

MCA
(SEM IV) THEORY EXAMINATION 2022-23
MOBILE COMPUTING

Time: 3 Hours**Total Marks: 100****Note:** Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief. 2 x 10 = 20

- a. What is Mobile Computing?
- b. Describe why “Ideally shape of a cell is Hexagonal”.
- c. Elaborate Hand Off
- d. Explain HLR and VLR.
- e. Explain various issues in Wireless Networks.
- f. Explain role of Venus in CODA file system.
- g. List four properties of transaction.
- h. Explain eavesdropping attack against mobile agent in mobile computing
- i. Explain Ad-hoc network
- j. List the QoS parameters in MANET.

SECTION B

2. Attempt any three of the following: 10x3=30

- a. Explain the GSM architecture with the help of diagram.
- b. Explain how can we avoid hidden and exposed terminal problems?
- c. Explain the process of disconnected operation performed in CODA
- d. Explain adaptive clustering with suitable example.
- e. Explain transaction processing system and its cycle.

SECTION C

3. Attempt any one part of the following: 10x1=10

- a. What are the protection methods against malicious mobile agents in mobile computing.
- b. What is ad-hoc network? Explain reactive, proactive and hybrid routing protocols on basis of vital parameters.

- 4. Attempt any *one* part of the following: 10x1=10**
- a. Explain what would be the minimum distance between the centers of two cells with the same band of frequencies if cell radius is 6 km and the reuse factor is 14?
 - b. Explain resulting chip sequence if suppose that A, B, C are simultaneously transmitting 0 bits, using CDMA system with following chip sequences:

- i. $A = (-1 \ -1 \ -1 \ +1 \ +1 \ -1 \ +1 \ +1)$
- ii. $B = (-1 \ -1 \ +1 \ -1 \ +1 \ +1 \ +1 \ -1)$
- iii. $C = (-1 \ +1 \ -1 \ +1 \ +1 \ +1 \ -1 \ -1)$

- 5. Attempt any *one* part of the following: 10x1=10**
- a. Explain various issues in TCP over wireless and how these issues can be overcome using I-TCP and Snoop-TCP.
 - b. What is Mobile IP? Explain registration process in Mobile IP with suitable diagram.

- 6. Attempt any *one* part of the following: 10x1=10**
- a. What is Bluetooth? Show a neat diagram of Bluetooth protocol stack and state the functions of Radio Layer, Baseband Layer, and L2CAP layer
 - b. What is CODA file system? Explain general goal of CODA file system in brief.

- 7. Attempt any *one* part of the following: 10x1=10**
- a. Evaluate the performance of AODV protocol as compared to DSR protocol in MANET.
 - b. Evaluate the performance of DSR routing algorithm in MANET.