Reg. No.

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

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

MAKE UP EXAMINATIONS, JUNE 2019

SUBJECT: MOBILE AND WIRELESS COMMUNICATIONS
(Program elective II) [CSE 5239]
REVISED CREDIT SYSTEM
(14/06/2019)

Time: 3 Hours   MAX. MARKS: 50

Instructions to Candidates:

❖ Answer **ALL FIVE FULL** questions.

❖ Missing data may be suitably assumed.

1A.	What's the difference between fixed wireless and mobile broadband? Give some specific application of fixed wireless network	**3M**
1B.	With neat diagrams explain the working of Direct Sequence Spread Spectrum. Also list its advantages and disadvantages.	**4M**
1C.	Explain the steps involved in generating a wideband FM signal.	**3M**
2A.	With neat diagrams explain Hidden and Exposed Terminal problems with respect to WLAN.	**4M**
2B.	How does Multiple Access with Collision Avoidance work? Explain.	**3M**
2C.	What is the relationship between a base station and a mobile switching center? Distinguish between soft and hard handoff.	**3M**
3A.	List and explain PAN applications. Write the significance of each field in Bluetooth packet format.	**3M**

3B.	Differentiate between
	    (i) GSM and CDMA
	    (ii) FDM and OFDM
		4M

3C.	List any four applications of WLAN. Compare Infrared and Microwave physical layer of WLAN.	**3M**
4A.	With a neat diagram explain the working of DSDV protocol.	**3M**
4B.	If a total of 33 MHz of bandwidth is allocated to a particular FDD cellular telephone system which uses two 25 KHz simplex channels to provide full duplex voice and control channels. Compute the number of channels available per cell if a system uses (a) 4-cell reuses, (b) 7-cell reuses, and (c) 12-cell reuses.	**3M**

4C.	Explain the following challenges in wireless networks:
	    (i) Spectrum usage
	    (ii) Power management
	    (iii) Security
	    (iv) Wireless medium unreliability
		4M

5A. List and explain any four characteristics of Satellite communication systems that differentiate them from wired or other kinds of wireless links. With a neat diagram explain the working of Satellite system for Internet Access.

5B. Explain the following challenges with respect to 4G cellular network. **4M**
  (i) System interoperability
  (ii) Varying quality of bandwidth for wireless access based on geographic location **4M**

5C. List any four responsibilities of Wireless Application Environment. **2M**