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10MT73

Seventh Semester B.E. Degree Examination, Jan./Feb. 2021
Wireless Networks

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting atleast TWO questions from each part.*

PART - A

1 a. Classify wireless networks based on signal range and application and briefly explain them.
                                                                                        (10 Marks)
   b. In a communication channel, the channel bandwidth is 3.4 KHz and output S/N power ratio
      is 20dB. Calculate channel capacity.   **(05 Marks)**
   c. Explain in brief Duplexing methods.   **(05 Marks)**

2 a. List different wireless Networks and explain each of them.   **(10 Marks)**
   b. Explain the various problems in encountered wireless communication.   **(06 Marks)**
   c. For a given communication system, transmitter operates at a frequency of 850MHz with a
      power of 125mW this transmitter communicate with the receiver having the received power
      of 1mW. What is the distance between the transmitter and receiver?   **(04 Marks)**

3 a. Explain the properties of WBAN.   **(08 Marks)**
   b. Explain :   i) S – MAC   ii) SPIN.   **(08 Marks)**
   c. List the applications of WBAN.   **(04 Marks)**

4 a. Explain Scatternet topology of WPAN with a neat diagram.   **(05 Marks)**
   b. Describe Bluetooth protocol stack used for WPAN.   **(10 Marks)**
   c. Consider Bluetooth Piconet, where a slave in piconet1 is sending a packet to the master with
      DM5 packet format. What is the supported maximum rate of the user from slave to master?
                                                                                        (05 Marks)

PART - B

5 a. Briefly explain two modes of WLAN.   **(06 Marks)**
   b. Explain different WLAN IEEE standards.   **(10 Marks)**
   c. Elucidate the difference between IEEE 802.11P and IEEE 802.11a standards.   **(04 Marks)**

6 a. Explain the features of WiMAX.   **(10 Marks)**
   b. Explain the comparison of LMDS and MMDS.   **(05 Marks)**
   c. In an application, MDS has its own 46 Mbps channel. According to queuing theory, if the
      channel is 50% loaded the queuing time will be equal to the downloaded time. Under these
      conditions, how long does it take to download a 50 kb video clip? Over a 56 kbps modem?
                                                                                        (05 Marks)

7 a. Describe WSN architecture, with a neat diagram.   **(08 Marks)**
   b. Explain MAC protocols in MANETs.   **(12 Marks)**

8 a. What are the advantages of wireless ad hoc networks and compare Ad hoc networks with
      cellular networks.   **(05 Marks)**
   b. Explain the following : i) AODV   ii) MACAW iii) LEACH.   **(10 Marks)**
   c. Explain the applications of VANET.   **(05 Marks)**

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