



Institutionen för Data-  
och Systemvetenskap



STOCKHOLMS  
UNIVERSITET



KUNGLIGA  
TEKNISKA  
HÖGSKOLAN

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

**Exam-2006-02-18-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 come to the exam room at about 11:00 to ask 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
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- |   |   |   |   |
|---|---|---|---|
| 1 | Specify, using ABNF the syntax of typical simple sentences in natural English, used when talking about the weather. | Specificera med ABNF syntaxen för typiska enkla meningar i naturlig engelska eller naturlig svenska, som folk använder när de pratar om vädret. | 6 |
|---|---|---|---|

There is of course an unlimited variation in possible answers, below are just three examples.

**Answer:**

```
Weatherphrase = "It is" " " ("raining" / "sunshine" / "cloudy")  
                " " "today, and" " "  
                ("very hot" / "hot" / "cold" / "very cold")
```

**Alternative answer:**

```
Weatherphrase = "It is " ("raining" / "sunshine" / "cloudy")  
                " today, and "  
                ("very hot" / "hot" / "cold" / "very cold")
```

**Alternative answer:**

```
Weatherphrase = "It is" WSP ("raining" / "sunshine" / "cloudy")  
                WSP "today, and" WSP  
                ("very hot" / "hot" / "cold" / "very cold")
```

The most common error was that space between words was not correctly specified.

- |   |   |  |   |
|---|---|--|---|
| 2 | Which are the main techniques used to allow agents using old and new implementations of a protocol, which evolves over time, to be able to communicate. | Vilka är de viktigaste teknikerna, som används för att agenter som använder äldre och nyare implementeringar av ett protokoll, som utvecklas med tiden, att kommunicera. | 6 |
|---|---|--|---|

**Answer:**

Good methods:

1. The two agents exchange information on which version of the standard, which they support, and then use the simplest of the two standards versions.
2. The two agents exchange information about which features each of them support, and then only use the features supported by both.
3. Built-in points in the standard where it is easy to add new features. Example: In e-mail headers, it is easy to add a type of heading with a new name.



No.	Question in English	Question in Swedish	Max points
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4. Registration authorities, organisations which register certain data, such as approved e-mail headers or TCP/UDP port numbers.

Sometimes necessary methods:

5. Try some command which works in one version but not in another version, in order to test which version the other agent is based on. If the other agent does not support this command, it should return an error code.
6. Encode new data in a format which looks all right to old agents, for example encoding of binary data into text using the BASE64 algorithm.
7. Be liberal in what you accept, conservative in what you produce: Accept variations from what you believe is right.

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|---|--|--|---|
| 3 | Why does IETF recommend the use of the UTF-8 encoding of Unicode/ISO 10646 for all protocols transmitting information on the Internet. | Varför rekommenderar IETF att man skall använda UTF-8-kodningen av Unicode/ISO 10646 när man sänder information över datornät. | 6 |
|---|--|--|---|

**Answer:**

Because with the UTF-8 coding, all 7-bit characters are the same as in the US-ASCII standard. This is important because commands used in standards, such as commands in e-mail headers or tags in HTML, use only US-ASCII characters. They will thus be identical with UTF-8 as with US-ASCII (and also as with ISO-8859-1).

- |   |   |  |   |
|---|---|--|---|
| 4 | XML mainly defines a hierarchical structures. How can it be used for links between objects in different places of the hierarchical structure? | XML definierar en i huvudsak hierarkisk datastruktur. Hur kan det användas för länkar mellan objekt på olika ställen i den hierarkiska strukturen? | 6 |
|---|---|--|---|

Links between objects are created using XML attributes of type ID, IDREF and IDREFS. ID is the id code for an object to be linked to. IDREF and IDREFS contain the id code for the objects they link to. A link is thus created from the object with an attribute of type IDREF or IDREFS to the object with an attribute of type ID.