Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VII (New) EXAMINATION – WINTER 2019

Subject Code: 2170710 Date: 28/11/2019

Subject Name: Mobile Computing and 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.**

Q.1	**(a)**	Explain the purpose of Home Location Register (HLR). List the information which is stored in Home Location Register (HLR).	**03**
	(b)	Compare Guided and Unguided media with its applications.	**04**
	(c)	What is wave propagation? Discuss various modes of propagation with example.	**07**
Q.2	**(a)**	Explain the terms with respect to OSI Model : Frame , Packet & Segment	**03**
	(b)	Identify the use of Mobile IP. How does Mobile IP work?	**04**
	(c)	Explain Addresses and Identifiers used in GSM with Example.	**07**
		OR	
	(c)	Illustrate different scenarios of Roaming and Handoff in GSM with proper Examples.	**07**
Q.3	**(a)**	What is the Nyquist Theorem and Why Does it Matter?	**03**
	(b)	Explain Hidden Station and Exposed Station Problem in wireless network. Propose the solution for the problem.	**04**
	(c)	Describe Cell Splitting and Cell Sectoring with its limitations in detail.	**07**
		OR	
Q.3	**(a)**	Why Multiplexing is needed in wireless communication and What is the use of Guard band in telecommunication networks?	**03**
	(b)	Draw and Explain IEEE 802.11 protocol architecture.	**04**
	(c)	How Error Control is implemented using Automatic Repeat Request (ARQ) mechanism?	**07**
Q.4	**(a)**	Explain Voice and Data Routing in GPRS with proper diagram.	**03**
	(b)	Differentiate Amplitude, Frequency and Phase Shift Keying in Digital Modulation with proper diagram.	**04**
	(c)	Explain each layer of Bluetooth Protocol Stack.	**07**
		OR	
Q.4	**(a)**	Compare Paging and Location update in GSM.	**03**
	(b)	Define FHSS. Discuss advantages and applications of FHSS.	**04**
	(c)	State the applications of Bluetooth and differentiate between Piconet and Scatternet with neat diagram.	**07**
Q.5	**(a)**	Draw and explain MAC frame Format in WLAN.	**03**
	(b)	We have a channel with a 1-MHz bandwidth. The SNR value for this channel is 63. What are the appropriate Bit rate and Signal level using Shannon's and Nyquist's Formula?	**04**
	(c)	Describe Android application Architecture.	**07**
		OR	
Q.5	**(a)**	Enlist and Explain services provided by IEEE 802.11.	**03**
	(b)	A typical voice channel has SNR as 30dB and Bandwidth as 2.7KHz. Calculate the approximate maximum information capacity of the channel?	**04**
	(c)	Enlist & Explain common layouts available in android.	**07**

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