduced in GPRS that differentiate it from GSM. Additionally, discuss the limitations of GPRS.	**04**
	(c)	What are the various data services provided by GPRS? Explain how GPRS improves the efficiency of data transmission?	**07**
Q.4	**(a)**	Explain the role of the Medium Access Control (MAC) layer in IEEE 802.11.	**03**
	(b)	Explain Bluetooth Protocol Stack with diagram.	**04**
	(c)	What is Mobile IP? Explain the tunneling in context of Mobile IP.	**07**
		OR	
Q.4	**(a)**	Compare and contrast WiMAX and WiFi technologies.	**03**
	(b)	Explain the WAP Stack with neat diagram.	**04**

(c) Discuss the key services provided by IEEE 802.11, including authentication, association, and data delivery. How do these services support seamless connectivity in Wi-Fi networks? **07**

Q.5 **(a)** Explain power saving states of Bluetooth device. **03**
(b) Write a note on piconet and scatternet. **04**
(c) Define the Android Layout. Explain the various Android Layouts. **07**

OR

Q.5 **(a)** What are the four main application components in Android? **03**
(b) What is the purpose of Android Manifest file? **04**
(c) Explain the Android Architecture with the neat diagram. **07**

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