

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular/Backlog), **NOV.** - 2017

B. Tech/ M. Tech (as applicable) in Computer Science & Engineering, Semester VII

Roll No.....

COURSE CODE: CSE702
COURSE TITLE: Mobile Computing

Time: 3 hours Max. Marks: 100

Instructions to students:

1. Do not write anything other than your roll number on question paper.
 2. Assume suitable data wherever required and mention it clearly.
 3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.
-

Q.1A Objective type multiple choice questions (10 questions @ 1 mark) 10

- i. In _____ multiple access allocates orthogonal slots for communication
 - (a) Frequency Division
 - (b) Time Division
 - (c) Space Division
 - (d) Code Division
- ii. In Medium Access control any station can transmit the data only at the beginning of the time slot in _____
 - (a) Slotted Aloha
 - (b) Pure Aloha
 - (c) CSMA
 - (d) CSMA/CD
- iii. TMSI in GSM stands for :
 - a) Temporary Mobile Subscriber Identifier
 - b) Temporary Mobile Subscriber Identity
 - c) True Mobile Subscriber Identifier
 - d) True Mobile Subscriber Identity
- iv. The mobile station moves from one cell to another , but stays within the control of different BSC is known as :
 - (a) Intra cell handover
 - (b) Inter-cell, Intra -BSC handover
 - (c) Inter BSC, Intra MSC handover
 - (d) Inter MSC handover
- v. _____ services of GSM comprises encrypted voice transmission, message services and basic data communication with terminals from PSTN.
 - (a) Bearer
 - (b) Supplementary
 - (c) Tele
 - (d) None of the above
- vi. _____ , the method used for congestion control in TCP.
 - (a) Slow-start
 - (b) Additive increase
 - (c) Congestion Window
 - (d) all of the above

- vii. In _____ approach of Mobile transport layer, it splits TCP connection and a loss of TCP semantic occurs.
- Indirect TCP.
 - Snooping TCP
 - M-TCP
 - Selective Transmission
- Viii In a network with 250 computers, which topology would require the most extensive cabling?
- Mesh
 - Star
 - Bus
 - Ring
- ix. Another term for CSMA/CD and the IEEE 802.3 standard is
- Ethernet.
 - Token Ring
 - FDDI
 - Token Bus
- x. Cellular system capacity can be increased by:
- Frequency reuse
 - Cell sectorization
 - bandwidth increase
 - a and b

- Q.2 Short answer type questions (4 questions @ 2.5 marks) 10
- HLR and VLR are the important registers used in GSM. Explain their usage.
 - Differentiate between Soft handover & Hard Handover.
 - What is triangular routing?
 - What is Care of Address(CoA)?
- Q.3A Recall the problem of hidden and exposed terminals. Explain with the help of suitable example the issue related to hidden and exposed terminals. 05
- Q.3B Frequency planning in cellular network plays an important role. Explain how frequency planning is done and the role of cluster in frequency planning. 05
- Q.4A Mobile Switching Center (MSC) is the heart of GSM network. With the help of suitable figure explain the role of MSC. 05
- Q.4B Cellular system require handover procedures, a single cells do not cover the whole service area. Explain the four possible handover scenarios in GSM. 05
- Q.5A PUSH, PULL And HYBRID are different approaches of data dissemination in Mobile System. Compare amongst these techniques. 05
- Q.5B Discuss the challenges of transaction management in Mobile Database System. 05
- Q.6A Why traditional routing protocols are not applicable in Mobile Adhoc Network(MANET)? 05
- Q.6B Draw the frequency reuse pattern for a cluster size of $N=7$. 05

OR

- Q.6B Determine the number of cells in clusters for the following values of the shift parameter i and j in a regular hexagonal geometry pattern: 05
 a) $i=2$ and $j=4$
- Q.7A Bluetooth is one the common approach of Wireless Connectivity. What is Bluetooth? How network is established using Bluetooth and what are its limitations? 05
- Q.7B Traditional TCP does not work with wireless network. Explain about variations in TCP over Wireless Networks 05
- OR
- Q.7B CDMA use orthogonal code for allocating the channel. Compare CDMA with TDMA and SDMA. 05
- Q.8A Agent advertisement and Agent solicitation are the two methods adopted by Mobile Node (MN) to find a foreign agent during its mobility. Explain both the methods with suitable diagram. 10
- Q.9A Explain how tunneling works in general and especially for mobile IP using IP-in-IP, Minimal encapsulation and Generic routing encapsulation respectively. 10
- Q.9B Discuss in detail the functional architecture of GSM with the help of example that how a call is connected in a GSM network. 10
- OR
- Q.9B Describe the functions of the MS and the SIM. Why does GSM separate the MS and SIM? How and where is user-related data represented/stored in the GSM system? How is user data protected from unauthorized access, especially over the air interface. 10