Sheet3

Unrestricted Simplex Protocol

1. In the "Unrestricted Simplex Protocol" why we don't need to initialize the frame header ?
2. In the "Unrestricted Simplex Protocol" why we don't need to set a timer at the sender or at the receiver?

Simplex Stop and Wait Protocol

3. In the "Simplex Stop and Wait Protocol" why we don't need to set a sequence number to the sent frames?
4. In the "Simplex Stop and Wait Protocol" why we send a dummy empty ack i.e why we don't set an ack number ?
5. In the "Simplex Stop and Wait Protocol" why we don't need to set a timer at the sender?
6. In the "Simplex Stop and Wait Protocol" why we don't need to set a timer at the receiver?

Simplex Protocol for a noisy channel

7. In the "Simplex Protocol for a noisy channel" why we need to set a sequence number to the sent frames? / why we use one bit only for the sequence number?
8. In the "Simplex Protocol for a noisy channel" why we need to set an ack number to the sent acks?
9. In the "Simplex Protocol for a noisy channel" why we need to set a timer at the sender?
10. In the "Simplex Protocol for a noisy channel" why we may need to set a timer at the receiver?

Link Capacity

11. Assuming a digital data transmission system between Cairo and Alexandria (round trip delay about 250 µs) using a T1-line (1500 kBps), and a frame size of 512 Bytes. The overhead can be neglected. What is the total throughput and efficiency using a stop and wait ARQ protocol?

Design problems

12. In the "Simplex Protocol for a noisy channel" What will happen if the timeout at the sender is smaller than the round-trip delay (even temporarily when sending one packet only)?
13. In the "Simplex Protocol for a noisy channel" Why does the sender re send the last packet it sent when it gets duplicate ACK (I.e. what assumption is made)?
14. In the "Unrestricted Simplex Protocol" assume that the only error that can occur is packet duplication on the reverse channel. That is, a single packet sent by the receiver may be duplicated and arrive as two consecutive identical packets at the sender . what are the minimum changes needed for the protocol to be fully functionable?