

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- VII EXAMINATION-SUMMER 2023****Subject Code: 3171608****Date: 27/06/2023****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.

		MARKS
Q.1	(a) List out various 2G, 2.5G & 3G wireless cellular network technologies.	03
	(b) Define following terms: (1) Page, (2) Half-duplex systems, (3) Roamer, Transceiver.	(4) 04
	(c) Illustrate TDMA scheme with necessary equations.	07
Q.2	(a) Define following terms: (1) Cluster, (2) Co-channel cells, (3) Dwell time.	03
	(b) Write a brief note on various types of hand-off strategies in cellular system.	04
	(c) Explain different channel assignment strategies in detail.	07
OR		
	(c) Prove that for a hexagonal symmetry, the co-channel reuse ratio is given by $Q = (3N)^{1/2}$. Where, $N = i^2 + ij + j^2$.	07
Q.3	(a) Write down & define each term of the free space propagation path loss equation.	03
	(b) A spectrum of 33 MHz is allocated to a wireless FDD cellular system which uses two 25 kHz simplex channels to provide full duplex voice and control channels. Compute the number of channels available per cell if a system uses (i) 4-cell reuse (ii) 7-cell reuse and (iii) 12-cell reuse.	04
	(c) Mention the techniques to improve the capacity in cellular system and explain any one in detail with suitable diagram.	07
OR		
Q.3	(a) Illustrate the concept of diffraction.	03
	(b) List out various outdoor propagation models & explain any one in brief.	04
	(c) List out various types of diversity techniques and explain each one of them in brief.	07
Q.4	(a) Explain in brief handover in GSM system.	03
	(b) How authentication & security is achieved in GSM system? Explain in brief.	04
	(c) Explain in detail the GSM system architecture using suitable diagram.	07
OR		
Q.4	(a) Explain in brief soft handoff procedure in CDMA system.	03
	(b) Draw & explain in brief architecture of IS-95 CDMA system.	04
	(c) List out various CSMA protocols and explain any one strategy in brief.	07
Q.5	(a) Compare Wi-Fi with WiMAX.	03
	(b) Write a brief note on Software Defined Radio.	04
	(c) Write a detailed note on UWB radio technology.	07
OR		
Q.5	(a) What is Wireless Local Loop technology? Explain in brief.	03
	(b) Explain in detail ZigBee networks using suitable diagrams.	04
	(c) Write a short note on GPRS system architecture.	07
