Exam.Code:0917
Sub. Code: 6401

2122

B. E. (Computer Science and Engineering)

Fifth Semester

CS-501: Data Communication and Networks

Time allowed: 3 Hours Max. Marks: 50

NOTE: *Attempt <u>five</u> 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 tell how In-band signaling is different from out of band signaling?

b) What is the bit rate for a signal in which 10 bits last 20 u. Sec?

c) Briefly explain the difference between Hub and Switch.

d) What is CSMA/CD?

e) List the different types of propagations for wireless communication media.

f) What are different levels of X.25?

g) A signal with 200 mill watts power passes through 10 devices, each with an average noise of 2 microwatts. What is SNR?

h) What are two properties required for a divisor to be selected in algebraic polynomial form in CRC error detection algorithm?

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

j) What is IEEE 802.11? (10x1)

UNIT - I

II. a) How congestion control is done in Frame Relay network?

b) Explain differences between MEO and LEO Satellites. (2x5)

III. a) Explain different types of spread spectrum techniques.

b) Explain routing in Circuit Switched networks. (2x5)

IV. a) Explain different types of Time Division Multiplexing techniques.

b) Explain different advantages, disadvantages and applications of Radio Waves in wireless transmission. (2x5)

UNIT - II

V. a) Explain concepts of Fast Ethernet and Gigabit Ethernet in detail.

b) 100 Stations on a, pure ALOHA networkshare 1-Mbps Channel. If frames are 1000 bits long, Find the throughput if each station is sending 10 frames/sec. (2x5)

VI. a) Explain working of Selective Repeat Sliding Window protocol in case of lost acknowledgement.

b) Explain HDLC protocol of Data link layer in detail along with its frame format. (2x5)

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

b) Calculate Walsh Table W_8 from W_1 using $W_1 = [+1]$ for CDMA. Also prove Orthogonal properties of Walsh chips for W_8. (2x5)

x-x-x