

CSE 123a Fall 2005

Homework #2

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Due Nov 10<sup>th</sup> at the **beginning** of class

1. Consider the CRC generator polynomial  $x + 1$  used to generate CRC checksums like you did in the project.
  - a. How many bits are in the resulting checksum?
  - b. Consider the message 101. What is the checksum value (show your division).
  - c. Consider the message 111. What is the checksum value (show your division)
  - d. You have seen this CRC algorithm under a different name. What is it?
2. TCP acknowledgements are not reliable – they are not retransmitted if they are lost in transit. Assume that 50% of all TCP acknowledgements are lost. Does this affect the reliability of a session? Why or why not?
3. Why do IP packets carry a time-to-live (TTL) field? What would happen if they didn't have it?
4. Consider a reliable data transfer protocol that uses only negative acknowledgements (i.e. messages from the receiver indicating that particular data was not received). Suppose the sender sends data only infrequently. Would a NAK-only protocol be preferable to a protocol that uses ACKs? Why? Now suppose the sender has a lot of data to send and the end-to-end connection experiences few losses. In this second case, would a NAK-only protocol be preferable to a protocol that uses ACKs? Why?