

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2024****Subject Code: 3171608****Date:24-05-2024****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 allowed.
- 5.

	MARKS
<b>Q.1</b> (a) Define WLAN. Also explain it with its topology.	<b>03</b>
(b) Compare Wi-Fi and Wi-max technology.	<b>04</b>
(c) Draw a neat sketch of GSM architecture and state the functions of the following: BSC, MSC, VLR, HLR, AUC.	<b>07</b>
<b>Q.2</b> (a) Define cellular network. Explain it with its architecture.	<b>03</b>
(b) Explain the concept of frequency reuse in cellular system.	<b>04</b>
(c) What is ZigBee ? Explain in details ZigBee networks.	<b>07</b>
<b>OR</b>	
(c) Briefly discuss security threats in wireless network and suggest possible ways of protection.	<b>07</b>
<b>Q.3</b> (a) Explain the Frequency diversity techniques briefly.	<b>03</b>
(b) Write short note on: Bluetooth.	<b>04</b>
(c) Explain Free space propagation model with necessary equations.	<b>07</b>
<b>OR</b>	
<b>Q.3</b> (a) Explain the Space diversity techniques briefly.	<b>03</b>
(b) Compare different types of propagation models.	<b>04</b>
(c) Describe: Time Division Multiple Access (TDMA) in detail. Write the equation for efficiency of TDMA and the number of channels in TDMA system.	<b>07</b>
<b>Q.4</b> (a) Explain channel assignment strategies.	<b>03</b>
(b) Define fading. Explain it with its types.	<b>04</b>
(c) Explain the concept of RAKE receiver in CDMA.	<b>07</b>
<b>OR</b>	
<b>Q.4</b> (a) Give proper reason of difference between co-channel interference and adjacent channel interference.	<b>03</b>
(b) Explain handoff process and dwell time.	<b>04</b>
(c) Compare TDMA, FDMA and CDMA techniques	<b>07</b>
<b>Q.5</b> (a) Why we use hexagon shape in cell structure? Give the proper reason.	<b>03</b>
(b) Write a short note on UWB radio.	<b>04</b>
(c) Draw and explain GSM system architecture.	<b>07</b>

**OR**

- Q.5** (a) Define: I-persistent CSMA, non-persistent CSMA, p-persistent CSMA. **03**
- (b) Explain Spread Spectrum with its types. **04**
- (c) Write a short note on OFDM. **07**

\*\*\*\*\*