

S-72.1120 Data Communications and Protocols

Exam May 12th, 2008

Student nr _____ Name _____

1. An ice-hockey club keeps statistics over their games. The statistics are on a server computer maintained by the computer support person of the club. The people who write new entries as well as other members may download a client program to their own computers and use that to read and update the statistics over the net. Sketch some typical application level messages that the client program and the server program on the server computer might send to each other. The programs communicate through pre-existing, reliable transport level communications service (TCP). (4 p.)

2. What is done in TCP when there is a bit error in the received data and it is (4 p.)

a) in the data field?

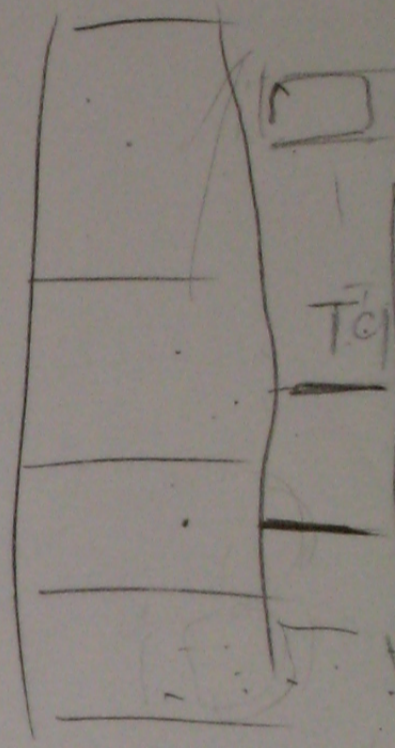
b) in the checksum?

c) in the Internet address?

d) in the sequence number field?

3. From within the local LAN, the server computer of a company receives an e-mail message addressed to a receiver outside the LAN. What needs to be done to the message (protocol frame) at the server computer when it is addressed to (4 p.)

a) a customer through the public Internet?



b) an employee at another office of the same company through the company's virtual LAN?

4. To ease the maintenance of customer data – particularly contact information like addresses – a company has decided to keep the data on a single server computer (customers.ourcompany.com, port 1234). Any program of the company that needs the data can send a query to that computer (the IP-address of which might be one that is invisible to the external world, say 10.x.x.x) through the net. Sketch the part of a program (possibly a remote procedure) that communicates with the server. (4p)