Reg. No.

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

II SEMESTER M.TECH. (COMPUTER SCIENCE AND ENGINEERING)

DEGREEEND SEMESTER EXAMINATIONS, APRIL/MAY 2019

SUBJECT: MOBILE AND WIRELESS COMMUNICATIONS
(Program elective II) [CSE 5239]
REVISED CREDIT SYSTEM
(02/05/2019)

Time: 3 Hours   MAX. MARKS: 50

Instructions to Candidates:

❖ Answer **ALL FIVE FULL** questions.

❖ Missing data may be suitably assumed.

1A. List and explain any six disadvantages of Wireless networks as compared to Fixed networks.

1B. With neat diagrams explain the categories of Antennas used for microwave connections or base stations for mobile phones.   **3M**

1C. Explain the factors which influence receiving power during wireless signal propagation.   **4M**

3M

2A. What is the need for OFDM? Explain the working of OFDM system with a neat block diagram.   **4M**

2B. With a neat diagram explain the working of Packet Reservation Multiple Access (PRMA) method.   **3M**

2C. Differentiate the following:
(i) VLR and HLR   **3M**
(ii) Proactive and Reactive Routing

3A. List the traffic services of IEEE 802.11. Explain the working of CSMA/CA access method.   **3M**

3B. Explain the process of reverse tunneling with respect to Mobile IP. List and explain the problems associated with Mobile IP.   **4M**

3C. With neat diagrams explain the working of Pico-net and Scatter-nets.   **3M**

4A. Describe the route discovery mechanism of DSR routing protocol with a neat block diagram. Also mention its disadvantages.   **4M**

4B. (i) Five channels, each with a 100-kHz bandwidth, are to be multiplexed together. What is the minimum bandwidth of the link if there is a need for a guard band of 10 kHz between the channels to prevent interference?
(ii) Four channels are multiplexed using TDM. If each channel sends 100 bytes /s and we multiplex 1 byte per channel, show the frame traveling on the

link, the size of the frame, the duration of a frame, the frame rate, and the bit rate for the link. **3M**

4C. List the advantages and disadvantages of CDMA cellular network. **3M**

5A. What do you mean by Snooping TCP? Explain its working. List any two advantages. **4M**

5B. List and explain any four applications of Satellite communications. Explain the VSAT system architecture. **3M**

5C. With respect to cellular networks explain Handoff strategy classification based on the nature of handoff. **3M**