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Fourth Semester B.E. Degree Examination, June/July 2017 Data Communication

Time: 3 hrs.

Max. Marks: 80

Note: Answer FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. What is data communication? With a neat diagram, explain the four basic topologies. (05 Marks)
 b. Explain TCP/IP protocol suite with Encapsulation and decapsulation concepts. (08 Marks)
 c. Explain different characteristics of periodic analog signal. Find the phase in degree and radian of a sine wave with offset $\frac{1}{4}$ cycle with respect to time '0' (zero). (03 Marks)

OR

- 2 a. Draw line code of the sequence 010011 using NRZ, NRZ-L, NRZ-I, Manchester, RZ and differential Manchester schemes. (06 Marks)
 b. Explain digital signal transmissions methods. (06 Marks)
 c. What is noiseless channel? Find out maximum bit rate in noiseless channel with bandwidth of 3000 Hz transmitting a signal with two signal level. (04 Marks)

Module-2

- 3 a. Explain PCM and quantization process with steps and example. (08 Marks)
 b. Explain amplitude shift keying modulation process. (04 Marks)
 c. Find out bit rate if available bandwidth is 100 kHz which spans from 200 to 300 kHz. Consider ASK with $d = 1, r = 1$. (04 Marks)

OR

- 4 a. What is multiplexing? define synchronous TDM with data rate management strategies. (08 Marks)
 b. What is spread spectrum? Explain FHSS and bandwidth sharing. (08 Marks)

Module-3

- 5 a. How does datawords and codewords is represented in block coding and also explain how can errors be selected and corrected by using block coding. (10 Marks)
 b. Find the code word using CRC given data is 1101 and generator is 1100. (06 Marks)

OR

- 6 a. With a neat diagram, explain any two protocols of noisy channel. (12 Marks)
 b. Explain the frame format of HDLC protocol. (04 Marks)

Module-4

- 7 a. What is channelization? List and explain the channelization protocols. (12 Marks)
 b. Describe Gigabit Ethernet. (04 Marks)

OR

- 8 a. Describe pure ALOHA and slotted ALOHA. (06 Marks)
 b. Explain Carrier Sense Multiple Access with Collision Detection (CSMA/CD) (06 Marks)
 c. Define Bluetooth and its architecture. (04 Marks)

Module-5

- 9 a. Explain satellite networks and its categories. (12 Marks)
 b. Write a short note on Fixed WiMAX. (04 Marks)

OR

- 10 a. Explain mobile IP with phases. (12 Marks)
 b. Write a short note on IPV6 addressing. (04 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.