CBCS Scheme

USN | | | | | | | | | | 15CS46

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 $1/4$ 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)**

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