GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2022

Subject Code:3171608   **Date:01/06/2022**
Subject Name: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 alloweds.**

Q.1	**(a)**	Why hexagonal cell shape is preferred in cellular architecture?	**03**
	(b)	Explain the concept of frequency reuse in cellular system	**04**
	(c)	Draw and Explain GSM system architecture.	**07**
Q.2	**(a)**	Explain the concept of umbrella cell.	**03**
	(b)	Compare Wi-Fi and Wi-max technology.	**04**
	(c)	With the help of a neat sketch, describe GPRS architecture.	**07**
		OR	
	(c)	Briefly explain knife-edge diffraction model.	**07**
Q.3	**(a)**	Define: (1) Control Channel	**03**
		(2) Dwell time	
		(3) Full Duplex Systems	
	(b)	Write short note on: Bluetooth.	**04**
	(c)	Discuss the fixed channel allocation, Channel borrowing and dynamic channel allocation techniques in cellular systems.	**07**
		OR	
Q.3	**(a)**	Briefly describe Hand-off strategies in cellular system.	**03**
	(b)	Compare TDMA, FDMA and CDMA techniques.	**04**
	(c)	Explain the hidden-node problem and exposed-node problem in context of mobile ad-hoc networks.	**07**
Q.4	**(a)**	Explain channel assignment strategies.	**03**
	(b)	Discuss the concept of spread spectrum.	**04**
	(c)	Explain the working of UWB radio. Discuss the features, advantages and disadvantages of UWB technology.	**07**
		OR	
Q.4	**(a)**	Explain: I-persistent CSMA, non-persistent CSMA, P-persistent CSMA.	**03**
	(b)	Explain wireless Ad-Hoc network.	**04**
	(c)	Describe the various outdoor propagation models.	**07**
Q.5	**(a)**	Explain briefly how a RAKE receiver improves the received signal strength.	**03**
	(b)	Mention the techniques to improve the capacity in cellular system and explain any one.	**04**
	(c)	Write a short note on OFDM.	**07**
		OR	
Q.5	**(a)**	List the security issues of wireless networks.	**03**
	(b)	Write a short note on software defined radio.	**04**
	(c)	Explain Frequency Division Multiple Access (FDMA) in wireless communication with figure.	**07**

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