Name: _____ **Student ID Number:** _____

Signature: _____

CPSC 344 2008W1 Midterm Exam
90 minutes

Department of Computer Science
University of British Columbia
K. MacLean

Exam Instructions (read carefully):

1. **Sign this page** in the space provided to indicate your agreement with these instructions. (You ***must*** sign to write the exam.)
2. Continue reading these instructions, but **do not open the exam booklet** until you are told to do so by a proctor.
3. Print your **Name** and **Student ID** at the top of each page of the exam **before you start working.**
4. **Cheating is an academic offense.** Your signature on the exam indicates that you **understand** and **agree to** the University's policies regarding cheating on exams.
5. The exam is **closed book**. There are **no aids permitted** (this includes calculators).
6. **Interpret the exam questions as written**. When in doubt, take a strict, literal interpretation of the question.
7. You have **90 minutes** in which to work (~1 min/mark). **Budget your time wisely**.
8. No one will be permitted to leave the exam room during the **last ten minutes** of the exam.

Question	Points	Received
1	12	
2	12	
3	10	
4	16	
5	8	
6	22	
Total	80	

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Question #1 [12 points total]: True/False

For each of the **6 statements** below, indicate whether the statement is true or false by **circling** either **True** or **False**. Briefly **explain** your T/F response in one or two sentences, and illustrate with an example where appropriate. **[2 pts each;** 1 pt for T/F + 1 pt for explanation]

(a) **Statement:** In HCI, we refer to "human error" as a "myth" because in fact, people never make mistakes.

True **False**

Explain:

(b) **Statement:** Contrary to how it may seem, the mental visual image we hold of a scene is constructed gradually, with attention determining what goes into the image.

True **False**

Explain:

(c) **Statement:** The secretary who processes all the expense reports filed by faculty and students in a department is an *object* of the task of expense report processing in that department.

True **False**

Explain:

(d) **Statement:** Statement: The *gulfs of execution and evaluation* (Norman) are part of a model that is useful for understanding (in particular) expert, rather than novice, interface use.

True **False**

Explain:

(e) **Statement:** As designers, we use evaluation tools aimed at understanding a user's *mental model* of an interaction, so we can then modify the user's mental model when we see it is incorrect.

True **False**

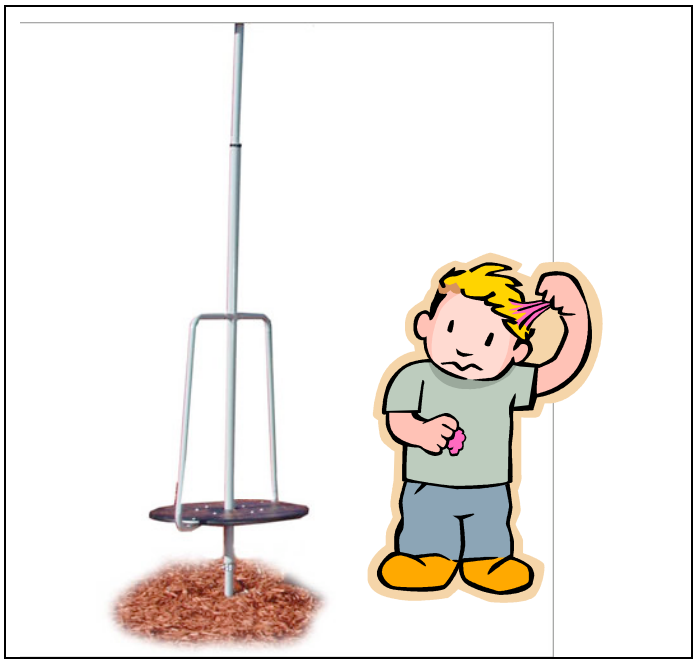
Explain:

(f) **Statement:** One way a designer can build the *affordances* of an interaction is by using constraints.

True **False**

Explain:

Question #2 [12 points total]: Design Concepts



A 5-year-old child (indicated by the cartoon figure in the figure) encounters the structure shown in the photograph on left side of figure, in the middle of a park. He has not seen anything like it before.

(You can ignore the bubble gum in the child's hair, and just focus on the confused expression on his face ☺).

The structure's height relative to the child's size is as indicated in the figure. No other children are around.

Four design concepts are listed below. For each, describe how one aspect of the structure or situation **which is referenced by this concept** could *influence*, or conversely *fail to influence* this child as he decides whether, why and how to interact with the structure. **[up to 3 pts per concept]**

(a) Affordance:

(b) Feedback:

(c) Transfer:

(d) Individual differences:

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Question #3 [10 points total]: Mental Models

Contrast *structural* versus *functional* mental models **[12 pts total]**

(a) Explain the difference between *structural* and *functional* mental models *[2 pts]:*

(b) State one good and one bad aspect of EACH *[1 pt / aspect (4 total)]:*

Structural good / bad:

Functional good / bad:

(c) Give one example of EACH. Minimal points for repeating examples given in class *[3 pts / example]:*

Structural:

Functional:

Question #4 [16 points total]: Discussion Questions

(a) Subjective evaluation **[5 pts total]:**

*Give one example of a **subjective evaluation metric** [1 pt]:*

Explain what makes it subjective [2 pts]:

Describe a situation in which this type of data would be particularly valuable [2 pts]:

(b) Quantitative evaluation **[5 pts total]:**

*Give one example of a **quantitative evaluation technique** [1 pt]:*

Explain what makes it quantitative [2 pts]:

Describe a situation in which this type of technique would be particularly valuable [2 pts]:

(c) Describe ***cognitive walkthrough*** by describing its following aspects: **[6 pts total]**

Consists of [2 pts]:

Goals [2 pts]:

When in the design process it is most useful [2 pts]:

Questions 5-6 are based on the following design brief.

Your design team has been retained by a university researcher (for a fee) to design the interface for a new web-based recruitment and reservation system for psychology experiments (known by the internal name "**SubjectSignupNow**"). This system will be used by university graduate students and staff running user experiments, the staff managing the experiment rooms and equipment, and the subjects (mainly students) who participate in these experiments.

In the past, experimenters have used email and posters to recruit and sign up subjects, who are compensated with a monetary payment, course credit, or the satisfaction of a job well done. However, these methods are not good for developing and accessing a subject pool. Furthermore, subjects and experimenters alike find it cumbersome to use. For whatever reason, not very many subjects have been signing up lately.

Your client (the researcher), having noticed how much students these days use cell phones, has told you it's very important that students be able to view available experiment opportunities and sign up for them using a mobile networked device (i.e. mobile phone with internet access).

Your team is right at the start of the design process for **SubjectSignupNow**. And while you are excited about the project, you are also concerned that your client might not completely understand either the source of the problems observed with current method, or the implications of the suggested new approach.

[Leave the rest of this page empty]

Question #5 [8 points total]: Stakeholders

(a) **List** 4 important stakeholders, given the information provided in the design brief. Be specific in your answer: e.g. clearly identify demographic characteristics when relevant.

Then, **justify them:** for each stakeholder you list, state in 1 sentence **what makes this role important**. You do not need to identify their potential needs and concerns beyond this justification. **[1.5 pts each;** up to **2 additional pts total** for exceptional insight]

Example (probably not the most important one!)**:** ***"Significant others" of potential subjects****: may want to know if an experiment is* really *the reason for a cancelled date.*

1.

2.

3.

4.

Question #6 [22 points total]: Pre-Design Activities

(a) In 1-2 sentences, explain why it is wise to use more than one such activity to understand what is involved in the process that this new interface will support **[3 pts]:**

(b) What are the most immediately appropriate activities that you, as a trained HCI designer, could do in this stage to learn how this interface should work (or even if it's a good idea)? You will want to address the concerns noted in the design brief, both those of the client and those of the design team.

In each case, state (1) the **specific goal** of the activity (including how it addresses a noted concern), (2) the **type of activity**, (3) the **makeup of the group** you'd access, (4) how you'd **contact** them, (5) **most important things you'd ask/show** them; and (6) **potential problems** with this approach that you must be aware of and try to address.

Ensure that the various parts of your answer are clear (**name/ number them as in example below**).

[8 pts per activity and description; up to 3 pts more, total, for highly insightful responses]

Write your responses on the following two pages.

Example response (if you use this activity or goal, other parts of your answer should be quite different):

Activity X:

1. Goal: To understand what is keeping students from signing up with the present system.

2. Type: Anonymous web survey.

3. Makeup: Members of a psychology course which gives extra credit for experiment participation.

4. Contact: by email (list shared by the course instructor, on condition of appropriate use).

5. Questions: history of performing evaluations; awareness of posted experiments; reasons for not signing up; difficulty of learning of experiments/signing up; would proposed web-based system, cell phone access help; any other suggestions?

6. Potential problems: Addressees need incentive to respond to survey; potential inaccuracy or bias in self-reporting; if students have not yet tried to sign up, might not learn much from them; accessing only one type of potential subjects (those who would be compensated with course credit.)

Question #6, cont.

Remember: for each activity, list (1) specific goal, (2) type, (3) group makeup, (4) contact method, (5) questions, and (6) potential problems.

Activity I:

Question #6, cont.

Remember: for each activity, list (1) specific goal, (2) type, (3) group makeup, (4) contact method, (5) questions, and (6) potential problems.

Activity II:

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This is the final page of the exam. Don't forget to review your answers before handing in your exam, and to enjoy the rest of your day.

Extra page to continue work: