Institutionen för Data- och Systemvetenskap

STOCKHOLMS UNIVERSITET

KUNGLIGA TEKNISKA HÖGSKOLAN

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

Exam 2004-03-10

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. 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 color paper. Bringing such compendiums on colored paper is cheating and can result in suspension of your rights to study.

Note 2: Underscoring and 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.

Jacob Palme may be reachable for questions regarding the exam between 12:00 and 13:00, phone 0709-611201.

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No.	Question in English	Question in Swedish	Max points
1	What is the difference between the protocols POP and IMAP, and how will this difference make them suitable for different tasks.	Vad är det för skillnad mellan protokollen POP och IMAP, och hur gör denna skillnad dem lämpliga för olika typer av användning.	6

Answer:

POP: Simple download of unread mail, very limited facilities for selecting what to download.

IMAP: Full control of a remotely stored mailbox, including search and selective download. Also facility for alert when new mail arrives.

POP suitable when you download all your mail to your workstation and store them locally.

IMAP suitable when you keep your mailbox stored remotely, and download messages only when you need to look at them.

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No.	Question in English	Question in Swedish	Max points
2	Inernational Standardized Book Numbers, ISBN, consists of four parts with a space or dash between them, for example: 1-56592-300-6 The four parts are: Group identifier: 1-5 digits Publisher identifier: 1-7 digits Title identifier: 1-6 digits Check digit: 1 digit or the character “X”. (a) Write an ABNF specification for such a number as specified above. (b) Write an ABNF specification where the total number of digits is limited to 10, but with no limit on the number or length of the individual parts except for the check digit. It is not possible to write an ABNF specification for both (a) and (b) at the same time. Note: In 2005, the total length of an ISBN number will be increased from 10 digits to 13 digits.	Ett Internationellt Standardiserat Bok-Nummer (ISBN) består av fyra delar med en blank eller ett bindestreck mellan delarna. Exempel: 1-56592-300-6 The fyra delarna är: Gruppidentifierare: 1-5 siffror Förlagsidentifierare: 1-7 siffror Titelidentifierare: 1-6 siffror Checksiffra: 1 siffra eller bokstaven X. (a) Skriv en ABFN-specifikation för ett sådant nummer enligt specifikationen ovan. (b) Skriv en annan ABNF-specifikation, som begränser det totala antalet siffror och X till 10. Den specifikationen behöver inte begränsa antalet grupper och antalet siffror i varje grupp förutom checksiffran. Det är inte möjligt att skriva en ABNF-specifikation för både (a) och (b) på en gång. Anmärkning: År 2005 kommer den total längden för ISBN-nummer att öka från 10 till 13 siffror.	6

Answer:

(a)

```
ISBN       = group separator publisher separator
             title separator checkdigit
group      = 1*5D
publisher  = 1*7D
title      = 1*6D
check      = 1*1( D / "X")
separator  = " " / "-"
```

(b)

```
ISBN = 10*10( D / " " / "-" / "X" )
```

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No.	Question in English	Question in Swedish	Max points
3	In HTTP, each connection is usually finished after downloading an answer. The next user interaction will set up a new session. In spite of this, there are web sites where a user can login with name and password, and then access data which cannot be seen by any web user. How is this technically possible? There are several techniques to do this, describe at least three such techniques.	I HTTP avslutas varje förbindelse vanligen när ett svar har laddats ner. Nästa användarinteraktion sätter upp en ny session. Trots detta, finns det webbsajter där användarna kan logga in med namn och lösenord, och därefter hantera data som inte är åtkomliga för vilken webbanvändare som helst. Hur är detta tekniskt möjligt? Det finns flera tekniker för att möjliggöra detta, beskriv åtminstone tre sådana tekniker.	6

Answer:

Method 1: Server sets a cookie with identity information at login, then gets cookie values at subsequent connections.

Method 2: Store identity information in hidden fields in a form.

Method 3: Store identity information after "?" at the end of URLs in pages sent to the user.

Method 4: Remember the IP number of the user. Not reliable, since several different users can share the same IP number.

4	When an e-mail message is sent from sender to recipient, it is usually forwarded several times from server to server. Discuss why a message has to pass several servers on its way from sender to recipient.	När ett e-post-meddelande sänds från avsändare till mottagare, vidarebefordras det i flera steg från server till server. Diskutera varför ett meddelande behöver passera flera servrar på sin väg från avsändare till mottagare.	6

Answer:

(a) Easier for the user to send all mail to a single server which handles further distribution without the user having to wait.

(b) User work station does not have to wait for a remote server which is down to come up again.

(c) Remote split of multi-recipient messages can save transmission costs.

(d) New mail for a user is stored in a particular server for this particular user.

(e) Firewalls, spam filters and other gateways store messages during transport.

(f) Servers can convert message format to that preferred by the recipient software.

(g) Mailing lists and other re-distributors store messages before passing them along.