

**Written exam in EDA386/DIT661 Internet technology 2008-10-20
afternoon in Hörsalsvägen. Exam time: 4 hours.**

Material allowed: No extra material allowed

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Result: Will be announced 2007-11-09 (latest)

Inspection of the exam: 2007-11-12 at 13.00-14.00 in Sven Tafvelin's office

<i>Credits:</i>	30-38	39-47	48-60
<i>Grade:</i>	3	4	5
<i>Grade (GU)</i>	G	G	VG

1. The answer must be written in English (even for Swedish students). Use proper grammar and punctuation.
2. All answers need to be motivated, unless otherwise stated. Correct answers without motivation or with wrong motivation will not be given full credit.
3. Answer concisely, but explain all reasoning. Draw figures and diagrams when appropriate.
4. Write clearly. Unreadable or hard-to-read handwriting will not be given any credit.
5. Do not use red ink.
6. Solve only one problem per page.
7. Sort and number pages by ascending problem order.
8. Anything written on the back of the pages will be ignored.
9. Do not hand in empty pages or multiple solutions to the same problem. Clearly cross out anything written that is not part of the solution.
10. Indicate on the cover if you require ECTS grades.

1. Java accumulating server

Write a server which is accumulating (summing) quantities sent to it from clients reporting their results. The clients are sending their result as one integer using UDP. 6p

2. Routing update

The router K has a routing Table 1 given below. We are using BellmanFord routing and get an incoming routing update from router M given in Table 2. Describe how the routing table will be updated. 5p

Table 1:	Destination	Distance	Route	Table 2:	Destination	Distance
	Net17	5	router M		Net12	3
	Net5	8	router L		Net5	6
	Net12	0	direct		Net17	5
	Net18	7	router J		Net4	9
	Net22	0	direct		Net3	5
	Net 3	2	router Q		Net16	1
	Net16	2	router J			

3. Large Web servers

a) Describe how a cluster based web system is designed and how it is working. 6p

b) Describe what is meant by a one-way and two-way solution. 2p

4. NVT

Both FTP and Telnet is using NVT. Describe what it is and how it is working. 5p

5. DNS

Describe how DNS is designed and how it is working. Include the concepts domain, zone, recursive, iterative, authoritative etc. 6p

6. Transport layer

a) There are two versions of the *Silly Window Syndrome*. Describe the two syndromes, how they happen and countermeasures against them. 6p

b) Describe how TCP contributes to congestion control. 6p

7. DHCP

a) Describe how the booting process is being done using DHCP. 6p

b) IPv6 has better support for the start up phase. Is it possible in IPv6 to start without using DHCP? To start with using DHCP? Explain your standpoint. 4p

8. Network Design

a) Explain the concepts redundancy and diversity and the difference between them. 4p

b) Explain the two major reasons why GigaSunet needed to be replaced. 4p