B. Tech.

(SEM. VIII) EXAMINATION. 2006-07

DATA COMMUNICATION NETWORK

Time : 3 Hours] [Total Marks : 100

Note : Attempt all questions.

1 Attempt any four parts of the following : 5x4=20
   (a) Explain the relationship between Data Rate and Bandwidth.
   (b) Explain the synchronous data communication with relevant examples.
   (c) Compare the OSI and TCP reference models.
   (d) Why do we use layered protocols? Give at least two reasons.
   (e) What is the use of Bit stuffing in data?
   (f) What do you mean by pipe lining? Explain it with examples.

2 Attempt any four parts of the following : 5x4=20
   (a) What do you understand by Medium Access Control?
   (b) What are the major problems in allocating the channel?
   (c) What do you understand by contention systems? Write a note on it.

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(d) Why do we prefer CSMA over ALOHA?
(e) Explain the reservation protocols? Where do we use these?
(f) How do we say that collision detection is an analog process?

3 Attempt any two parts of the following: $10 \times 2 = 20$
(a) Explain in detail IEEE standard 802.4 with the help of suitable examples.
(b) Compare IEEE standards 802.3, 802.4 and 802.5 with the help of suitable diagrams in detail.
(c) Explain in detail different types of Bridges.

4 Attempt any two parts of the following: $10 \times 2 = 20$
(a) Compare the virtual circuit and Datagram Subnets in detail.
(b) Explain in detail Flooding. What do you understand by selective flooding? Also explain Flow Based Routing.
(c) Explain with the help of suitable diagrams, The Network Layer in The Internet.

5 Attempt any two parts of the following: $10 \times 2 = 20$
(a) What are the different Elements of Transport Protocols? And also explain how do we establish a connection?
(b) Explain with the help of diagrams the TCP Segment Header. And also explain TCP Connection Management.
(c) Explain in detail Secret – Key Algorithms. Explain in detail the data encryption as well.