

Exam in TTM4105 Access and transport networks – Summer 2008 (English)

All problems count equally much in the evaluation.

Problem 1 Optical communication

- a) Describe how an optical fiber is constructed.
- b) How does a Mach-Zehnder optical filter operate?
- c) Describe at least one principle for wavelength conversion

Problem 2 Land mobile communication

- a) What is SIM (Subscriber Identity Module) and for which purpose is it used?
- b) Sketch the architecture of GPRS.
- c) How does a mobile terminal determine that it has entered a new area and that its location must be updated?

Problem 3 Switching

- a) Explain the difference between connectionless and connection oriented network.
- b) Explain (by help of sketches showing the signal flow) the principles for establishing and disconnecting a connection in the telephone network.
- c) Explain what is meant by geographic and non-geographic telephone or IP numbers.

Problem 4 Synchronization

- a) Explain why HDLC (high-level data link control) is poorly suited for transfer of speech signals.
- b) What does it mean that a signal is isochronous?
- c) What does it mean that two signals are plesiochronous?