Exam problems examples (networking part with TKM).

Problem 1.

Download a file cap3.pcapng. Open it with wireshark and answer the following questions:

1. a) Find the IP address assigned by DHCP to the client computer b) What is the MAC address of the client computer?
2. The same computer makes an ARP request. What is the Target's IP address and MAC address?
3. NTP (Network Time Protocol) is used to synchronize time and dates between computers. The capture contains some NTP packets. a)How many NTP packets does the capture contain? b) What date does the NTP server say it is?

Problem 2.

Assume that it takes 1 ms from a bit leaves A to the bit is received in B. Assume also that the bandwidth of the line is 5Mbit/s. How long does it take to transfer the frame of 1500 bytes from A to B? (round to nearest ms).

Problem 3.

What is the difference between error detection and error correction. Give an example where it is more suitable to use error correction mechanisms.

Problem 4.

Which layer header contains
a) MAC address
b) Destination IP address
c) SYN bits when a connection is established

Problem 5.

What is the purpose of Inter Frame Space in 802.11 MAC protocol?

Problem 6.

a) Why authentication is needed? b) given that two devices share a common secret, how authentication can be done?