

S-72.1120 Data Communications and Protocols

Exam, May 17th, 2010

Student nr. _____ Name _____

1. A company has several server computers to take care of various administrative tasks (billing, accounts, wages, e-mail...). To keep the data up-to-date more easily, all addresses of customers are kept on a single server. When needed, other servers and the applications running on them communicate with this server through the reliable TCP-service. Sketch some **application level** messages that the two programs might send to each other to handle an address query. Don't forget that we are talking about data transfer between two computers.

2. How is a transmission error (an ordinary bit error) detected in the TCP protocol? How is the situation dealt with?

3. Explain briefly the purpose of each of the following protocols. It is not sufficient to just write the abbreviated words in full.

- a) ARP
- b) DNS
- c) HTTP
- d) POP3 and IMAP

4. a) An e-mail message leaves your computer and goes to the local area network (LAN) of the company. Which telecommunications programs (protocols) handle the message before it leaves your computer and in which order are they used.

- b) What kind of protocol frames is the e-mail message embedded in when it propagates through the company LAN? Give the outermost frame first.