Code No: **RT41053** **R13** **Set No. 1**

IV B.Tech I Semester Regular/Supplementary Examinations, Oct/Nov - 2018

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

1. a) Differentiate mobile computing, ubiquitous computing and pervasive computing. [3]
   b) Give the basic packet structure of an IEEE 802.11MAC [4]
   c) Name the requirements of Mobile IP and justify them. [4]
   d) Explain how API at mobile device sending queries and retrieving data from local database. [4]
   e) Show Communication asymmetry in uplink and downlink in a mobile network. [3]
   f) Describe the protocols supported by Linux OS for mobile computing. [4]

PART–B *(3x16 = 48 Marks)*

2. a) What are the subsystems in used in GSM network architecture? Explain the functionality of each unit with GSM architecture. [8]
   b) Explain how GPRS networks replace circuit switch services on second generation GSM communications. Explain its services and operations in detail. [8]

3. "TDMA is much more flexible than FDMA"-Justify this statement with various TDMA algorithms. [16]

4. a) What are the general problems of Mobile IP regarding security and quality of service? Explain. [8]
   b) Write about steps involved in IP packet delivery and agent discovery in mobile networks. [8]

5. a) Explain how congestion control, slow start and fast retransmit mechanisms influence the efficiency of TCP in mobile environment. [8]
   b) Write in detail about Data Recovery Process and QoS Issues in mobile databases. [8]

6. a) Draw the diagram for mobile device Pulling the data records from a server or set of distributed systems and also explain its bandwidth and thresholds. [8]
   b) Write about data synchronization and different protocols offered for this purpose. [8]

7. a) How to pass messages using Dynamic Source Routing algorithm? Explain with example. [8]
   b) With neat sketch explain the architecture of WAP and its operational support. [8]

Code No: **RT41053** **R13** **Set No. 2**

IV B.Tech I Semester Regular//Supplementary Examinations, Oct/Nov - 2018

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 THREE questions from Part-B
*****

PART–A *(22 Marks)*

1. a) Write short notes on mobile and wireless devices. [4]
   b) Discuss the design goals of Wireless LANs contributed for its commercial success. [4]
   c) Explain the concept of reverse tunneling. [3]
   d) Write about the implications on TCP mobility. [3]
   e) Describe the role of software in data synchronization for mobile nodes. [4]
   f) List and explain Symbian OS operational support for mobile nodes. [4]

PART–B *(3x16 = 48 Marks)*

2. a) With neat sketch explain the layered structural arrangement of mobile computing and various service protocols used in it. [8]
   b) Explain the integration process of tele, bearer and supplementary services through GSM. [8]

3. a) Explain the process of allocating frequencies to transmission channels in mobile communications using FDMA. [8]
   b) Write about various protocol specifications used in IEEE 802.11 physical layer. [8]

4. a) Why is routing in multi-hop ad-hoc networks is complicated? Discuss various challenges in it. [8]
   b) Explain two different ways of registration to forward the packets correctly. [8]

5. a) Discuss the working principle, advantage and disadvantages of Indirect TCP in detail. [8]
   b) Write about distributed Hoarding (caching) of specific database in mobile devices with diagram. [8]

6. a) What is broadcasting? Explain its architecture with applications. [8]
   b) Write a short note on pushing algorithm, push intervals, bandwidths and disadvantages of it. [8]

7. a) Describe the working principle of AODV algorithm with suitable example. [8]
   b) Explain various architectural layers of Bluetooth networks. What are the disadvantages of it? [8]

Code No: **RT41053** **R13** **Set No. 3**

IV B.Tech I Semester Regular//Supplementary Examinations, Oct/November - 2018

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

1. a) Discuss some open research topics of mobile computing. [3]
   b) Write advantages and disadvantages of Wireless LANs. [4]
   c) Describe the steps in configuring IP addresses in DHCP. [4]
   d) Write about selective retransmission policy in mobile TCP. [4]
   e) Explain circular multi disk broadcast model. [3]
   f) How Android offers protocols and platforms for mobile computing? Explain. [4]

PART–B *(3x16 = 48 Marks)*

2. a) Discuss the constraints on mobile computing.
   (i) Energy Dissipation (ii) Memory (iii) Hardware (iv) Communication [8]
   b) What is the role of handover mechanism in satellite communications? Explain in detail. [8]

3. a) Explain how SDMA is used to allocate separated space to users in wireless networks. [8]
   b) With the help of timing diagrams explain coding, spreading of data from sender and reconstruction of same at receiver using CDMA technique. [8]

4. a) Explain various entities and terms needed to understand mobile IP in detail. [8]
   b) How to change the foreign agent with an optimized mobile IP? Explain additional messages required for it. [8]

5. a) Can we use Snooping TCP as a transparent TCP? How? Discuss advantages and disadvantages. [8]
   b) What are the additional features of mobile TCP to handle fast retransmit/recovery and transmission/time-out freezing? Explain. [8]

6. Explain architecture, functions of classification of data delivery mechanisms? And also compare their operational requirements. [16]

7. a) What are the challenges in mobile routing? Why traditional routing algorithms are not suitable? How to handle it using DSDV routing protocol? Explain. [8]
   b) Write short notes on Java Card and TinyOS protocols used for mobile environment. [8]

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

IV B.Tech I Semester Regular//Supplementary Examinations, Oct/Nov - 2018

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 THREE questions from Part-B
*****

PART–A *(22 Marks)*

1. a) Write short notes on GSM localization. [3]
   b) Discuss various operational differences between S/T/FDMA schemes. [4]
   c) Describe the data transfer from mobile node to fixed node and vice-versa. [4]
   d) Write about TCP connection setup overhead in transaction-oriented TCP. [4]
   e) What is the working principle of adaptive information dispersal algorithm. [4]
   f) Explain various functions supported by J2ME for mobile computing. [3]

PART–B *(3x16 = 48 Marks)*

2. a) Give a simple reference model for mobile communications. Explain applications of mobile computing. How it handles enterprise problems? [8]
   b) Explain how radio interface channels are allotted as uplink and down link in GSM. [8]

3. a) Why does CSMA/CD fail in wireless networks? What are the problems raised? And how to handle them? [8]
   b) Explain the basic transmission technologies and basic network settings used in Wireless LANs. [8]

4. a) Explain how DHCP can be used to support mobility and mobile IP with its operational steps. [8]
   b) Write about the general working principle of tunneling suitable for mobile IP using IP-in-IP and generic routing encapsulation. [8]

5. a) Explain all the enhancements made to classical TCP to make it suitable for mobility. [8]
   b) Describe the Two-tier Client–Server Architecture in mobile environment. How it can be expanded to n-tier architecture? [8]

6. a) Explain about Number of adaptations and various algorithms for broadcast models. [8]
   b) Discuss the importance of selective tuning. How to enable it? Explain directory based and hash-based methods. [8]

7. a) What is service discovery? What is the role of mobile agents in it? Explain in detail. [8]
   b) Write about XML based simple API. What are the advantages of it? Explain. [8]