GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2024

Subject Code:3171004   **Date:07-12-2024**

Subject Name: Wireless Communication

Time:10:30 AM TO 01:00 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.**

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)	With the help of a neat sketch, describe GPRS architecture.	**07**
Q.2	**(a)**	Compare Wi-Fi and Wi-max technology.	**03**
	(b)	Illustrating the upgrade paths briefly describe 2G and 3G cellular network.	**04**
	(c)	Explain handoff scenario at cell boundary with figure.	**07**
		OR	
	(c)	Explain the concept of cell splitting with require figure.	**07**
Q.3	**(a)**	Explain the concept of umbrella cell.	**03**
	(b)	Explain the factors influencing small scale fading.	**04**
	(c)	What is diffraction? Briefly explain knife-edge diffraction model with figure.	**07**
		OR	
Q.3	**(a)**	Briefly explain different channel assignment strategies.	**03**
	(b)	Explain coherence bandwidth.	**04**
	(c)	Describe empirical formula for path loss in mobile networks.	**07**
Q.4	**(a)**	Explain three types of soft handoffs in IS-95 standard.	**03**
	(b)	Define: Mobile SwitchingCenter, Base station, Control Channel, Page.	**04**
	(c)	Explain the concept of RAKE receiver in CDMA.	**07**
		OR	
Q.4	**(a)**	Give the classification of GSM channels.	**03**
	(b)	Write short note on: Bluetooth.	**04**
	(c)	Draw and explain the GSM system architecture.	**07**
Q.5	**(a)**	Write a short note on OFDM.	**03**
	(b)	Compare TDMA, FDMA and CDMA techniques.	**04**
	(c)	What is Zigbee? Explain in details ZigBee networks.	**07**
		OR	
Q.5	**(a)**	Write the equation for efficiency of TDMA and Number of channels in TDMA.	**03**
	(b)	What is a non linear effect in FDMA?	**04**
	(c)	Write a short note on software defined radio.	**07**

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