

CS4514
Computer Networks B02
Second Test Review

IV. Data Link Layer

A. Transmission Errors

1. error detection and error correction
2. Hamming distance

-----**only up to here for First Test!!**-----

3. CRC

- a. polynomial code
- b. generating function $G(x)$
- c. CRC algorithm

B. Synchronous vs asynchronous transmissions

1. bit, character, block level

C. Framing

1. bit stuffing
2. byte stuffing

D. Tanenbaum's DL protocols

1. Utopia
2. Stop-and-Wait {introduce ACKs}
3. PAR {noisy channel}
 - a. old version
 1. ACK, timer, duplicate frames
 - b. new version
4. sliding window protocols {intro only}
 - a. piggybacking ACKs
 - b. 1-bit sliding window (protocol 4)
 - c. Go Back N (protocol 5)
 - d. Selective Repeat (protocol 6)
 - e. window size versus max sequence number
 - f. NAKs, ACKtimer

V. Medium Access Sublayer (MAC)

A. "The Channel Allocation Problem"

1. assumptions

B. LAN Performance Notation

1. relative propagation time - a
2. S, I, and G {throughput, input load, offered load}

C. ALOHA

D. Slotted ALOHA

E. CSMA

1. non-persistent
2. 1-persistent
3. p-persistent

F. CSMA/CD and Ethernet

1. binary exponential backoff
 2. Ethernet evolution (10Base5, 10Base2, 1Base5, 10BaseT)
- G. Switched Ethernet