Professional Course Examination, May 2022

(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)

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

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

(a) any device ( )

(b) wired device ( )

(c) wireless-enabled device ( )

(d) only smartphone and tablet ( )

2. WLANs are standardized by the IEEE _____ standards.

(a) 802·11*x* ( )

(b) 802·12*x* ( )

(c) 802·13*x* ( )

(d) 802·14*x* ( )

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 System for Mobile (GSM)?

(a) Operational support subsystem ( )

(b) Networks switching subsystem ( )

(c) Base station subsystem ( )

(d) Mobile station ( )

5. GPRS belongs to which generation?

(a) 1G ( )

(b) 2G ( )

(c) 3G ( )

(d) 4G ( )

6. UMTS is also known as

(a) IS–95 ( )

(b) GPRS ( )

(c) cdmaOne ( )

(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 Networks ( )

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

(a) System libraries and android runtime ( )

(b) Linux kernel ( )

(c) Applications ( )

(d) Applications framework ( )

10. APK stands for

(a) Android Phone Kit ( )

(b) Android Page Kit ( )

(c) Android Package Kit ( )

(d) All of the above ( )

Tick (✓) whether the following statements are *True (T)* or *False (F)* : 1×5=5

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

(T / F)

12. Mobile IP enables user to keep the same IP address while travelling to a different network.

(T / F)

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

(T / F)

14. The client/server relationship is NOT defined in an ad-hoc manner by the application logic.

(T / F)

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

(T / F)

SECTION—II

(*Marks* : 10)

Answer the following questions in short : 2×5=10

1. List out two types of wireless networks based on their geographical distance.

2. What is mobile IP?

3. What is frequency range of uplink and downlink in GSM network?

4. What are the two classifications of routing?

5. What is M-commerce?

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

Answer the following questions : 10×5=50

1. *(a)* What do you understand by mobile computing? What are different types of applications in which mobile computing is used? 5

(b) Distinguish between mobile computing and wireless networking. 5

OR

(c) Define the following mobile generations : 5

1G, 2G, 3G, 4G, 5G

(d) Explain the following wireless MAC protocol issues : 5

(i) Fixed assignment schemes

(ii) Reservation-based schemes

2. *(a)* Explain the key mechanisms in mobile IP. How is route optimization achieved in mobile IP? 5

(b) What is TCP/IP? Explain the architecture of TCP/IP with suitable diagram. 5

OR

(c) Define the following features of mobile IP : 5

(i) Roaming connectivity

(ii) Tunnelling and reverse tunnelling

(d) Write short notes on the following : 5

(i) Adaptation of TCP Window

(ii) Improvement in TCP performance

3. *(a)* What is GSM in mobile computing? Explain the GSM architecture with suitable diagram. 5

(b) Define General Packet Radio Service (GPRS). What are the key features and goals of GPRS? 5

OR

(c) Explain Universal Mobile Telecommunications System (UMTS) and its security and privacy. 5

(d) Define the following : 5

(i) Mobile switching centre

(ii) W-CDMA

4. *(a)* What is ad-hoc network? Explain the design issues of ad-hoc network. 5

(b) Define Mobile Ad-hoc Networks (MANETs). Write the essential characteristic of MANETs. 5

OR

(c) Explain routing protocol. List out the important ad-hoc network routing protocols. 5

(d) Define the following : 5

(i) Smartphone ad-hoc networks

(ii) VANET

5. *(a)* What is mobile operating system? Explain the components of mobile operating systems. 5

(b) Explain the security issues of mobile payment systems. 5

OR

(c) Write a short note on mobile operating system constraints. 5

(d) Explain the following : 5

(i) Android OS

(ii) Apple IOS

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