CBCS SCHEME

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17CS46

Fourth Semester B.E. Degree Examination, Jan./Feb. 2023
Data Communication

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. Define Data Communication. With neat diagram, explain the components of data communication. **(08 Marks)**

b. What is transmission impairment? Briefly explain three causes of transmission impairment. **(08 Marks)**

c. Explain briefly about Shannon capacity and Nyquist bit rate for communication channel. **(04 Marks)**

OR

2 a. With neat diagram explain TCP/IP protocol suite of computer network. **(08 Marks)**

b. With neat diagram, explain four basic topologies. **(06 Marks)**

c. Explain Simplex, Half duplex and Full duplex with respect to data communication. **(06 Marks)**

Module-2

3 a. With neat diagram, explain pulse code modulation. **(10 Marks)**

b. With neat diagram, explain ASK, FSK and PSK. **(06 Marks)**

c. An analog signal has a bit rate of 8000bps and a band rate of 1000 band. How many data elements are carried by each signal element? How many signal elements do we need? **(04 Marks)**

OR

4 a. What is circuit switching? Explain three stages of circuit switching. **(06 Marks)**

b. What is multiplexing? Explain frequency division multiplexing and Time division multiplexing. **(08 Marks)**

c. Explain frequency Hopping spread spectrum. **(06 Marks)**

Module-3

5 a. Find the code word using CRC encoder and determine whether the data word is accepted of discarded. The given data is 1001 and the generator is 1011. **(10 Marks)**

b. Explain stop-and-wait protocol. **(05 Marks)**

c. Explain two types of Errors. **(05 Marks)**

OR

6 a. With neat diagrams, explain Frame format and transition phases of PPP. **(10 Marks)**

b. Explain character oriented framing and bit oriented framing. **(10 Marks)**

Module-4

7	a.	With neat diagram, explain pure ALOHA and slotted ALOHA protocols.	(10 Marks)
	b.	List different controlled access protocols. Explain Reservation method.	(05 Marks)
	c.	Explain frequency Division multiple Accesses.	(05 Marks)

OR

8	a.	With the neat diagram, explain Ethernet frame format.	(10 Marks)
	b.	Explain Bluetooth Architecture.	(05 Marks)
	c.	Explain the different types of addressing mechanisms in IEEE 802.11.	(05 Marks)

Module-5

9	a.	Explain in detail cellular Telephony operation.	(10 Marks)
	b.	Write a note on WIMAX.	(05 Marks)
	c.	List major strategies involved in transition from IPV4 to IPV6. Explain any two.	(05 Marks)

OR

10	a.	Define Home Address in mobile IP. Explain three phases for communication in Mobile IP.	(08 Marks)
	b.	Explain Satellite network and its categories.	(08 Marks)
	c.	Explain Error reporting message of $ICMPV_6$.	(04 Marks)

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