

- 1a* Briefly describe the layers of the OSI model, and the difference with the reference model for the Internet. *5pt*
- 1b* What is the difference between a *network service* and a *network protocol*? Is it possible to have different implementations of the same protocol? *5pt*
- 1c* Why do we use modulation when sending digital information across, for example, copper wire? *5pt*
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- 2a* The physical layer sends data as a “continuous” stream of bits. The data link layer uses chunks of bits, called *frames*. Why use frames instead of bit streams? *5pt*
- 2b* Explain how Ethernet (IEEE 802.3) works when two or more stations each want to transmit a frame. *10pt*
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- 3a* Explain what a *choke packet* is. *5pt*
- 3b* In lang-haul, high-bandwidth networks, choke packets may lead to a serious problem. What problem is that and how can it be solved? *5pt*
- 3b* Explain how *reverse path forwarding* works. *5pt*

Grading: The final grade is calculated by accumulating the scores per question (maximum: 45 points), and adding 5 bonus points. The maximum total is therefore 50 points.