

IT 8062 MOBILE COMMUNICATION

IMPORTANT QUESTIONS AND QUESTION BANK

UNIT-1 INTRODUCTION

2-Marks

1. Define Mobile computing?
2. Distinguish between Mobile Computing and Wireless Networking?
3. Recall the wireless networking standards used in Mobile computing?
4. Classify the types of wireless networks?
5. Give the uses of Ad-Hoc networks.?
6. List the issues of wireless MAC.?
7. What is the role of a MAC protocol?
8. Classify the types of MAC Protocol?
9. Inspect hidden and exposed terminal problems in infrastructure-less network?
10. When does the exposed terminal problem arise? Compose a role which is played by Radio/Infrared signals play in Mobile Computing?

Part-B

1. What is Mobile Computing? Explain its applications in the real world scenario? Differentiate between mobile computing and wireless networking?
2. Classify the generations of mobile communication technologies. Apply mobile computing to design Taxi dispatcher and monitoring service. Explain the components in detail?
3. Explain hidden and exposed terminal problem in infrastructure less network? Describe architecture of mobile computing?
4. Describe the important functional difference between 1G, 2G and 3G cellular networks? Is 3G cellular wireless technology superior to 2G technology? Justify your answer?
5. Explain the various taxonomy of MAC protocols in detail?
6. Differentiate between FDMA, TDMA and CDMA?
7. Discuss the basic scheme of the CDMA protocol?
8. What is MACA protocol? In which environment is it suitable? Briefly explain in working?
9. Name any one scheduled based MAC protocol and explain in detail. (13)?
10. How does MACA protocol solve the hidden/exposed terminal problem? (15)
11. How does the multiple accesses with collision avoidance (MACA) scheme work? (15)
12. Compare 1G and 2G cellular wireless communication technologies/
13. What do you understand by 2.5G? How is it different from 2G and 3G technologies?

14. Explain the various random assignment schemes that are used in MAC protocol?

UNIT II - MOBILE TELECOMMUNICATION SYSTEM

2-Marks

1. Is 3G cellular wireless technology superior to 2G technology? Justify your answer?
2. Identify the characteristics of 4G and 5G Cellular Networks.?
3. List the 3 important features of GSM security?
4. Experiment with Call Routing?
5. Name the Teleservices provided by GSM?
6. Describe the function of HLR and VLR?
7. Point out the major functions in NSS?
8. Analyse the need for EIR?
9. Define GPRS and list its services?
10. GPRS is advantageous than GSM. Justify the statement?

Part-B

1. Identify the services offered by GSM and explain in detail. (13)
2. Analyze the purpose of radio interface U_m in GSM. (13)
3. Explain the protocol architecture for signaling in GSM. (13)
4. Elaborate frequency allocation with its various methods. (13)
5. Explain the functions of GPRS protocol stack with a diagram. (13)
6. (i) Describe the GPRS architecture reference model. (7) (ii) State its Advantages and Disadvantages. (6)
7. Explain the functions of GPRS protocol stack with a diagram. (13)
8. (i) Discuss the services of GPRS. (7)
(ii) What are the advantages of GPRS over GSM? (6)
9. What do you mean by Virtual Home Environment (VHE)? Identify how VHE is realized in 3G networks? (13)
10. Explain in detail network architecture of UMTS with a neat diagram. (13)
11. Recall the two basic classes of handovers in UMTS. (13)
12. What is UMTS? Analyze the functions of HLR and VLR in call routing & roaming? (13)
13. What are the functions of authentication and encryption in GSM? How is system security maintained? (15)
14. Do mobile phones affect the human body negative? Explain your answer. (15)
15. Analyze the applications of GPRS with its advantages and disadvantages. (15)

UNIT III - WIRELESS NETWORKS

2-Marks

1. What is WLL?
2. What is the advantage of infra-red technology?
3. Give examples for mobile adhoc networks.
4. Define Ad hoc wireless network with example?
5. Why is WiMAX forum formed?
6. Identify why wireless LAN services are of lower quality than wired LAN?
7. Why cannot wireless LANs implement CSMA/CD?
8. Mention the design goals of WLANs?
9. What is the difference between infrastructure and ad-hoc networks?
10. What is piconet? What restricts the number of active devices in a piconet?

Part-B

1. (i) Explain the system architecture of IEEE 802.11. (7) (ii) Analyze HiperLAN architectural components and their interactions. (6)
2. Explain the IEEE 802.11 MAC management. (13)?
3. Describe Bluetooth in detail. (13)
4. (i) Explain the various IEEE 802.11 standards in detail. (7) (ii) Explain the services offered by IEEE 802.11 standard. (6)
5. (i) Explain the features of HiperLAN. (7) (ii) Explain WLL in detail. (6)
6. Explain the working principle of the MAC layer of Bluetooth. (13)
7. Identify the system and protocol structure of 802.16 standard. (13)
8. Elaborate on mobile ad-hoc networks. (13)
9. Inspect the functions of MAC & physical layer of IEEE 802.16 in detail. (15)
10. Analyze the various types of HiperLANs. (15)
11. Briefly explain about features and applications of ad-hoc networks
12. Explain how power management is done in IEEE 802.11 infrastructure architecture?
13. Explain the protocol stack of Bluetooth.?

UNIT IV - MOBILE NETWORK LAYER

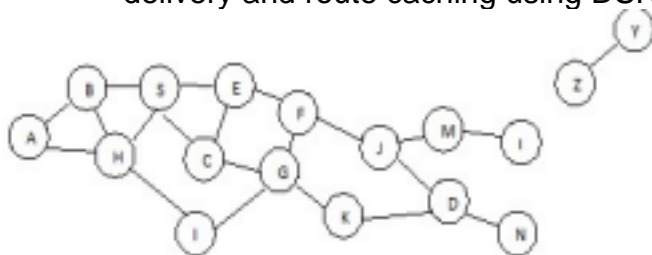
2-Marks

1. What is ad hoc network?
2. Differentiate cellular with Ad Hoc networks?
3. List the characteristics of MANETs?
4. Identify the issues that are addressed by routing protocol in MANET?

5. What is Mobile IP?
6. List the advantages in DSR?
7. Compare AODV and DSR protocols?
8. Name the entities in Mobile IP?
9. Classify the agent discovery in mobile IP?
10. Distinguish Proactive and Reactive protocols?

Part-B

1. Explain characteristics application of MANET?
2. Explain DSR routing protocols in details?
3. Explain about DHCP client initialization procedure. (6) What are reactive and proactive routing protocols? Specify its advantages and disadvantages?
4. Explain the traditional routing protocols. (13)
5. (i) What are multicast routing protocols? (7)
(ii) What are reactive and proactive protocols? Specify its advantages and disadvantages. (6)
6. (i) Analyze DSDV routing in detail. (7)
(ii) Mention the advantages and Disadvantages of DSDV. (6)
7. Discuss route discovery and route maintenance mechanisms in DSR with illustrations. List its merits and demerits?
8. Explain the design issues in MANET and the applications of adhoc network. (13)
9. What are the security threats in a MANET? What are the factors responsible for limited security in MANETs?
10. For every layer of MANET protocol stack, show at least one type of security attack that exploits vulnerability at that layer.
11. With a diagram explain about DHCP and its protocol architecture. (13)
12. Describe the architecture of VANET with a neat diagram. (13)
13. Explain any two VANET routing protocol with an example. (13)
14. (i) Draw and explain the architecture of VANET. (7) (ii) Discuss the various security and attacks on VANET.
15. Consider the network given below. Here 'S' is source node and 'D' is target node. Illustrate the process of route discovery, route reply, data delivery and route caching using DSR. Explain the approach. (15)



UNIT V - MOBILE TRANSPORT AND APPLICATION LAYER

2-Marks

1. Define Mobile TCP?
2. List the advantages of M-TCP.?
3. What is WTLS?
4. Write the features of WSP?
5. What are the components of are in WAP?
6. Write the applications of M-TCP?
7. Organize standard libraries for WML script?
8. Analyze the mechanism of the Transmission Control Protocol?
9. Evaluate the service request structure of WTP class 0?
10. Draw the time sequence chart for WSP /B session termination?

Part-B

1. What is wireless markup language? Write its features. (13)
2. Illustrate the classical TCP improvements. (13)
3. Describe WSP/B over WTP. (13)
4. Elaborately explain about Push architecture. (13)
5. (i) Interpret the WTP class 2 protocols. (7)
(ii) Summarize the working of Snooping TCP. (6)
6. Draw and explain the logical model of wireless application environment. (13)
7. Examine the wireless transport layer security. (13)
8. Compare the functions of various types of TCPs. (13)
9. List the components of WAP architecture and explain in detail. (13)
10. Recall about traditional TCP protocol. (13)
11. Organize the wireless application protocol architecture. (13)
12. Identify the service primitives of WDP. (13)
13. Relate the WMLscript complements to WML. (13)
14. Explain the functions of the wireless transaction protocol. (15)
15. Elaborately discuss about functions of
 - i) Indirect TCP (5)
 - ii) Snooping TCP (5) and mobile TCP (5)