Exam.Code:0917
Sub. Code: 6786

1129

B.E. (Computer Science and Engineering)
Fifth Semester
CS-501: Data Communication Networks

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Attempt the following:-

a) Briefly explain the difference between non persistent and persistent strategies of CSMA.

b) What is significance of Nyquist Bit Rate for a noiseless channel?

c) Briefly explain the concept of RARP (Reverse Address Resolution Protocol).

d) What is virtual call?

e) What is local loop?

f) Briefly give the difference between pure ALOHA and slotted ALOHA.

g) What is the bit rate for a signal in which 10 bits last 20 μ Sec?

h) A line has a signal to noise ratio of 1000 and bandwidth of 4000 KHz. What is the maximum data rate supported by this line?

i) Show the diagram for Bipolar Pseudotemary encoding scheme for 010010.

j) What is 100Base-FX? (10x1)

UNIT – I

II. a) Explain different types of unguided media for transmission of data without wires.

b) Explain the difference between In-Channel Signaling and Common Channel Signaling. (2x5)

III. a) Explain routing in circuit switched networks.

b) Explain different types of serial and parallel transmission modes in data Communication. (2x5)

IV. a) How Congestion control is done in Frame Relay Network?

b) We measure the performance of a telephone line (4 KHz of bandwidth). When the signal is 10V. the noise is 5mV. What is maximum data rate supported by this telephone line in bits per second? (2x5)

UNIT – II

V. a) Explain three levels of protocols in X.25 networks.

b) Given the data-word as follows:

$$x^{10} + x^9 + x + x^5 + x^4 + x^3$$

and CRC divisor as below:

$$x^3 + x^2 + 1$$

Show the generation of CRC codeword at sender side using polynomial division only. Also show checking of the CRC codeword at the receiver side assuming no errors using polynomial division. (4,6)

VI. a) Explain ATM protocol reference model in detail with diagram.

b) We have pure ALOHA network with 100 stations. If frame transmission time T_{fr}= 1μ sec. What is the number of frames/sec each station can send to achieve the maximum efficiency? (2x5)

VII. a) Explain HDLC protocol of Data link layer along with its frame format.

b) Explain CDMA Channelization protocol with example. (2x5)

x-x-x