**Professional Course Examination, May 2023**

( 6th Semester )

**BACHELOR OF COMPUTER APPLICATIONS**

**( Mobile Computing )**

*Full Marks* : 75

*Time* : 3 hours

*The figures in the margin indicate full marks for the questions*

**( PART : A—OBJECTIVE )**

( *Marks* : 25 )

SECTION—I

( *Marks* : 15 )

**A.** Tick (✓) the correct answer in the brackets provided : 1×10=10

1. Mobile computing allows transmission of data from one wireless-enabled device to

   *(a)* any device ( )

   *(b)* another wired device ( )

   *(c)* another wireless-enabled device ( )

   *(d)* only smart phone and tablet ( )

2. WLANs are standardized by the IEEE _____ standards.

*(a)* 802.11x ( )

*(b)* 802.12x ( )

*(c)* 802.13x ( )

*(d)* 802.14x ( )

3. Mobile IP adds mobility support to the internet _____ layer protocol.

*(a)* physical ( )

*(b)* application ( )

*(c)* data link ( )

*(d)* network ( )

4. Which of the following is considered as the heart of the Global Systems for Mobiles (GSM)?

*(a)* Operational Support Sub-system ( )

*(b)* Networks Switching Sub-system ( )

*(c)* Base Station Sub-system ( )

*(d)* Mobile Station ( )

5. GPRS services belong to which generation?

*(a)* 1G ( )

*(b)* 2G ( )

*(c)* 3G ( )

*(d)* 4G ( )

6. UMTS is also known as

*(a)* IS-95 ( )

*(b)* GPRS ( )

*(c)* CDMA One ( )

*(d)* W-CDMA ( )

7. What is the routing algorithm used in MANETs?

*(a)* Shortest Path First ( )

*(b)* Routing Information Protocol ( )

*(c)* Distance Vector Protocol ( )

*(d)* Ad hoc On-demand Distance Vector Protocol ( )

8. VANET stands for

*(a)* Vehicular Ad hoc Network ( )

*(b)* Vehicular Address Network ( )

*(c)* Vehicular Ad hoc Neural Network ( )

*(d)* Wireless Sensor Network ( )

9. Which of the layers is the lowest layer of android architecture?

*(a)* System Libraries and Android Runtime ( )

*(b)* Linux Kernel ( )

*(c)* Applications ( )

*(d)* Application Framework ( )

10. APK stands for

*(a)* Android Phone Kit ( )

*(b)* Android Page Kit ( )

*(c)* Android Package Kit ( )

*(d)* All of the above ( )

**B.** State whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark : 1×5=5

1. Mobile communication refers to an infrastructure that ensures seamless and reliable communication among wireless devices.

*( T / F )*

2. Mobile IP enables users to keep the same IP address while travelling to a different network.

*( T / F )*

3. GPRS is the packet data core network for 4G systems EDGE and WCDMA.

*( T / F )*

4. The client/server relationship is not defined in an ad hoc manner by the application logic.

*( T / F )*

5. The first android OS was released by Google in 20th September, 2008.

*( T / F )*

## SECTION—II

( *Marks* : 10 )

**C.** Answer any *five* of the following questions : 2×5=10

1. What do you mean by mobile computing?

2. What is Indirect-TCP (I-TCP) protocol?

3. What is the use of GPRS in mobile computing?

4. What are the two significant roles of metadata?

5. Define mobile commerce.

6. What is FDM in mobile computing?

7. What is an ad hoc network?

## ( PART : B—DESCRIPTIVE )

( *Marks* : 50 )

**1.** *(a)* Differentiate between mobile computing and wireless networking. What are different mobile generations—1G, 2G, 3G, 4G and 5G? 10

**OR**

*(b)* Explain in brief any *five* of the following :

*(i)* Fixed Assignment Protocols (Reservation Based Schemes)

*(ii)* Random Assignment Protocols

*(iii)* Reservation/Demand Assignment Protocols

*(iv)* Mobile Computing Application

*(v)* Characteristics of Mobile Computing

*(vi)* Wireless MAC Issues

**2.** *(a)* Explain Mobile Internet Protocol (Mobile IP) and mention its salient features and key mechanism. 10

**OR**

*(b)* Write in brief about the following :

*(i)* Architecture of TCP/IP

*(ii)* Adaptation of TCP Window

**3.** *(a)* Explain the architecture of GSM with suitable diagram. 10

**OR**

*(b)* Explain the following :

*(i)* General Packet Radio Service (GPRS)

*(ii)* Universal Mobile Telecommunication System (UMTS)

**4.** *(a)* Explain the following classifications of wireless ad hoc networks : 10

*(i)* Mobile ad hoc networks (MANETs)

*(ii)* Vehicular ad hoc networks (VANETs)

**OR**

*(b)* Mention the five important design issues and routing protocols of ad hoc networks.

**5.** *(a)* What is mobile device operating? Write the special constraints and requirements of iOS, Android. 10

**OR**

*(b)* Explain different mobile payment systems. Write the important security issues of mobile payment systems.

★ ★ ★