



Institutionen för Data-  
och Systemvetenskap

**\*:96 (SU) and 2I1263 (KTH)  
Internet Application Protocols  
and Standards**

Exam 2001-12-08



STOCKHOLMS  
UNIVERSITET



KUNGLIGA  
TEKNISKA  
HÖGSKOLAN

**The following documents are allowed during the exam:**

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

*Note 1: Compendium 4, 5, 6, 8 and 9 are not allowed during the exam. The exam supervisor will check that you do not have copies of compendiums 4, 5, 6, 8 and 9 printed on colour paper. Bringing such compendiums on coloured paper is cheating and can result in suspension of your rights to study.*

*Note 2: Underscoring and very short handwritten notes in the yellow documents are allowed.*

*Note 3: A few copies of these compendiums (part 1-3 and 7) will be available for loan during the exam for students who have not bought 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.

**Questions during the exam**

Jacob Palme can be reached at the phone number 08-664 77 48 för eventuella frågor under tentan, säkrast omkring kl 11:00.

**Notification of result by e-mail**

*Print your e-mail address on the front cover page of the exam, so that I can notify you by e-mail if you did not pass the exam. Print legibly!*



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No.	Question in English	Question in Swedish	Max points
1.	Which are main advantages and disadvantages of using CSS style sheets in HTML versus use of older formatting tags like the <FONT> tag.	Vilka är fördelarna och nackdelarna med att använda CSS format-ark (style sheets) i HTML jämfört med att använda äldre formatteringsetiketter som t.ex. <FONT>.	6
	<b>Answer:</b> CSS makes it possible to put style information in a separate file (1), and a change in this file will change the formatting on all dependent HTML documents (1). This makes it easy to change the layout, easy to achieve a coherent layout (1), and saves download time and writing of tags in the HTML text itself (1). CSS also provides more formatting functionality than before, including more precise specification of the layout (1). CSS also allows the combining of several different style sheets to format a document (1), and allows the user to influence the choice of style sheet, or the delivery of the same page in different formats for different readers (1). The only disadvantage is that it is not supported by old browsers (1). One might also say that its richness makes formatting more complex, which some may see as a disadvantage (1).		
2	Many protocols use a method for reporting the success or failure of an operation using three-digit status codes. Are these codes sent by the client or the server? How are such codes composed? Mention some protocols which use and some which do not use this method? What is the advantage and disadvantage with this method?	Många protokoll använder en metod för att rapportera framgången med en operation med hjälp av tresiffriga statuskoder. Skickas dessa koder av klienten eller servern? Hur är koderna sammansatta? Nämn några protokoll som använder och några som inte använder denna metod. Vad är för- och nackdelarna med denna method?	6

**Answer:**

Sent by the server in response to a request from the client (1). The first digit specifies a major group of codes (1), such as success (1), permanent failure, temporary failure, etc. The second digit usually gives additional specification in major groups, such as (1), such as syntax error (1). The third digit is used to distinguish different return codes whose two first digits are identical (1). Some protocols use both the second and the third digit only to distinguish different responses where the first digit is equal.

This kind of response codes are used in for example SMTP, FTP, HTTP



No.	Question in English	Question in Swedish	Max points
3	Write an XML specification to send first a series of authors, specified by given name and surname, and after that a series of books, specified by a link to one or more authors, plus title and year of publication.	Skriv en XML-specifikation för att sända över först en serie författare, beskrivna med förnamn och efternamn, och därefter en serie böcker, beskrivna med en länk till en eller flera författare, samt titel och utgivningsår.	6

**Solution 1:**

*DTD-file authors-and-books-a.dtd*

```
<!ELEMENT authors-and-books-a (authors,books)>
<!ELEMENT authors (author+)>
<!ELEMENT books (book+)>
<!ELEMENT author EMPTY>
<!ATTLIST author
  id ID #REQUIRED
  givenname CDATA #REQUIRED
  surname CDATA #REQUIRED
>
<!ELEMENT book EMPTY>
<!ATTLIST book
  title CDATA #REQUIRED
  year CDATA #REQUIRED
  authors IDREFS #REQUIRED
>
```

*XML-file authors-and-books-a.xml*

```
<?xml version="1.0" standalone="no"?>
<!DOCTYPE authors-and-books-a SYSTEM
"http://dsv.su.se/jpalme/internet-course/xml/authors-and-books-a.dtd">
<authors-and-books-a>
<authors>
<author id="a123" givenname="Ken" surname="Follet"/>
<author id="a124" givenname="Daniel C." surname="Lynch"/>
<author id="a125" givenname="Marshall T." surname="Rose"/>
</authors>
<books>
<book title="Jackdaws" year="2001" authors="a123"/>
<book title="Internet System Handbook" year="1993" authors="a124
a125"/>
</books>
</authors-and-books-a>
```



**Solution 2:**

*DTD-file authors-and-books-b.dtd*

```
<!ELEMENT authors-and-books-b (authors,books)>
<!ELEMENT authors (author+)>
<!ELEMENT books (book+)>
<!ELEMENT author EMPTY>
<!ATTLIST author
  id ID #REQUIRED
  givenname CDATA #REQUIRED
  surname CDATA #REQUIRED
>
<!ELEMENT book (myauthor+)>
<!ATTLIST book
  title CDATA #REQUIRED
  year CDATA #REQUIRED
>
<!ELEMENT myauthor EMPTY>
<!ATTLIST myauthor
  authorid IDREF #REQUIRED
>
```

*XML-file authors-and-books-b.xml*

```
<?xml version="1.0" standalone="no"?>
<!DOCTYPE authors-and-books-b SYSTEM
"http://dsv.su.se/jpalme/internet-course/xml/authors-and-books-b.dtd">
<authors-and-books-b>
<authors>
<author id="a123" givenname="Ken" surname="Follet"/>
<author id="a124" givenname="Daniel C." surname="Lynch"/>
<author id="a125" givenname="Marshall T." surname="Rose"/>
</authors>
<books>
<book title="Jackdaws" year="2001">
<myauthor authorid="a123"/>
</book>
<book title="Internet System Handbook" year="1993">
<myauthor authorid="a124"/>
<myauthor authorid="a125"/>
</book>
</books>
</authors-and-books-b>
```

Note: Since the main reason for this question was to test knowledge of the ID and IDREF or IDREFS attribute types, I gave a maximum of 3 points to solutions which did not use these attribute types.



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No.	Question in English	Question in Swedish	Max points
4	<p>Describe some popular methods for specifying web pages, whose content partially is dynamic, i.e. generated by execution of a program on the server.</p> <p>ASP and JSP are tools which allow the mix of HTML code and server-side code in the same templatefile. The server-side code can compute values which are inserted in the HTML table, and can execute code using the values returned in sent-in forms.</p> <p>The web server can also be designed to execute servlets (often written in server-side Java) directly from the web server, or some web pages (usually stored in a directory named "cgi-bin") can execute when they are accessed. CGI is a standard for transferring data between the web server and such a program.</p>	<p>Beskriv några vanliga metoder för att specificera webbsidor, vars innehåll delvis är dynamiskt, alltså genererat av ett program som körs på servern.</p>	6