CBCS SCHEME

USN | | | | | | | | | | |

15CS46

Fourth Semester B.E. Degree Examination, Dec.2018/Jan.2019
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. Define Data Communication. Explain the Fundamental components of a data communication system. With the neat diagram, explain components of data communication. **(06 Marks)**

b. List out the functionalities of physical layer, data link layer, network layer , explain in brief. **(04 Marks)**

c. Define Transmission impairment. Explain different causes of transmission impairment during signal transmission. **(06 Marks)**

OR

2 a. Explain digital signal transmission methods. Explain line coding. **(06 Marks)**

b. Draw the line code for the sequence 01001110 using NRZ , NRZ – L , NRZ – I , RZ , AMI. **(07 Marks)**

c. Define Through put. A network with a bandwidth of 10mbps can pass only an average of 12,000 frames per minute. With each frame carrying an average of 10,000 bits. What is the throughput of this network? **(03 Marks)**

Module-2

3 a. Explain PCM and quantization process with steps. **(08 Marks)**

b. What is Spread Spectrum? Explain FHSS with suitable diagram. **(08 Marks)**

OR

4 a. What is Multiplexing? Define Synchronous TDM, with data rate management – strategies. **(07 Marks)**

b. Compute the following, if the data rate for each input connection is 1Kbps. If 1 bit at a time is multiplexed , what is the duration of i) Each input slot ii) Each output slot iii) Each frame. **(03 Marks)**

c. Explain how message can be sent from one system to another using datagram approach and calculate the total delay with appropriate diagram. **(06 Marks)**

Module-3

5 a. Explain Error detection using block coding. **(06 Marks)**

b. Identify the code word using CRC given data word 1001 and generator is 1011. **(04 Marks)**

c. Explain different frame types in HDLC. **(06 Marks)**

OR

6 a. What is Internet checksum? If a sender needs to send four data items 7, 11, 12, 0, 6 answer the following : **(06 Marks)**

i) Find the checksum at the sender site.

ii) Find the checksum at the receiver site if there is no error.

b. Explain stop and wait protocol with appropriate diagram. **(04 Marks)**

c. Explain the frame format and transition phases of point to point protocol. **(06 Marks)**

Module-4

7 a. What is Channelization? List and explain the channelization protocols. (06 Marks)

b. A slotted ALOHA network transmit 200 bit frames using a shared channel with 200 K bits/sec bandwidth. Find the throughput if the system produces. (06 Marks)

i) 1000 Frames per second ii) 500 Frames per second iii) 250 Frames per second.

c. Describe Gigabit Ethernet. (04 Marks)

OR

8 a. Describe Pure ALOHA and Slotted ALOHA. (04 Marks)

b. Explain briefly controlled access method. (06 Marks)

c. Define Bluetooth and its architecture. (06 Marks)

Module-5

9 a. Write a short note on Satellite networks. (04 Marks)

b. Explain the Operation of cellular telephony. (06 Marks)

c. Explain Transition from IPV4 to IPV6. (06 Marks)

OR

10 a. Explain the working of mobile I_P with phases. (08 Marks)

b. Explain IP datagram header format, with neat diagram and give the description of each field. (08 Marks)

* * * * *