

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**
