

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 7 – EXAMINATION – SUMMER 2026

Subject Code: 2170710

Date: 05/06/2026

Subject Name: Mobile Computing and 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.**

- Q.1**
- (a)** Characterize Analog and Digital Data Transmission Techniques. **03**
 - (b)** Differentiate Circuit Switching and Packet Switching. **04**
 - (c)** Explain TCP/IP protocol architecture along with diagram **07**

- Q.2**
- (a)** Define the following terms: (1) Fading (2) Multiplexing (3) Handover. **03**
 - (b)** Define Channel Capacity. Briefly explain the factors that affect the capacity of a wireless channel. **04**
 - (c)** Explain the concept of Frequency Reuse in cellular networks. How does it help in increasing system capacity? **07**

OR

- (c)** Describe the functional architecture of a GSM system with a neat diagram. Explain the roles of HLR and VLR. **07**

- Q.3**
- (a)** Explain following GSM identifiers: IMSI, IMEI, and MSISDN. **03**
 - (b)** Discuss the propagation modes and the concept of 'Line-of-Sight' transmission. **04**
 - (c)** What is Mobile IP? Explain the concepts of Agent Discovery and Tunneling. **07**

OR

- Q.3**
- (a)** Describe the Call Routing mechanism in a GSM network. **03**
 - (b)** Describe the applications and data services provided by GPRS. **04**
 - (c)** Explain the GSM Network Architecture and the functions of its various entities. **07**

- Q.4**
- (a)** Define Spread Spectrum. Differentiate between FHSS and DSSS. **03**
 - (b)** Explain the Bluetooth Radio and Baseband specifications. **04**
 - (c)** Describe the IEEE 802.11 (Wi-Fi) architecture and its Medium Access Control (MAC) services. **07**

OR

- Q.4**
- (a)** Explain the concept of Code Division Multiple Access. **03**
 - (b)** Discuss error detection and block error correction codes in wireless communication. **04**
 - (c)** Explain the Bluetooth Protocol Stack in brief. Explain Logical Link Control and Adaptation Protocol in detail. **07**

- Q.5**
- (a)** What is the significance of the Android Manifest file? **03**
 - (b)** Explain the core Application Components in the Android framework. **04**

- (c) Discuss Android Architecture in brief. Explain the role and need of Application Framework and Libraries layer in detail. **07**

OR

- Q.5** (a) Explain the use of UI widgets: TextView, EditText, and Button in Android. **03**
- (b) Differentiate between LinearLayout, RelativeLayout, and TableLayout. **04**
- (c) Explain following in context of Android Application: RatingBar, The Options Menu, The Context Menu. **07**
