Högskolan i Halmstad
Sektionen för Informationsvetenskap, Data- Och Elektroteknik (IDÉ)
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Written Exam in
Secure and Optimized Converged Networks
29 October, 2008

Allowed aid in addition to the attached formulae:
Writing material.

Welcome to the exam!

READ THIS FIRST:
Motivate all answers. Insufficient motivation can give reduced points even if the answer
is correct. If required, you are allowed to make own (reasonable) assumptions. You are
allowed to answer in either ENGLISH or SWEDISH but do not mix languages in the
same answer.

GOOD LUCK!

Number of exercises: 10
Maximal number of points: 60

The grade limits 30p to pass the Exam (Grade 3), 42p for Grade 4 and 54p for Grade 5.

Assignment 1: Select one of two (12 p)

Choose **one** of the following assignments. Appropriate length of an answer/description is 1-2 pages including figures. Write clear and concise. It's more important that what you write is coherent, logical and correct than everything in the subject being included. In other words, it's more important to show that you have an overall understanding than to just mention a lot of less important details. Please use examples when appropriate.

A. DSL and Cable Modem.

B. MPLS

Assignment 2: Cryptosystem (8p)

Describe and compare Symmetrical and Asymmetrical Encryption. Explain advantages and disadvantages of both. When and why should we use Symmetrical or Asymmetrical Encryption? What are the purposes of using hashing? How it works?

Assignment 3: MPLS VPN (5p)

Explain MPLS VPN. How it works? Which advantages can give using of MPLS VPN for Service provider? Name it and describe short.

Assignment 4: VPN (5p)

Compare IPSec VPN and VPN with GRE-tunnel.

Assignment 5: VPN (5p)

Compare ESP and AH Protocols, Transport and Tunnel Modes.

Assignment 6: AAA (5p)

What are the purposes of using AAA in the network? Explain the differences between RADIUS and TACACS+.

Assignment 7: Firewalls (5p)

 Compare Stateful packet filtering , Packet filtering and Application Layer Gateway (Proxy Server).

Assignment 8: IPS and IDS   (5p)

Compare IPS and IDS. How using of IPS and IDS can improve security of the network? What is the difference between honeypot-based and policy-based IPS and IDS?

Assignment 9: Networks Attacks (5p)

Name five specific networks attack types and describe them short.
Explain the difference between   reconnaissance attack and trust exploitation attack.
How to prevent these kinds of attacks?

Assignment 10: Teleworker services (5p)

What is a DSL? How it works and which components needs to provide DSL connection?