LBSC 690 Midterm Exam   **Spring 2007**

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 reasonable 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	10	
2	20	
3	25	
4	15	
5	15	
6	15	
TOTAL	100	

1. [10 points total] Paths. If I use an absolute path in a hyperlink, the link will work on my personal computer (using Internet Explorer), but the same link will not work once I've uploaded the HTML file onto my homepage. Why?

For clarification, I am referring to HTML fragments such as the following:

homework 1

2. [20 points total] Moving data around. This question concerns the concepts of bandwidth and latency.

A. [4 points] First, briefly define the two concepts. (at most two sentences)

B. [4 points] Ideally in a network, you want…

High / Low   bandwidth   (choose one)
High / Low   latency   (choose one)

C. [12 points] Consider the following four applications:

- Streaming video (e.g., CNN broadcast over the Web)
- Streaming audio (e.g., NPR broadcast over the Web)
- Video conferencing
- Audio chat

What are the network requirements of each application?
Fill in the following table with best descriptor: "important" or "not as important"

	Bandwidth	**Latency**
Streaming video		
Streaming audio		
Video conferencing		
Audio chat		

3. [25 points total] Networks.

Consider the following (simplified) routing table:

Destination	Next Hop
18.213.2.3	18.154.2.1
125.53.*.*	123.12.87.2
165.*.*.*	16.3.0.1

A. [2 points] When a packet arrives at this router with a destination of 18.213.2.3, where is the packet sent to next?

B. [2 points] When a packet arrives at this router with a destination of 125.53.5.102, where is the packet sent to next?

C. [7 points] Why are there wildcards (*) in the routing table?

D. [7 points] Do packets going to the same destination always take the same route through the network? What are some considerations that a router might take into account when deciding where to send a packet next?

E. [7 points] Why do packets sometime arrive out of order at a destination?

4. [15 points total] HCI. In the class session about HCI, we discussed the importance of evaluation.

A. [5 points] What is the difference between formative and summative evaluations? (two sentences at the most)

B. [10 points] What is the danger in conducting formative evaluations without proper summative evaluations? What is the danger in conducting summative evaluations without proper formative evaluations? Illustrate with concrete example(s). (a short paragraph at the most)

5. [15 points total] Accessing the Web. What happens when you type a URL into a browser window and hit "enter"? What is the sequence of actions the yields a displayed Web page?

Choose among the following options, placing them in the correct sequence (i.e., in the order in which they occur):

- Browser connects to the Web client
- Browser issues an HTTP request to the DNS server
- Browser contacts the Web server and issues an HTTP request
- Browser contacts the Web server to find the IP address
- Browser contacts the DNS server to find the IP address
- Browser contacts the file server via FTP and downloads the file
- Browser renders the HTML in the display window
- Browser uploads the URL to the Web server

Note, not all of the above items are valid, and not all of the above items should appear in your final answer.

6. [15 points] XSLT can be used to transform RSS into XHTML for display in a Web browser. What about the reverse? Can XSLT be used to transform XHTML into RSS? Why or why not?