15903

BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – Dip.CSE-2022/Dip.CSE-2023
Course Name – Mobile Computing
Course Code - DCSE-PE501A
(Semester V)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Select the key components of a WAP Gateway.
a) HTTP client
b) WML engine
c) Bearer selection
d) Content rendering

(ii) Select the primary limitation of WAP in modern mobile communications.
a) High cost
b) Low bandwidth
c) Outdated protocol
d) High latency

(iii) Choose the technologies that are used in Wireless Local Loop (WLL) systems.
a) Fiber optics
b) Radio waves
c) Satellite signals
d) Wi-Fi

(iv) Select the challenges that is faced by Wireless Local Loop (WLL) technology in rural areas.
a) Lack of infrastructure
b) Limited range
c) Interference issues
d) Higher costs

(v) Choose the layer in the WAP protocol stack that is responsible for providing security features such as encryption and data integrity.
a) Session layer
b) Transport layer
c) Network layer
d) Application layer

(vi) Select the main difference between fixed wireless and mobile wireless systems.
a) Mobile devices
b) Base stations
c) Subscribers
d) Landlines

(vii) Select the impact of protocol layers in WAP.
a) Session layer
b) Transport layer
c) Network layer
d) Physical layer

(viii) Select the correct statement about Wireless Local Loop (WLL) in bridging the digital divide.
a) Expensive technology
b) Easier to implement

c) Reduces cost d) Increases access

(ix) Choose the modulation technique primarily used in W-CDMA systems.

a) QPSK b) BPSK
c) QAM d) OFDM

(x) Choose the correct description of the IRIDIUM system's coverage area.

a) Global b) Regional
c) National d) Local

(xi) Choose the main application area of the GLOBALSTAR satellite communication system.

a) GPS tracking b) Emergency services
c) Voice communication d) Telemedicine

(xii) Choose the correct effect of integrating Bluetooth protocols in short-range device communication.

a) Energy efficiency b) Low cost
c) Long-range capability d) More complex setup

(xiii) Choose the impact of interference on Bluetooth communication.

a) Interference from Wi-Fi b) Interference from other Bluetooth devices
c) Limited range d) Limited device connectivity

(xiv) Choose the way GPRS supports packet-switched data transmission.

a) By using time-division multiplexing
b) Through continuous connection without dedicated channels
c) By assigning dedicated circuit-switched paths
d) Using short messaging services

(xv) Select the role of the Mobile Node (MN) in Mobile IP.

a) Acts as a router for mobile networks
b) Represents the user's mobile device that changes its point of attachment
c) Provides encryption for data transmission
d) Manages the user's location information

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Define the importance of Quality of Service (QoS) in 3G networks. (3)
3. Define the concept of Virtual Networks in wireless enterprise environments. (3)
4. Discuss the primary purpose of GPRS in mobile networks. (3)
5. Analyze the main components of the WAP protocol stack. (3)
6. Analysis the key components of Wireless Local Loop (WLL) architecture. (3)

OR

Analysis the technological advancements in WLL and their impact on telecommunications. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Evaluate the contribution of satellite systems to global mobile communications, with a focus on IRIDIUM and GLOBALSTAR as case studies. (5)
8. Compare CDMA2000 and W-CDMA, highlighting their key features and main differences. (5)
9. Define the GSM architecture and discuss each of its key subsystems. (5)
10. Discuss the importance of Mobility Management in GSM. (5)
11. Explain the role of network signaling in GPRS, focusing on the protocols used and their contribution to key operations such as data transmission, mobility management, and security. (5)
12. Compare the evolution of IMT 2000 to its successors like 4G and 5G. (5)

OR

Analyze the improvements introduced by IMT-2000 over 2G and 2.5G networks. (5)