

Code No: R164105C

**R16**

**Set No. 1**

IV B.Tech I Semester Regular Examinations, October/November - 2019

**MOBILE COMPUTING**

(Common to Computer Science and 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 FOUR questions from Part-B*

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**PART-A**(14 Marks)

1. a) What is handover in mobile computing? [2]
- b) Why collision detection is difficult in wireless network? [3]
- c) What is DHCP and why is it important? [3]
- d) Mention the advantages of I-TCP. [2]
- e) What is selective tuning in mobile computing? [2]
- f) List the applications of MANETs. [2]

**PART-B**(4x14 = 56 Marks)

2. a) Explain the benefits of Mobile computing. [4]
- b) Explain GSM architecture with a neat diagram. [10]
3. a) Explain about hidden station and exposed station problem in WLAN. [7]
- b) Explain in detail about Space Division Multiple access. [7]
4. a) What is Mobile IP and why is it needed? [4]
- b) Explain about tunneling in mobile computing. [6]
- c) Discuss in brief about the types of handovers in mobile computing. [4]
5. a) Discuss the problems with Traditional TCP in wireless environments. [7]
- b) Explain in detail about various transaction models in mobile computing. [7]
6. a) Explain the communication asymmetry in uplink and downlink in a mobile network. [7]
- b) What are the different types of data synchronization in mobile computing systems? Explain each with an application. [7]
7. a) Why conventional routing algorithms do not work well for MANETS? Give the classification of routing algorithms for MANETS. [7]
- b) What is the objective of Wireless Application Environment? Explain about the major elements of Wireless Application Environment. [7]

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*Answer ALL sub questions from Part-A*

*Answer any FOUR questions from Part-B*

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**PART-A(14 Marks)**

1. a) What is Localization and Calling in GSM? [3]
- b) Write any two main functions of the MAC layer. [2]
- c) How does DHCP assign IP address? [2]
- d) Write advantages of Snooping TCP. [2]
- e) Why is broadcast used for data dissemination? [2]
- f) Why conventional routing algorithms do not work well for MANETS? [3]

**PART-B(4x14 = 56 Marks)**

2. a) Discuss challenging issues and limitations of mobile computing. [7]
- b) What is GPRS and how does it work? [7]
3. a) What is a hidden station problem how RTS and CTS help to resolve this problem? Explain with suitable diagram. [7]
- b) Explain in detail about Time Division Multiple access. [7]
4. a) What is the main purpose of registration of a mobile node? Explain the sequence of steps in mobile node registration. [7]
- b) How route optimization is achieved in mobile IP? Explain. [7]
5. Discuss in detail about Cache invalidation mechanisms. [14]
6. a) Explain in detail about Hybrid interleaved push-pull-based data delivery mechanism. [7]
- b) Explain about Distributed Indexing Scheme for Data Centers with Tree-Like Topologies. [7]
7. a) Discuss the advantages and significant applications of WLANs. [7]
- b) Explain the Ad-hoc On demand Distance Vector routing protocol. [7]

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Max. Marks: 70

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any FOUR questions from Part-B*

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**PART-A(14 Marks)**

1. a) What is GPRS in mobile computing? [2]
- b) What is Exposed terminal problem in WLAN? [3]
- c) What is the need of Mobile IP? [2]
- d) Write advantages of M-TCP. [2]
- e) What do you mean by Data Synchronization in Mobile computing systems? [3]
- f) Write about Wireless Transport Layer Security. [2]

**PART-B(4x14 = 56 Marks)**

2. a) What is mobile computing? Explain any three novel applications of mobile computing. [7]
- b) Explain in detail about various types of handover in mobile computing. [7]
3. a) What is Media Access Control and why it is important? [4]
- b) Explain Code Division Multiple Access with a suitable example. [6]
- c) Write about IEEE 802.11 wireless LAN. [4]
4. a) Explain in detail about handover management in mobile computing. [7]
- b) Explain about tunneling and encapsulation in Mobile IP. [7]
5. a) Discuss Indirect TCP along with its advantages and disadvantages. [7]
- b) Explain the three - tier architecture in mobile computing system. [7]
6. Explain in detail about various classifications of Data delivery mechanisms in mobile computing. [14]
7. a) Discuss the challenges and issues in implementing MANETs. [7]
- b) Write short notes on  
(i) Bluetooth (ii) J2ME [7]

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Max. Marks: 70

*Question paper consists of Part-A and Part-B*

*Answer ALL sub questions from Part-A*

*Answer any FOUR questions from Part-B*

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**PART-A**(14 Marks)

1. a) What is the difference between GPS and GPRS tracking? [3]
- b) What is Hidden terminal problem in WLAN? [2]
- c) Name the entities of DHCP. [3]
- d) What is meant by Database Hoarding? What is its use? [2]
- e) Write any two important Quality of Service issues in mobile computing. [2]
- f) Write about Symbian OS. [2]

**PART-B**(4x14 = 56 Marks)

2. a) Explain localization and calling procedure to locate and address a Mobile Station? [7]
- b) With a neat diagram, explain the system architecture of GSM. [7]
3. a) Why there is a need for specialized MAC in mobile computing environment? Explain. [6]
- b) What is the basic prerequisite for applying FDMA? Explain the implementation of FDM for multiple access and duplex in wireless environments. [6]
- c) Write any two prominent differences between GSM and CDMA. [2]
4. What is Mobile IP? Explain discovery, registration, and Tunneling with Mobile IP? [14]
5. a) Discuss Snooping TCP along with its advantages and disadvantages. [7]
- b) Explain in detail about Data recovery process in mobile computing system. [7]
6. a) Explain about Push-based datadelivery mechanism and also discuss its advantages and disadvantages. [7]
- b) What is Selective tuning in mobile computing? Explain about index-based method for selective tuning. [7]
7. a) What are the major routing issues in MANETs? Explain. [7]
- b) Briefly discuss the Wireless Datagram Protocol. [7]