



Institutionen för Data-
och Systemvetenskap



STOCKHOLMS
UNIVERSITET



KUNGLIGA
TEKNISKA
HÖGSKOLAN

***:96 (SU) and 211263 (KTH)
Internet Application Protocols
and Standards**

Exam 2005-12-07-solved.doc

The following documents are allowed during the exam:

1. Documents in Compendium 1, printed on colored paper.
2. Documents in Compendium 2, printed on colored paper.
3. Documents in Compendium 3, printed on colored paper.
4. Documents in Compendium 7, printed on colored paper.
5. Documents in Compendium 9, printed on colored paper.
6. Ordinary language dictionaries between English and Swedish.

Note 1: Compendium 0, 4, 5, 6 and 8 are not allowed during the exam.

Note 2: The exam supervisor will check that you do not have copies of the disallowed compendiums. Bringing such compendiums on colored paper is cheating and can result in suspension of your rights to study.

Note 3: Underscoring and short handwritten notes in the yellow documents are allowed.

Note 4: A few copies of the allowed compendiums will be available for loan during the exam for students who have not brought the compendiums.

Important warning

It is not acceptable to answer an exam question by just a verbatim quote from the allowed documents above. You must show that you understand the question and your answer by using your own words.

Jacob Palme will come to the exam rooms around 18:00 o'clock to answer questions regarding the interpretation of the exam.

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No.	Question in English	Question in Swedish	Max points
1	In ASN.1, there is a distinction between <i>primitive</i> and <i>constructed</i> data types. What is this distinction?	I ASN.1 skiljer man på <i>primitive</i> och <i>constructed</i> datatyper. Vad skiljer dessa åt?	6

Answer:

Primitive data types are in ASN.1 pre-defined data types, which have no internal structure, or an internal structure not defined in ASN.1.

Constructed data types are data types which are constructed by combining two or more data elements, each of which is defined in ASN.1.

2	Some e-mail header fields may be changed or added during transmission, while other fields are not modified. Which major fields are changed, which are not, and why?	Vissa fält i epost-brevs huvud kan ändras eller läggas till under överföringen, medan andra inte ändras. Vilka av de viktigaste fälten ändras, vilka ändras inte, och varför?	6
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Answer:

Major headers not changed are To, From, Date, Subject, Message-ID, which show information from the sender of the message.

Major headers changed are Received, which contain a trace of all MTAs a message has passed during transmission, Resent-headers, which are added when a message is resent, and List-headers, which give information about mailing-list expanders which the message has passed.

In practice, it is accepted that if a message is received without a Date and/or Message-ID header, the first (but only the first) MTA can add such headers.



No.	Question in English	Question in Swedish	Max points
3	When sending protocol units, there is a need to indicate the end of a protocol unit. Discuss different methods of doing this and their pros and cons.	När man sänder dataenheter, är det ett behov att ange slutet på en dataenhet. Diskutera olika metoder att göra detta, och deras för- och nackdelar.	6
Answer:			
The two main methods are:			
1. Indicate the length, in number of bytes, before sending the information.			
2. Have some special code indicating the end.			
Advantage with 1: Easy for recipient program, it can allocate a buffer of suitable size.			
Advantage with 2: Easy to produce manually.			
Disadvantage with 2: The special code cannot be included in the sent data, unless encoded in special ways.			
Problem with method 1: Cannot be used unless the length is known in advance. Because of this, for data of unknown size, method 1 is often used for chunks, not for the whole set of data.			
4	Specify an extension to HTTP to indicate the country of origin of a web page.	Specificera en utvidgning av HTTP för att ange det land, som ett dokument ursprungligen kommer från.	6

Answer:

The HTTP Originator-Language header can appear in HTTP responses, and has the format

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Originator-Language = "Originator-Language:" OLWSP country  
Country = 2A ; ISO country codes
```