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

Signature: _____ **Fire Alarm Code:** _____

CPSC 448B 1999-2000 (T2) 2nd Midterm Exam

Department of Computer Science
University of British Columbia
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Exam Instructions (Read Carefully)

1. Sign the first page of the exam with your **Signature** in the space provided on the upper left **immediately**.
2. Continue reading the instructions, but **do not open the exam booklet** until you are told to do so by a proctor.
3. Print your **Name** and **Student Identification Number** on **every** page in the space provided at the top of each page **before** you start the exam.
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. Please read the **entire** exam before answering any of the questions.
6. There are **five** questions on this exam, each worth the indicated number of marks. **Answer as many questions as you can.**
7. Write **all** of your answers on these pages. If you need more space, there is blank space at the end of the exam. Be sure to indicate when a question is continued, **both** on the page for that question and on the continuation page.
8. Interpret the exam questions as written. **No questions** will be answered by the proctor(s) during the exam period.
9. The exam is **closed book**. There are **no aids permitted**, except for a calculator.
10. You have **70 minutes** in which to work. **Budget your time wisely.**
11. In the event of a **fire alarm** during the exam, enter the four-character code provided by the proctor(s) in the space on the upper right, then gather your belongings and exit the room, handing your exam to a proctor as you exit.
12. No one will be permitted to leave the exam room during the **last ten minutes** of the exam.

Question	Mark	Maximum
1(a)		8
1(b)		12
2(a)		10
2(b)		6
2(c)		6
3(a)		12
3(b)		5
4(a)		8
4(b)		6
4(c)		9
5(a) 6		
5(b)		12
Total		**100**

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

Question #1 [20 marks total]

This question tests your knowledge of how **evaluation** plays a role in the design process, especially when prototypes are employed.

(a) **[8 marks]** Distinguish between **formative** and **summative** evaluations as discussed in Chapter 9 by giving definitions for each.

(b) **[12 marks]** List the four methods that are employed during formative evaluation.

Question #2 [22 marks total]

This questions tests your knowledge of **experimental design**.

(a) **[10 marks]** In the on-line notes for Chapter 5, which were referenced in the on-line notes for Chapter 10, there are listed five (5) **threats to validity** (these were referred to simply as **types of validity** in lecture) that should be considered when planning experiments or other empirical research designs. Name each of the five types of validity and give a brief explanation or example of each.

(b) **[6 marks]** Two of the standard statistical tests used to analyze the data collected in an experiment or empirical study are the *t* **test** and the **chi square** test. Give **two** uses for the *t* test and **one** use for the chi square test when evaluating a user interface design.

(c) **[6 marks]** Suppose that we are trying to determine if using on-line evaluation forms is faster for students than using paper and pencil forms, and we plan to conduct an experiment in which students are recruited as subjects to fill out two identical course evaluation forms, one on-line and one paper-based, where we will measure the time required to complete each type of form. State a **null hypothesis** and an **experimental hypothesis** for this experiment, and indicate the appropriate statistical test to determine whether we can reject the null hypothesis. Write an appropriate **pro forma** for this proposed experiment.

Question #3 [17 marks total]

This questions tests your knowledge of **analysis** techniques as discussed in Chapter 8.

(a) **[12 marks]** List the four components of the **GOMS model** and give a brief definition for each component.

(b) **[5 marks]** What is the principle difference between the general **GOMS model** and the special case of **Keystroke-Level Analysis**?

Question #4 [23 marks total]

This question tests your knowledge of **requirements** as discussed in Chapter 7.

(a) **[8 marks]** Discuss the differences between **validation** and **verification** by giving definitions for each and relating them to the **problem definition**, the **requirements**, and the **prototypes** that are built as part of the design process.

(b) **[6 marks]** Identify the two main groups of stakeholders who **read** requirements and briefly describe the reasons that each group has for reading the requirements.

(c) **[9 marks]** List the three different **contexts** in which the development process can take place and identify the relative degree of formality and detail required in each context.

Question #5 [18 marks total]

This question tests your knowledge of **video techniques** as they are used in interactive system design

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(a) **[6 marks]** List the three ways that video is useful in human-computer interaction and interactive system design.

(b) **[12 marks]** For each of the following terms provide a brief definition or explanation.

key light

fill light

rule of thirds

mise-en-scene

180-degree rule

truck (or dolly) shot

(extra space to continue work)

(extra space to continue work)