

Name: _____

You have 120 minutes to complete this exam. Time will begin as soon as you start reading the first question.

- You may use any material, including the text book, lecture slides, and notes. You may also use anything found on the Internet that existed before the exam started.
- You may NOT communicate with any other person during this exam, either in person or using electronic means.

As strategies for completing the exam, keep the following in mind:

- If you find a question to be ambiguous, make assumptions as you see fit, but write down your assumptions.
- You are more likely to get partial credit for a wrong answer if you show your work.
- Be careful not to get carried away and run over the time limit by spending too much time on one question. Plan ahead, and don't devote more time to a question than it is worth.

Please write your answers in the space provided.

Score Summary (for use by grader)

Question	Possible points	Actual points
1	20	
2	15	
3	10	
4	10	
5	20	
6	10	
TOTAL	85	

1. Short answers (no more than a couple of sentences).

I just downloaded a document from

<http://www.umiacs.umd.edu/~jimmylin/LBSC690-2005-Fall/>

- a. [5 points] How did my computer know what IP address should be used for that URL?
- b. [5 points] About how long would you expect it to take the Web server to simply read the file from the hard drive? (Only the disk speed is being asked about here. Disk speeds vary, but your answer to this question should be within a factor of two of the actual number.)
- c. [5 points] How did the router that the Web server is connected to know where to send the packets?
- d. [5 points] What is the role of HTTP in the process of delivering this content?

2. Short answers (please show your work so that we can give partial credit for wrong answers).

OIT at Maryland is planning a pilot project to digitize 1,000 hours of lectures next semester (roughly 20 courses). Each lecture will be recorded using RealVideo encoded at a rate of 30MB per hour.

- a. [5 points] How much hard drive space (in GB) is needed store all the digitized video?
- b. [5 points] OIT is planning to use DVD-R optical disks as a backup medium in case of hard drive failure. How many 4.7 GB DVDs will be required to back up all the video?
- c. [5 points] How long will it take to download one hour of lecture over a 56 kilobits per second modem? (For this questions, assume the modem really runs continuously at 56 kilobits per second even though a real modem may not)

3. Short answers (no more than a couple of sentences).

The following is a very simple XML file that encodes a business card:

```
<card type="simple">
  <name>John Doe</name>
  <title>CEO, Widget Inc.</title>
  <email>john.doe@widget.com</email>
  <phone>(202) 456-1414</phone>
</card>
```

a. [5 points] When I open the file up in Internet Explorer or FireFox, I just see the XML in a collapsible tree. Why isn't the browser able to display the information in a prettier format, e.g., put the name in bold and create a link for the email?

Dr. Oard also uses XML, but he stores the same information in a different format:

```
<contact>
  <name>John Doe</name>
  <info>
    <title>CEO, Widget Inc.</title>
    <email>john.doe@widget.com</email>
    <tel>(202) 456-1414</tel>
  </info>
</contact>
```

b. [5 points] Name one technology that can convert information stored in my format into the format that Dr. Oard uses. Briefly, how does it work?

4. I have the following files and folders on my computer.

- A folder called "690stuff"
- A folder called "2005" inside "690stuff"
- A folder called "2004" inside "690stuff"
- The HTML file "index.html" is inside the folder "690stuff"
- The HTML file "2005.html" is inside the folder "2005"
- The HTML file "2004.html" is inside the folder "2004"

a. [5 points] I want to create links in "index.html" that points to "2004.html" and "2005.html". What relative path expression should I use? Write two path expressions below:

b. [5 points] I want to create a link in "2005.html" that points to "2004.html". What relative path expression should I use? Write one path expression below:

5. [20 points] Longer answer (no longer than a few paragraphs). I own a winery in Northern Virginia. Name two ways that XML could benefit me (assuming I am able to convince others to adopt XML as well).

6. [10 points] Longer answer (no longer than a paragraph). Identify one well-established usability principle that the CLIS Web site violates to a substantial degree, and suggest how that aspect of the site could be improved.