R13

Set No.1

IV B.Tech I Semester Regular Examinations, November - 2016
MOBILE COMPUTING
(Common to Computer Science & Engineering and Information Technology)

Time: 3 hours   **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B
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PART–A *(22 Marks)*

1. a) Explain the role of HLR entity of a GSM network.   [3]

    b) Describe the advantages and disadvantages of WLAN.   [4]

    c) Discuss the concept of tunneling and encapsulation.   [4]

    d) Why standard TCP is not suitable for wireless networks?   [3]

    e) List out the advantages of data broadcast over point-to-point access.   [4]

    f) Describe features of MIDP 3.0?   [4]

PART–B *(3x16 = 48 Marks)*

2. a) Show with a diagram the steps involved in a mobile terminated call (a station calling a mobile station) in GSM.   [8]

    b) Give reasons for a handover in GSM and the problems associated with it. Discuss the typical steps for handover are and what types of handover can occur?   [8]

3. a) Compare SDMA, FDMA, TDMA and CDMA.   [8]

    b) How can we avoid hidden and exposed terminal problems? Explain.   [8]

4. a) Discuss in detail about Dynamic Host Configuration Protocol.   [8]

    b) Explain mechanism for IP packet delivery using mobile IP concept.   [8]

5. a) Explain in detail about push based data delivery mechanisms.   [8]

    b) Explain the following selective tuning and indexing techniques:
        i). Directory method   ii). Flexible indexing method   [8]

6. a) Explain about power aware computing.   [8]

    b) Explain Query-processing architecture for processing a query using distributed databases?   [8]

7. a) Draw the Bluetooth protocol stack and explain the core protocols.   [8]

    b) Write about J2ME in briefly.   [8]

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Answer any THREE questions from Part-B
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PART–A *(22 Marks)*

1. a) Explain the role of SIM, HLR, and VLR in GSM network.   [4]

   b) What is the reason for the failure of CSMA/CD in wireless networks?   [3]

   c) Discuss the design goals of Mobile IP.   [3]

   d) What are the advantages and disadvantages of push based mechanism.   [4]

   e) What are the QoS issues?   [4]

   f) How is MIDP defined from J2ME?   [4]

PART–B *(3x16 = 48 Marks)*

2. Explain about GPRS system in detail.   [16]

3. a) Explain classical Aloha and slotted Aloha with a neat sketch.   [8]
   b) Explain about CDMA.   [8]

4. a) Explain in detail about IP-in-IP encapsulation.   [8]
   b) Describe the process of optimization in mobile IP with a suitable timeline
      diagram.   [8]

5. a) Explain the concept of cache invalidation mechanisms.   [8]
   b) Explain in detail about context aware computing.   [8]

6. Explain selective tuning and indexing techniques.   [16]

7. a) Write short notes on WAE.   [8]
   b) Explain in detail AODV routing algorithm for MANETS.   [8]

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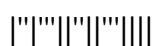Time: 3 hours   Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B
*****

PART–A *(22 Marks)*

1. a) Give reasons for a handover in GSM and the problems associated with it. [4]
   b) Describe several versions in CSMA. [3]
   c) What is basic purpose of DHCP? Name the entities of DHCP. [4]
   d) How and why does I-TCP isolate problems on the wireless link? [4]
   e) What are the advantages and disadvantages of hybrid mechanism? [3]
   f) Describe the applications of MANETs. [4]

PART–B *(3x16 = 48 Marks)*

2.   With neat sketch of GSM architecture, discuss the key features of GSM systems. [16]

3. a) Compare the features of SDMA, FDMA, TDMA, and CDMA with their advantages and disadvantages. [8]
   b) Draw and discuss the protocol architecture of IEEE 802.11. [8]

4. a) Describe the process of IP Packet delivery with neat sketch. [10]
   b) Define care of address (COA) and what are the two different possibilities for the location of COA? [6]

5. a) Explain snooping TCP. What are its advantages and disadvantages? [8]
   b) Explain Mobile TCP. How does a supervisory host send TCP packets to the mobile node and to a fixed TCP connection? [8]

6. a) Discuss about communication asymmetry with the help of a diagram. [8]
   b) Explain the Hash based and Index based selective tuning and indexing techniques. [8]

7. a) Explain in detail about protocol architecture of WAP. [8]
   b) Distinguish the MANETs from cellular mobile networks. [8]

Code No: **RT41053**   **R13**   Set No. 4

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Time: 3 hours   Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B
*****

PART–A *(22 Marks)*

1. a) What are the functions of authentication and encryption in GSM?   [4]

    b) Distinguish between FDMA and TDMA.   [4]

    c) How can DHCP be used for mobility and support of mobile IP?   [3]

    d) List advantages of hoarding the data at mobile device.   [3]

    e) Explain directory method.   [4]

    f) Describe the properties of MANET.   [4]

PART–B *(3x16 = 48 Marks)*

2. a) Where and when can collisions occur while accessing the GSM system? Compare possible collisions caused by data transmission in standard GSM, HSCSD and GPRS.   [8]

    b) Explain the applications of mobile computing.   [8]

3. a) Explain in detail about IEEE 802.11 MAC Data frames.   [8]

    b) Discuss in detail about CDMA.   [8]

4. a) How does mobile IP work? What are the challenges with mobile IP with respect to high speed mobility? How does cellular IP solve some of these challenges?   [8]

    b) Explain the fields of the header in ICMP messages. What are the uses of ICMP messages on the internet?   [8]

5. a) Describe transaction oriented TCP.   [8]

    b) Explain ACID transaction rules that should be maintained by database transactional models to achieve data integrity?   [8]

6. a) Explain the functions of pull based mechanisms with a neat sketch.   [8]

    b) Explain Index-based method.   [8]

7. a) Describe Dynamic source routing protocol with an example.   [8]

    b) Write short notes on Windows CE.   [8]

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