Dept. Math. & Comp. Sc.	**Computer Networks**
Vrije Universiteit	**07.04.1999**

1a Explain how the Ethernet protocol works. *10pt*

1b If a host sends an IP packet to a destination host on an Ethernet network, the source will need to know the Ethernet address of the destination. How does it find that address? *5pt*

1c How can a host connected to only an Ethernet network, simultaneously support two different network-layer protocols (e.g. IP and AppleTalk)? *10pt*

2a Explain what flooding is and how we can prevent network traffic coming to a complete halt. *10pt*

2b What is the main advantage of hierarchical routing? Explain your answer. *10pt*

2c What is the purpose of weighted fair queuing, and how does it work? *5pt*

3a Explain how a reflection attack works. *5pt*

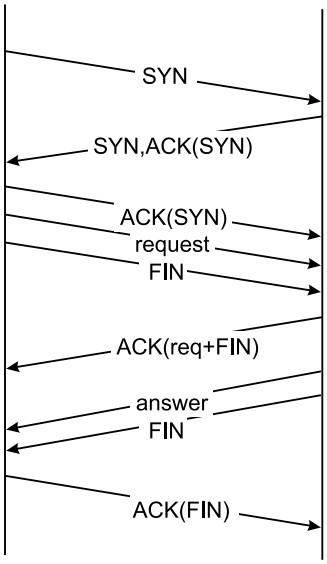
3b Why is it better to use session keys, when possible, instead of public/private keys when sending confidential data over a TCP connection? *10pt*

3c Give a general technique to defend against message replay. *5pt*

4a Is the statement "TCP is connection-oriented, so packets follow the same route from sender to receiver," true or false? Explain your answer. *5pt*

4b HTTP is a protocol that relies on TCP/IP. Do HTTP packets follow the same route from sender to receiver? *5pt*

4c A typical HTTP session over TCP is shown below. How can TCP be improved if you knew it had to support only request/reply behavior as in the case of HTTP? *10pt*



Grading: *The final grade is calculated by accumulating the scores per question (maximum: 90 points), and adding 10 bonus points. The maximum total is therefore 100 points.*