

5TH SEM. / CSE / IT / 2020(W) NEW
Th5 Mobile Computing

Full Marks: 80

Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. **Answer All questions** 2 x 10
 - a. What is Mobile Computing and its applications ?
 - b. What is Communication?
 - c. Define the term wireless?
 - d. What are two different kinds of mobility?
 - e. Define Client-Server Computing.
 - f. What do you mean by Digital Signature?
 - g. What are the basic services provided by the MAC layer?
 - h. Define hidden terminal.
 - i. What are the obstacles in mobile communications?
 - j. Define signal and its types.
2. **Answer Any Six Questions** 6 x 5
 - a. Explain the difference between wired and wireless networks?
 - b. Discuss about each of the multiplexing techniques. Illustrate with diagrammatic representations.
 - c. State the Difference between Circuit Switching and Packet Switching?
 - d. What is the aim of ubiquitous computing? Describe the generations of Mobile Communication form 1G to 5G.
 - e. Differentiate between cellular and Ad-Hoc Networks
 - f. Explain N-Tier Architecture and its relation with WWW.
 - g. What is meant by WML? What are the capabilities of WML Script?
- 3 What is the basic purpose of DHCP? Name the entities of DHCP. 10
- 4 Explain in detail about Signal Propagation. Define each of the components and relation between them. 10
- 5 What do you mean by Modulation? Discuss the types of modulation. 10
- 6
 - a. Explain in detail about the GSM architecture with Diagrammatic Representation. 10
 - b. Describe the mobile services provided by GSM.
- 7 Draw a neat diagram of WAP architecture and explain in detail. 10

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1. Answer **All** questions 2 x 10
 - a. Outline the various dimensions of Mobile Computing.
 - b. Differentiate between ground wave propagation and Sky wave propagation.(any two)
 - c. What do you mean by spread spectrum?
 - d. What is hidden/exposed terminal?
 - e. How does RF work?
 - f. Define MAC layer.
 - g. What do you mean by roaming?
 - h. What is the need of WAP?
 - i. What do you mean by ubiquitous network?
 - j. Write the different classes of GPRS device.

2. Answer **Any Six** Questions 5X6
 - a. Explain any five characteristics of mobile computing.
 - b. Briefly explain the working principle of Mobile agent.
 - c. Sketch and explain about the layers of N-tier architecture in Mobile Computing.
 - d. Define Infrared radiation. Write any five advantages and disadvantages of IR .
 - e. Explain IEEE 802.11 and its architecture.
 - f. What is Piconet? How Piconet is different from Scatternet.
 - g. Write any five comparisons between Mobile IPv4 and Mobile IPv6.

3. Define Multiplexing. Explain different types of Multiplexing techniques used in Mobile Computing. 10
4. What do you mean by Rear/Far Terminals? Write and explain the basic access mechanism used in Mobile Computing. 10
5. Outline the various services supported by UMTS. Give a brief description about the channels in UMTS? 10
6. Define GPRS .Explain the architecture of GPRS in brief. 10
7. What does MMS stand for? Elaborate the working principal of MMS. Write down the different formats supported by MMS. 10

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1. Answer **All** questions 2 x 10
 - a. Define GPRS.
 - b. What is the purpose of HLR?
 - c. What is Ad-Hoc Network?
 - d. Define DHCP.
 - e. What do you mean by SGSN?
 - f. What is Tunnelling Process?
 - g. Define I-mode.
 - h. Write the difference between Client-Server & Peer to Peer Architecture.
 - i. What is UMTS?
 - j. Define IEEE 802.11.

2. Answer **Any Six** Questions 6 x 5
 - a. Explain N-Tier architecture with suitable diagram.
 - b. Write the difference between IPV₄ & IPV₆ mobile IP.
 - c. What is WLAN? Write down the advantages and disadvantages of WLAN.
 - d. What do you mean by Rear-far & Hidden- exposed terminal?
 - e. Explain GPRS operations with its architecture.
 - f. What is Mobile IP and how it works?
 - g. Write the difference between SMS & MMS.

3. Define GSM. Explain with schematic diagram the system architecture of GSM with brief description of different components. 10
4. Explain all types of Multiple Access Techniques. 10
5. How does WAP work? Describe WAP protocol stack. Write the advantage of WAP. 10
6. Explain the types of Multiplexing Techniques. Write the Advantage of Multiplexing. 10
7. Write short notes on 10
 - i) Bluetooth
 - ii) WML

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1. Answer **All** questions 2 x 10
 - a. Write down any four characteristics of Mobile Computing.
 - b. What does MSC stand for?
 - c. Write any two differences between Peer-to-Peer architecture and Client Server architecture.
 - d. What is the role of Mobile Agent?
 - e. Give an example of Hidden and Exposed Terminal.
 - f. Write down any two advantages of Radio Frequency.
 - g. What is the need of correspondent Node in terms of Mobile IP?
 - h. Write down the needs of Wireless Application Protocol.
 - i. Differentiate between CDMA and CDMA-2000.
 - j. What are the various components of UMTS architecture?
2. Answer **Any Six** Questions 6 x 5
 - a. Differentiate between CSMA/CA and CSMA/ CD.
 - b. Explain the working principal of Mobile IP.
 - c. Define Antenna. Classify different types of Antenna.
 - d. Differentiate between Piconet and Scatternet in Bluetooth communication.
 - e. Illustrate WWW architecture for Mobile Computing with proper diagram. .
 - f. Explain about the functional components of Global System for Mobile Communication.
 - g. Differentiate between SMS and MMS

Answer Any **Three** Questions
3. Briefly explain about all the generations of Mobile Communication. 10
4. Define Modulation. Elaborate different types of Modulation used in Mobile Computing. 10
5. Explain about the various standards of IEEE 802.11. 10
6. What does IS-95 stands for? Describe the architecture of IS-95. 10
7. Write short notes on- (Any two) 10
 - i. Wireless Sensor Network
 - ii. N-Tier architecture
 - iii. Near and Far Terminal
 - iv. GPRS

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**Answer any five Questions including Q No.1& 2
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1. Answer **All** questions 2 x 10
 - a. Define Network mobility.
 - b. Mention the name of the layers present in N-tier architecture.
 - c. What is the role of Base Transceiver Station in mobile communication system
 - d. Differentiate between Ground Wave Propagation and Sky Wave Propagation.
 - e. Which technology is used in 4th Generation of Mobile Communication?
 - f. What is the role of WAP PUSH process?
 - g. Mention the name of the components of Mobile IP.
 - h. Differentiate between Home Location Register and Foreign Location Register.
 - i. Define Near and Far terminal.
 - j. What does W-CDMA Stands for?
2. Answer **Any Six** Questions 5 x 6
 - a. Differentiate between Amplitude Modulation and Frequency Modulation.
 - b. Briefly explain UMTS architecture with a neat diagram.
 - c. Define Bluetooth Technology. Differentiate between Piconet and Scatternet in Bluetooth communication. (Any five)
 - d. Illustrate WWW architecture for Mobile Computing with proper diagram. .
 - e. Describe the components of GSM with proper diagram.
 - f. Explain about the entities of Mobile IP.
 - g. Describe the working principal of MMS.

Answer **Any Three** Questions
3. Explain about the various standards of IEEE 80211. 10
4. Define Multiplexing. Elaborate different types of Multiplexing techniques used in Mobile Computing. 2+8
5. Briefly explain the generation of Mobile Communication. 10
6. Write the benefits of WAP. Give any three examples where WAP is used. Draw and explain the architecture of WAP. 2+4+4
7. Write short notes on 2 x 5
 - i. IS-95
 - ii. CDMA 2000
 - iii. Wireless Sensor Network
 - iv. GPRS
 - v. GPRS architecture