



Institutionen för Data-
och Systemvetenskap



STOCKHOLMS
UNIVERSITET



KUNGLIGA
TEKNISKA
HÖGSKOLAN

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

Exam 2006-01-11-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 be available by phone 08-664 77 48 if you want clarification of any of the questions in the exam.

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No.	Question in English	Question in Swedish	Max points
1	<p>DNA consists of a strand of two molecules, each strand is a series where each element in the series is one of four molecules: A (adenosine), T (thymidine), C (cytidine), and G (guanosine). The first strand starts with a three-phospho group and ends with a five-phospho group, the second starts with a five-phospho groups and ends with a three-phospho group. Write an ASN.1 specification to transmit this information.</p> <p>Example:</p> <p>(5' -> 3') ATGGAATTCTCGCTC (3' <- 5') TACCTTAAGAGCGAG</p> <p>Answer:</p> <pre>DNAMolecule ::= SEQUENCE { ThreePhosphoStrand DNAstrand, FivePhosphoStrand DNAstrand } DNAstrand = SEQUENCE OF Molecule Molecule = ENUMERATED { adenosine (1), thymidine (2), cytidine (3), guanosine (4) }</pre>	<p>DNA består av två trådar av molekyler, där trådarna består av en serie av element, som vart och ett är någon av fyra molekyler: A (adenosine), T (thymidine), C (cytidine), and G (guanosine). Den första tråden börjar med en tre-fosfat-grupp och slutar med en fem-fosfat-grupp, den andra börjar med en fem-fosfat-grupp och slutar med en tre-fosfat-grupp. Skriv en ASN.1-specifikation för att överföra denna information.</p> <p>Exempel:</p> <p>(5' -> 3') ATGGAATTCTCGCTC (3' <- 5') TACCTTAAGAGCGAG</p>	6
2	<p>What is meant by a Message-ID, and why is it useful.</p> <p>Answer:</p> <p>Message-ID is a globally unique identification of a message, included in the message header. It two major uses are:</p> <ol style="list-style-type: none">1. To be used in "In-Reply-To" and "References" headers to establish a reference between a message which is a reply to another message.2. To identify duplicates of the same message, and to avoid loops where the same message passes multiple times.	<p>Vad menas med Message-ID och vad kan det användas för.</p>	6
3	<p>IETF recommends to always use the</p>	<p>IETF rekommenderar att man alltid</p>	6



No.	Question in English	Question in Swedish	Max points
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UTF-8 encoding of Unicode in transmission. Why?

använder UTF-8-kodningen av Unicode när man sänder data. Varför?

Answer:

In the UTF-8 encoding, all 7-bit (ASCII) characters are the same as in most other character set standards. This is important because these are the characters which are commonly used in standards in commands and separators. Thus, these special characters will be the same with UTF-8 as with previously used standards.

4	The GET command of HTTP starts with the word "GET" followed by a space and the URL of the retrieved page. The beginning of the URL (the domain name) is, however, not included. Why? Is the reason for omitting the domain name in this line sound?	GET-kommandot i HTTP börjar med ordet "GET" följt av en blank och URL för sidan som skall hämtas. Början av URLen (domännamnet) inkluderas dock inte. Varför? Är det klokt att inte ha med domännamnet i denna rad?	6
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Answer:

When WWW was first invented, each host was on a separate computer with a separate IP address. Thus, when a call had been established to a computer, it was already identified, and its name need not be given again. This, however, is not true any more, since many computers now serve many different domains (so-called web hotels). Thus, it would have been better to include the host name. In fact, the latest version of the HTTP allows the host name to be included in the GET command, but this is not yet in common usage. Instead, a separate "Host:" command in the HTTP header after the GET line indicates the expected host and is used by web hotels to identify which customer data base to access.