Registration No: | | | | | | | | | | |

Total Number of Pages: 02 **B.Tech**
RCS5D003

5th Semester Reg/Back Examination: 2024-25
Mobile Computing
CSE, IT
Time: 3 Hour
Max Marks: 100
Q. Code: R306

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.
The figures in the right hand margin indicate marks.

Part-I

Q1 **Answer the following questions:** **(2 x 10)**

a) What is the structure of MSRN number and who creates this number in GSM network?
b) What are the functions of a BTS present in the GSM network?
c) What are the functions of GMSC present in the GSM network?
d) What is HLR and what are its functions?
e) What is VLR and what are its functions?
f) What are the possible handover scenarios in GSM?
g) What do you mean by IBSS in wireless LAN?
h) What is the format of RTS frame used in IEEE 802.11 wireless LAN?
i) What is the format of an ACK frame used in IEEE 802.11 wireless LAN?
j) What is the use of ATIM in IEEE 802.11 wireless Ad-hoc networks?

Part-II

Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** **(6 × 8)**

a) Explain the different channel assignment policies used in wireless cellular network.
b) Explain the steps followed to locate a receiver in GSM network.
c) Explain the steps followed to originate a call in GSM network.
d) Explain intra-MSC handover in GSM network using suitable signal flow diagram.
e) Explain the subscriber authentication procedure used in GSM network.
f) Explain data encryption mechanism used in GSM network.
g) Write the protocol stack considering an IEEE 802.11 wireless LAN connected to a switched IEEE 802.3 Ethernet via a bridge.
h) Explain the structure of IEEE 802.11 PHY frame using FHSS.
i) How does the basic CSMA/CA protocol with RTS/CTS extensions resolves exposed/hidden terminal problems in IEEE 802.11 wireless LAN?
j) How is synchronization achieved in IEEE 802.11 infrastructure based wireless LAN?

k) Explain IP packet delivery to and from the mobile node in Mobile IP.

l) Explain the working of Indirect TCP (I-TCP).

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3	a) Write the functional architecture of a GSM network and discuss the functions of Base station controller (BSC) and Mobile switching center (MSC) in detail. b) Write the protocol stack used for signaling in GSM network with suitable diagram and explain the functions of Call Management (CM) and Mobility Management (MM) layers.	**(8+8)**
Q4	Write the IEEE 802.11 WLAN MAC data frame format and explain each of its fields and subfields in detail.	**(16)**
Q5	a) Explain the different architectures supported in Bluetooth in detail. b) Explain Bluetooth protocol stack in detail with suitable diagram.	**(8+8)**
Q6	Write the WAP protocol stack and explain functions of Wireless Datagram Protocol (WDP), Wireless Transport Layer Security (WTLS), Wireless Transaction Protocol (WTP) and Wireless Session Protocol (WSP) layers in detail.	**(16)**