Good Questions for the Final Exam  
CIS 443/543 - User Interfaces  
A.Hornof - 10/28/14

The Final Exam will cover: Rosson and Carroll Chapters 1-8 and all lectures.  
You should be able to define all boldfaced terms in chapters 1-8.  

General advice for answering exam questions:  
• Define all acronyms at their first occurrence in your answer or in the exam.  
  Given the question: “What is HCI?”  
  Wrong: “HCI is how humans interact...”  
  Right: “Human-computer interaction (HCI) is a field of study that examines how  
  people...”  

• Do not use a term in its definition.  
  Wrong: “Human factors is how humans interact...”  
  Right: “Human factors is a field of study that examines how people ...” (assuming HCI is  
  defined)  

• When defining terms, answer the question fully.  Be sure to say what something is  
  before providing additional details.  
  Wrong: “HCI is how humans interact...”  
  This answer does not say what it is, such as, is it  
  a person, place, or thing?  
  Right: “HCI is a field of research and practice that examines how people ...”

Lectures, Class Discussions, Assignments  
Introductory Topics  
What is the user interface?  
What is participatory design?  
What are the three major components to capture when studying a work situation?  

SBD  
What is a scenario? Why is it useful in a design context?  
How do you “capture” a scenario?  
What are some of the problems with using scenarios in a design project?  
What is the root concept in a system design? Why is it important?  
How can you figure out current work practices?  
In the context of SBD, what are artifacts?  
What are stakeholders? Why is it important to identify them when designing a system?  
Identify the activities from the following problem scenario:... [A problem scenario is  
provided.]  
What is the point of enumerating real-world metaphors for activities?  
What are problem scenarios? What are activity scenarios? How are they different?  
What is Claims Analysis? What does it accomplish?  
What is an activity design? How is an activity design different from a scenario? Would  
an activity design be an adequate specification to give to a programmer? Why or why  
not? What more would be needed?
Evaluation
What is the best way to test the usability of a user interface?
What is the difference between formative and summative evaluation?
What is the difference between empirical and analytical evaluation?
Give an example of an analytical formative evaluation method. Briefly explain how it works.
Which makes more sense, a summative empirical evaluation or a summative analytical evaluation?
What are the two classic objective measures in human performance studies?
What is the “think aloud” protocol? When would you use it? When would you specifically not use it?
What are the ten steps for conducting a usability evaluation? What computer manufacturer posts these online?

Human Information Processing
What is the gulf of evaluation and the gulf of execution? Give an example of each.
A “consistent” interface is typically easier to use than an “inconsistent” interface.
Explain this phenomena in terms of procedural or declarative knowledge.

Working Memory
What is working memory?
What is its capacity?
What is a chunk?
Provide a user interface design guideline that relates to working memory.
Is it a good idea to limit the size of computer menus so that they do not exceed the capacity of human working memory? Why or why not?
What are the primary differences between working memory and long term memory?
How can you counteract the decay of human working memory?

Visual Layout and Graphic Design
What is the grid in graphic design? How can it be used to help organize visual information?

User Documentation
What is the “production paradox”? How does this paradox relate to documentation?
How can a software developer improve user documentation based on an understanding of this paradox?
In the context of user interface design, what is “accessibility”?
What is the difference between universal access and accessibility? Which is generally agreed to be better? Give an example in which a universal access solution would be possible, one in which an accessibility solution would be possible, and one in which each would not be possible.

General Questions
What is the danger in claiming that an interface is “intuitive” or “not intuitive”, or “natural” or “not natural”? What are better, stronger, and more useful claims?
What is the best way to figure out if an interface is easy to learn and easy to use?
Figure 1 shows a user interface. Is this a good interface? Explain?
Questions Based on the Book Chapters

Chapter One - Scenario-Based Usability Engineering
What is Scenario-Based Usability Engineering? How can it improve user interfaces?
What is a scenario? Provide a very brief example.
What is iterative development? How can it improve user interfaces?
What is prototyping? How can it improve user interfaces?
How can functionality undermine usability?
What is participatory design? How can it improve user interfaces?
What are the top-level activities involved in a SBD process, and the outputs of each activity? These are the activities and outputs of Project 3.

Chapter Two - Analyzing Requirements
How can you figure out the activities, artifacts, and social context of a workplace?
What is a useful approach for analyzing activities, and for breaking them down into their component parts?
What is the downside of HTA?
How can you figure out the relevance of an artifact?
To figure out the work practices in the EMU ticket booth, a designer might get trained and actually work in the booth for a month, taking notes all the while. What analytical technique is being used?
What is ethnography? How might it be applied to the design of a piece of software?
What are stakeholders?
What is “tacit knowledge”? How can it be elicited?
What is the difference between tacit and explicit knowledge? Use the situation of cashiers at a grocery store to give an example of each type of knowledge.

Chapter Three - Activity Design
It is ridiculous to think that a software designer can “design” activities? After all, users are just going to do whatever they do. You can’t dictate a user’s activity. Do you agree or disagree?
What is a mental model?
What is the role of metaphors in SBD?
What is the relationship between metaphors and mental models?
Write a claim that analyzes the impacts of some feature of this printed exam on your experience of taking the exam. Analyze a feature of the exam format, not content; be sure to include at least one positive and one negative impact.
A common pitfall in designing new activities is placing too much emphasis on innovation, at the expense of designing services that users will really use. Give an
example of how this could be a problem for an online shopping system, and explain how scenario-based design helps to avoid this potential problem.

**Chapter Four - Information Design**

What is an affordance? What is the best way to figure out if something that you think is an affordance is really an affordance?

What is “internal consistency” and what is “external consistency”? Give an example of each in a piece of commercial software.

How can HTA be used to improve information design?

**Chapter Five - Interaction Design**

What is interaction design? Why is it difficult to capture and represent? What are three different ways to represent an interaction design while still in the design stage?

What are two advantages of direct manipulation over command-based interaction? Of command-based interaction over direct manipulation? Give an example of when you would design a direct manipulation interface and when you would choose command based interaction instead.

Name and briefly describe the two basic types of user errors? Which are more common for novices? Which are more common for experts? Give a specific example of each, and provide a general design guideline for minimizing each type of error.

User interaction “modes” are generally considered to be a bad idea in user interface design. Why? Give two examples of when an interaction mode would be a good design decision and explain why.

Exercise 1 on p.193 is a good question.

**Chapter Six - Prototyping**

What is a prototype? What is a user interface prototype?

Name and describe three different types of user interface prototypes.

What are high-fidelity prototypes and what are low-fidelity prototypes? Give an example of each? What are the advantages (+) and disadvantages (−) of each?

Explain the value in generating lots and lots of designs that do not get implemented. What is the value in exploring ideas for systems that might be impossible to build?

**Chapter Seven - Usability Evaluation**

Write three objectively verifiable usability specifications for using DuckWeb to register for classes.

What are the two of the five validity concerns that arise in usability testing done in a laboratory?

What is informed consent in the context of an experimental design? Why is it important? How did you give your users improved consent in your class project?

**Chapter Eight - User Documentation**

What is wrong with the following error message? Write an improved version.... What is socially-mediated documentation? Give an example. What are the advantages and disadvantages of socially-mediated documentation?