HELSINKI UNIVERSITY OF TECHNOLOGY
Networking laboratory

S-38.115 Signaling Protocols
Spring 2004

Exercise 4

Deadline: Wed 24.3.2004 at 13.45. All late answers will be disregarded. Please, adhere to the deadline.

Return: The answers are to be returned by email to **s38115@netlab.hut.fi** or, preferably, to the box (S-38.115 Signaling Protocols) underneath the lab's notice board on G-wing 2nd floor. *Remember to include your name and student number in the beginning of the document.* If you return by email, name the file "<your student number>_exercise4" and use the subject "Exercise 4". The accepted formats of the files are PDF, PS and Word documents.

Note about the material: In the tasks 2 and 3, you may find the RFCs concerning SIP useful.

Task 1
A subscriber dials a seven-digit number and each digit is keyed (sent) individually. Show the messaging flows between the originating and destination exchange with ISUP
   a) for a successful call attempt and call release. Assume that the calling party hangs up the call. Describe also briefly the function of each message. (1 point)
   b) for an unsuccessful call attempt, when the call ends with wrong keying after the third number (two cases). (1 point)

Task 2
Show the messaging flows for a successful PSTN to SIP call attempt and release between the PSTN switch (ISUP), SIP gateway, SIP proxy and SIP phone of the called party. The SIP proxy includes a location server which performs the number-address mapping. Assume that the called party hangs up the call. (1 point)

Task 3
Show the messaging flows for a successful SIP to SIP call attempt and release, when an ENUM query is used for the number-address mapping. The messages are passed between the SIP phone of the calling party, DNS server, SIP proxy and SIP phone of the called party. Assume that the calling party hangs up the call. (1 point)