ME

E Digital Communication (I[st] Semester) EXAMINATION, June 2006

Data Communication and Computer Network

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note: Attempt any five questions. All questions carry equal marks.

Q.1(a) For 10,000 bytes file to be sent at 2400 bps

(i) Calculate the overhead in bits and time for on asynchronous communication with one start and one stop bit for 8 bit character with no parity bits.

(ii) Calculate the overhead for synchronous communication and compare both values. **10**

(b) Explain how packet switching is better than circuit switching for computer networking. **10**

Q.2(a) What is the purpose of using module 2 arithmetic rather than binary arithmetic in computing FCS? For bit sequence 110011 and $g(x)=x^4-x^3+1$ find CRC. **10**

(b) What is a null modem? Why has PCM sampling time been set at 125 μ sec. **10**

Q.3(a) Explain various ARQ techniques and obtain the expression for channel utilization using $a = \frac{\text{Prop Delay}}{\text{Transmission Delay}}$ **10**

(b) Discuss various types of data link frames and their utility. **10**

oriented and connectionless protocols taking suitable examples.

(b) What are the various matrices used in routing compare Bellman Ford & Difkstra's Algo. **10**

Q.5(a) What is deadlock? How can it be avoided? **10**

(b) Discuss congestion control and remedies to avoid congestion. **10**

Q.6(a) What is the throughput of slotted Aloha. Derive expression and comment how it is better than pure Aloha. **10**

(b) What is hub in which topology it is used? What are other topologies compare them. **10**

Q.7(a) Explain how token based protocols can achieve better efficiency in LANS. **10**

(b) Why Ethernet requires minimum 64 byte frames. What are orphan frames? Explain binary exponential back off algorithm. **10**

Q.8(a) Explain functions of ATM layers. How is transmission different from frame delay. **10**

(b) Draw the header of ATM cell and explain each bit. What does CLP signify? **10**

Q.9 Write explanatory notes on (**ANY FOUR**) **20**

a) FDDI
b) TCP/IP Protocols
c) Inter networking
d) X.21
e) Hamming codes
f) Contention & Polling

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