

Code No: **R41054**

R10

Set No. 1

IV B.Tech I Semester Supplementary Examinations, May/June 2014

MOBILE COMPUTING

(Common to Computer Science & Engineering and Information Technology)

Time : 3 hours

Max. Marks: 75

**Answer any Five Questions
All Questions carry equal marks**

1. a) Discuss in detail about location management in mobile networks.
b) What are the advantages and disadvantages of using a wireless transmission as compared to a fibre or wire transmission?
2. What is the principal of frequency reuse in the context of cellular networks? Explain five ways of increasing the capacity of a cellular system.
3. a) What does it mean that GSM system uses both FDMA and TDMA Techniques?
Explain.
b) Describe GSM tele communication standard.
4. What is multiplexing? Explain the different types of multiplexing techniques and state their merits and demerits.
5. a) Explain in detail about agent advertisement and discovery during IP packet delivery.
b) Describe the need of registration and registration process in mobile IP.
6. a) Describe synchronization usage models in mobile applications.
b) What do you mean by PIM data synchronization? What are the PIM objects managed by PIM synchronization messages?
7. a) Describe MANET. How does a MANET differ from a fixed infrastructure network?
b) Briefly explain the applications of sensor networks in real life.
8. a) What are the security threats to a MANET? Why a MANET faces grater security threats than a fixed infrastructure network?
b) What are the services provided by Wireless Session Protocol? Explain.

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Time : 3 hours

Max. Marks: 75

**Answer any Five Questions
All Questions carry equal marks**

1. a) What are the software layers and components needed in a mobile computing device?
b) Is a directional antenna useful for mobile phones? Why?
2. a) Explain the frequency management and channel assignment in cellular networks.
b) How do smartcards, smart tables work, if they have no internal battery?
3. Explain the steps involved in the call delivery procedure in GSM network in the following cases:
 - a) GSM mobile terminated call
 - b) GSM mobile originated call.
4. a) Explain the operation of CDMA with a timing diagram.
b) Discuss the main features of spread spectrum.
5. a) Why standard IP cannot be used in mobile networks? Explain.
b) Discuss in detail about snooping TCP and mobile TCP.
6. a) Illustrate the architecture for data synchronization in mobile computing systems.
b) What are mobile agents? Explain the architecture of mobile agent.
7. a) List factors responsible for making routing in adhoc network difficult and explain each in brief.
b) Explain how MANETS are deployed in various applications.
8. a) Explain the security issues of Wireless Network that are different from Wired Network.
b) What is IEEE 802.11 standard? Compare it with OSI model layer by layer and tabulate the Result

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Max. Marks: 75

**Answer any Five Questions
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1. a) Compare and contrast guided and unguided transmission.
b) Briefly describe the modulation methods and standards for voice oriented data communication.
2. a) Explain the functioning of a cellular network. How the given sets of frequencies are used to increase the capacity of a network?
b) Describe the functioning of a smart card. Why is secured hardware and software required for a smartcard?
3. a) How data is handles in GPRS? Describe the limitations of GPRS.
b) Give the architecture of the GSM. Explain various components of it.
4. a) Briefly explain about CDMA and WCDMA 3G communication standards.
b) What are the transmission impairments that affect wireless signals? Explain.
5. a) Explain the operation of mobile IP. Why tunneling is used in mobile IP?
b) What are the additional messages needed for optimized mobile IP protocol?
6. Explain the mobile agent architecture with appropriate diagram.
7. a) What are wireless sensor networks? Explain the similarities in MANETS and wireless sensor networks.
b) Describe the properties of MANETS.
8. a) What is a simple WAP infrastructure? Outline the features of basic elements of WAP profile.
b) Explain the problems of Hidden terminal and exposed terminal in wireless LAN

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MOBILE COMPUTING

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Time : 3 hours

Max. Marks: 75

**Answer any Five Questions
All Questions carry equal marks**

1. a) Briefly describe the modulation methods and standards for data and voice communication.
b) Is directional antenna useful for mobile phones? Why?
2. a) Describe various features of a smart phone with multimedia features.
b) Explain how sectoring and microcell zone concept improve coverage and capacity in cellular systems.
3. a) List out the security services offered by the GSM. Can you recover a GSM system if both the HLR and VLR fail at the same time?
b) What are the various identifiers used in GSM? Give their use.
4. a) What are the benefits of spread spectrum? Describe frequency hopping spread spectrum
b) What are the features of 3G and 4G SYSTEMS?
5. Give the detailed discussion of handover management and location management in mobile IP network layer.
6. a) What are different types of synchronization? Discuss the application of each.
b) What is adhoc network? List its characteristics and application
7. a) Write about the application of wireless sensor network in home personal area networking as in industrial plants.
b) Discuss the applications of adhoc networks. Also explain why routing is difficult in adhoc networks.
8. a) List the basic components of WAP architecture.
b) Write the advantages of WLAN. Explain the applications of WLAN in various areas of Networking