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15CS46

Fourth Semester B.E. Degree Examination, July/August 2022
Data Communication

Time: 3 hrs. Max. Marks: 80

Note: ***Answer any FIVE full questions, choosing ONE full question from each module.***

Module-1

1 a. What is Data Communication? What are its characteristics and components? Explain. **(07 Marks)**

b. Give the Comparison between LAN, MAN and WAN with an example. **(06 Marks)**

c. What is a Protocol? What are its key elements? **(03 Marks)**

OR

2 a. Explain briefly, with neat figures, the two approaches for digital transmission. **(08 Marks)**

b. Define line coding. Describe polar NRZ-L polar RZ, Manchester and differential Manchester encoding by applying on the information sequence 010011. **(08 Marks)**

Module-2

3 a. Explain pulse code modulation technique in analog to digital conversion. **(08 Marks)**

b. Describe ASK, FSK and PSK mechanisms and apply them over the digital data 101101. **(06 Marks)**

c. Given Bandwidth of 100KHz which spans from 200 to 300 KHz. What is the carries frequency and the bit rate if we modulated our data by using ASK with d = 1. **(02 Marks)**

OR

4 a. What is Time division multiplexing? Explain how statistical TDM overcomes the disadvantages of synchronous TDM. **(08 Marks)**

b. Explain briefly the two spread spectrum Techniques. **(08 Marks)**

Module-3

5 a. Draw a CRC Encoder and decoder for CRC code with C(7, 4). Also explain how this CRC design works, with an example. **(08 Marks)**

b. Explain the Checksum with an example. **(08 Marks)**

OR

6 a. Explain the frame format and transitional phase of point to point protocol. **(08 Marks)**

b. List the protocols for noisy channels. Explain stop and wait protocol for noiseless channels. **(08 Marks)**

Module-4

7 a. Describe the different controlled access methods. **(08 Marks)**

b. Explain 802.3 MAC frame format and frame length. **(08 Marks)**

OR

8	a.	Explain the hidden and exposed station problem in IEEE 802.11.	(10 Marks)
	b.	Discuss Bluetooth Technology.	(06 Marks)

Module-5

9	a.	Explain briefly the three categories of satellites.	(10 Marks)
	b.	Explain IPV6 datagram along with its format.	(06 Marks)

OR

10	a.	Explain the two categories of ICMP messages along with general format of both categories.	(08 Marks)
	b.	Write any four differences between IPV4 and IPV6.	(04 Marks)
	c.	Write a note on WiMAX.	(04 Marks)

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