

2031  
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. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

- I. Attempt the following:-
- What is Spread Spectrum?
  - How Common channel signaling is different from In-channel signaling?
  - Briefly explain the difference between Hubs, Bridges and Switches.
  - What is IEEE 802.11?
  - What is difference between Address Resolution Protocol and Reverse Address Resolution Protocol?
  - Briefly give the difference between DTE and DCE devices in X.25 Packet Switched Network.
  - How Congestion notification mechanism is implemented in Frame Relay?
  - What is the bit rate for a signal in which 10 bits last 20  $\mu$  Sec?
  - Show the diagram for Polar Bi-phase Manchester encoding for 010011.
  - Briefly explain the difference between non persistent and persistent strategies of CSMA. (10x1)

**UNIT - I**

- II. a) Explain difference between asynchronous and synchronous transmission.  
b) Explain Characteristics and working of SS7 Signaling Protocol. (2x5)
- III. a) Explain the differences between IEEE 802.3, IEEE 802.4 and IEEE 802.5.  
b) Explain different types of alternate routing techniques in circuit switched networks. (2x5)
- IV. a) Explain different types of Communication Satellites in detail.  
b) A signal with 200 milliwatts power passes through 10 devices, each with an average noise of 2 microwatts. What is SNR? (7,3)

P.T.O.

(2)

**UNIT – II**

- V. a) Explain Hamming error correction protocol for single bit error and burst error with example.  
b) Explain Go Back-n Sliding window protocol in case of delayed acknowledgement. (2x5)
- VI. a) Explain different layers of TCP/IP reference model with diagram.  
b) We have pure ALOHA network with 100 stations. If frame transmission time  $T_{fr} = 1\mu$  sec. What is the number of frames/sec each station can send to achieve the maximum efficiency? (2x5)
- VII. a) Explain differences between Narrow band ISDN and Broad band ISDN.  
b) Explain difference between TDMA, FDMA and CDMA Channelization protocols. (2x5)

x-x-x