

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023

Subject Code:2171004

Date:16-12-2023

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) Compare 1G, 2G, 2.5G, 3G, 4G	03
	(b) Define: Cell, Cluster, Channel Capacity, Frequency Reuse Ratio	04
	(c) Explain Hand off strategies in Cellular System.	07
Q.2	(a) Compare cell splitting and Sectoring.	03
	(b) What is Umbrella Cell? Explain in brief.	04
	(c) Prove that $Q=D/R=\text{Square Root of } 3N$.	07
	OR	
	(c) Explain Channel Capacity Vs. Co-Channel Interference for different cluster sizes. Derive expression for S/I.	07
Q.3	(a) Explain Doppler shift with necessary diagram and equation	03
	(b) Define Brewster Angle for Vertical Polarization.	04
	(c) Explain in detail Two ray Ground Reflection model.	07
	OR	
Q.3	(a) What are the parameters of Multipath Channels	03
	(b) Discuss Empirical Formula for the path loss	04
	(c) Explain in detail large scale Path Loss. Derive Expression for free space Propagation Model	07
Q.4	(a) Explain TDMA technique. Explain its frame structure with efficiency.	03
	(b) Define and give one example of : FDD and TDD	04
	(c) Explain GSM architecture for 2G with neat sketch	07
	OR	
Q.4	(a) Define : Coherence Bandwidth, Coherence time ,fading	03
	(b) Discussed GSM speech coding .	04
	(c) Explain architecture of IS-95 CDMA in detail.	07
Q.5	(a) Discuss RAKE Receiver in brief.	03
	(b) Explain software define radio.	04
	(c) Compare Wi-Fi, WiMAX, ZigBee Networks.	07
	OR	
Q.5	(a) Explain: I-persistent CSMA, non-persistent CSMA, p-persistent CSMA	03
	(b) What are the Security issues and challenges in 5 G Wireless networks	04
	(c) Write an S.N. on Adhoc Network.	07
