

CS8601 MOBILE COMPUTING

IMPORTANT QUESTIONS AND QUESTION BANK

2-Marks

UNIT I INTRODUCTION

1. What is Mobile computing?
2. Tabulate the generations of mobile communication technologies?
3. Describe the characteristics of a communication device?
4. List the applications of Mobile Computing?
5. Give the advantages of mobile computing?
6. List the dimensions of multiplexing?
7. Point out the issues of MAC Protocol?
8. Classify the MAC Protocols?
9. Describe the Characteristics reservation based TDMA?
10. Formulate a reason why Collision Detection based protocol is not suitable for wireless networks?

Part-B

1. Explain in detail about Mobile Computing? Compare the characteristics of cellular Communication systems.
2. Summarize the applications of Mobile computing?
3. Explain the features of different generations of cellular technologies? Analyze the properties required for MAC Protocols?
4. Explain in detail about the multiplexing schemes for communication systems?
5. Examine the operation of spreading and despreading of spread spectrum? Describe the Direct spread spectrum in detail?
6. Compare and contrast SDMA, TDMA, FDMA and CDMA schemes?
7. Illustrate the transmitter and receiver and explain the working principle of FHSS?
8. Generalize the role of various codes used in CDMA and explain the working of CDMA scheme?
9. Explain the different categories of MAC protocols in detail?
10. Summarize the Carrier Sense Multiple Access Protocols?
11. Generalize the roles and application environments of mobile computing?
12. What do you understand by 2.5G? Mention few characteristics of this Technology. Analyze how it differs from 2G and 3G?
13. Do you agree with the following statement: "In CSMA/CD protocol, when two nodes transmit on a shared medium, a collision can occur only when two nodes start transmitting exactly at the same instant?" Explain your answer?

14. What is MACA protocol? In which environment is it suitable?
Briefly Explain its working. Compose a solution to solve the hidden and exposed terminal problem using MACA protocol?
15. Describe the operations of the following technologies Fixed TDM, Classical ALOHA, Slotted ALOHA?

UNIT II MOBILE TELECOMMUNICATION SYSTEM

2-Marks

1. Define GSM?
2. Tabulate the services of GSM?
3. Show the connection establishment in GSM?
4. List the functions of mobility management?
5. Classify the major functions in RSS?
6. Pointout the import features of GSM security?
7. Discuss about BTS?
8. List the possible handover scenarios in GSM?
9. Give the protocol architecture for signaling in GSM?
10. What is SGSN? List the functions?

Part -B

1. Describe the GSM architecture in detail?
2. Classify various categories of GSM services in detail?
3. What are the functions of authentication and encryption in GSM? How a GSM network provides security to the customers?
4. Demonstrate protocol architecture of GSM in detail? Examine how the MS is located and addressed in GSM?
5. Generalize the role of Handover in GSM? Develop the solutions for effective handover?
6. Discuss UMTS system architecture in detail? Describe the functions of HLR and VLR in call routing and roaming?
7. Describe the GPRS architecture in detail?
8. Discuss about the UTRAN interface of UMTS in detail?
9. Explain the core network of UMTS architecture? Explain the radio network controller in detail?
10. Summarize the handover procedures in UMTS networks?
11. Explain the similarities and dissimilarities between a GSM network and UMTS networks?
12. Which types of different services does GSM offer? Give some examples and reasons why these services can be separated?
13. Give reasons for handover in GSM and the problems associated with it. What are the typical steps for handover? What types of handover can occur? Which resources are to be allocated during data transmission?
14. Why UMTS technology is superior to GPRS technology? Justify

your answer? Discuss UMTS system architecture in detail?

15. Describe the functions of HLR and VLR in call routing and roaming?

UNIT III MOBILE NETWORK LAYER

2-Marks

1. Define Mobile IP? Name its Functional entities?
2. What is meant by DHCP? Why does an IP conflict occurs?
3. Express the role of Subnet Mask, Router address, DNS address in DHCP?
4. Assess the term 'Ad-Hoc Network' in a wireless Communication?
5. Give the role of agent solicitation message. When it is used?
6. Define COA?
7. Differentiate between Proactive and Reactive Routing Protocols?
8. Identify the roles of DSR protocol?
9. Classify different types of MANET Routing Protocols?
10. Give the advantages of routing in wireless networks?

Part-B

1. Explain the use of a Mobile Node and corresponding node? Explain the services that are provided by the Home Agent?
2. Describe Route optimization in detail?
3. Discover the requirements of Mobile IP? Show how Tunnelling and encapsulation play a crucial role in packet delivery through routing?
4. Demonstrate the operation of DHCP with a neat diagram and explain its protocol architecture?
5. Generalize the working mechanism of Agent discovery? Explain the registration of the packets during its delivery from source to destination?
6. Explain the registration of the packets during its delivery from source to destination?
7. Discuss the problems the dynamic topology causes in the design of routing protocol? In what way the Dynamic Source Routing provides a possible path for packet transmission to the destination?
8. Classify the encapsulation types used in Mobile IP?
9. Discuss about the similarities and differences between MANET and VANET?
10. What is meant by size and node density of a MANET? Explain these two terms and discuss how these two parameters impact the design of a MANET?
11. Analyze the working of DSR and DSDV in detail?
12. Explain the discovery of care of address in the context

of movement of a mobile to a foreign network? What do you mean by encapsulation and decapsulation in the context of mobile IP? Explain why they are needed?

13. Give the factors that make mobile ad hoc networks more vulnerable to security attacks compared to the traditional networks. Also explain major types of security attacks that are possible in a mobile ad hoc network. Compose a solution to overcome from these types of attacks?

UNIT IV MOBILE TRANSPORT AND APPLICATION LAYER

2-Marks

1. Define the TCP issues in Mobile IP networks?
2. Illustrate Mobile TCP with a diagram?
3. Summarize the advantages and disadvantages of Mobile IP?
4. What is meant by I-TCP?
5. How will you develop a WAP for Mobile Networks?
6. Analyze WAP using a Client – Server diagram?
7. Distinguish between WDP and WTLS?
8. List the classes of WTP Transactions?
9. Design the connection mode and connectionless mode of WSP Protocols?
10. Interpret how synchronization markup language is used to connect a node in internet?

Part-B

1. Discuss in detail about Mobile TCP? Summarize the TCP approaches used in Mobile Networks?
2. Illustrate the use of WAP in Mobile networks? Show the architecture of WAP and its working?
3. Demonstrate the WAP Communication Protocols and its components?
4. What is the role of WDP in Mobile Networks. How WDP enables transparent communication in the delivery?
5. Evaluate the role of WTLS in providing privacy, data integrity and authentication. Evaluate with the help of a diagram of how WTLS helps in establishing a secure session?
6. Draw the architecture of WSP Session establishment, Suspension, resume, termination. Explain in detail WSP as connectionless session service?
7. Explain in detail with a diagram the use of Wireless Point out the use of WAE application models. Explain in detail WTA Logical Architecture Application environment?
8. Express the basic features of WML? Summarize the role of WML in mobile computing?
9. Classify and explain in detail about the different layers of

Wireless Application Protocol?

10. Analyze the role of i-mode in mobile computing with a diagram?
11. Generalize the M-TCP approach of extending TCP to work efficiently in mobile network. How does M-TCP maintain end to end semantics?
12. What role does initiator and responder play in the transport layer of WTLS? Explain in detail?
13. Classify wireless application protocol in different layers?
14. What role does WTA play in Mobile computing? How it is useful in terms of longdistance communication?

UNIT V MOBILE PLATFORMS AND APPLICATIONS

2-Marks

1. What is microkernel operating system?
2. Give four examples of Mobile OS?
3. Show the advantages of mobile operating system?
4. What is M-commerce?
5. Assess the pros and cons of E-Commerce?
6. Express micropayment in M-Commerce?
7. What are the different payment systems available in M-Commerce?
8. Examine why microkernel is preferred for developing a mobile OS?
9. Describe the features of Blackberry operating system?
10. Compose the solutions for security issues in mobile OS?

Part-B

1. Explain the special constraints and requirements of mobile OS?
2. Discuss about the evolution and the features of Windows mobile OS? Give the structure of Android software stack and explain?
3. Compare and contrast the various mobile OS?
4. Summarize the various applications of M-Commerce?
5. List and explain the components of mobile operating system? Write short notes on Android SDK?
6. Write detailed notes on E-Commerce?
7. What do you understand by M-commerce? Explain the advantages and disadvantages of M-commerce?
8. Identify the situation where micropayments are essential and how it can be achieved?
9. Explain the different mobile payment schemes in detail/
10. What do you understand by the security issues in mobile payment system? Analyze the mobile payment security solutions in detail?
11. Explain the ways by which m-payments are settled along with any two applications?
12. Assess the special features that an operating system for mobile device needs to support compared to the features provided by a traditional operating system?

13. Explain the principle functions of the operating system of a mobile device? Analyze how an example application can be implemented on mobile device and the specific operating system service that it make use of?
14. What do you understand by the mobile payment system? Briefly explain an application where mobile payment may be useful. Explain the different payment systems that are available?
15. Integrate an application where E- commerce is used. Explain the different types of e- commerce involved in the application with the participants?

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Notes

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