THE HONG KONG POLYTECHNIC UNIVERSITY

DEPARTMENT OF COMPUTING

EXAMINATION

Course : MSc Scheme - 61030

Subject : COMP5517 Human Computer Interaction

Group : 101, 102, 103, 104

Session : 2009 / 2010 Semester I

Date : 23 December 2009 Time : 18:30-20:30

Time Allowed: 2 Hours Subject Lecturer: Vincent Ng

This question paper has 8 pages (cover included).
(Pages 2-5 not to be provided)

Instructions to Candidates:

1. This is an open book examination which consists of two sections.
2. Students should attempt ALL questions in the two sections.
3. Marks for each question are shown next to the question. Total marks = 100.

Do not turn this page until you are told to do so!

Section B

Question 1 [20 marks]

a. **What is the recency effect of short term memory? (2 marks)**

b. **Provide an example of how this affects user interface design. (4 marks)**

c. **Describe an experiment that can verify this effect. The description should include the followings: (10 marks)**

   (i) The participants
   (ii) Statistical analysis to be adopted
   (iii) Representative tasks to be examined
   (iv) Measurements that would be appropriate
   (v) An outline plan for carrying out the evaluation

d. **Pointing devices offer either direct control on the screen surface, or indirect control away from the screen surface. Describe a task where it would be more appropriate to use direct-control pointing (4 marks)**

Question 2 [20 marks]

A taxi company wants to enhance current services by installing new touch-screen LCD display taxi meters. The meter should have the following functions:

- Start and stop trip functions
- Display of travelling time and distance
- Add surcharges to the final bill (e.g. tunnel fees, luggage fees, etc.)
- Receive up to 5 dispatching assignments through radio systems
- Respond to dispatching assignments
- Report current location
- Print receipt
- Display status information of seat sensors that detect the presence of a passenger (to prevent a cab from carrying fares without activating the taximeter)
- Octopus card payment support

a. **Design the touch screen panel by considering the grouping, ordering, sharpening, alignment and white spacing techniques to satisfy the above requirements. Provide a sketch of your design and discuss how the techniques have applied in your design. (10 marks)**

b. **Suppose there is a task for a taxi driver to work out the final bill and handle the payment. He needs to stop the meter, add the surcharge of 2 tunnel fees and 2 extra luggage pieces, accept the payment with an octopus card, and print the receipt. Use the GOMS/KLM technique to predict the time required for this task. Show your work. (5 marks)**

Some time estimates for GOMS operators are given below.

K	**Keying**	**0.2s**
P	**Pointing**	**0.5s**
M	**Mentally prepared**	**1.0s**
R	**System responds**	**1.1s**

c. **In the design completed in (a), provide a state transition diagram to show the interactions of responding to dispatching assignments. (5 marks)**

Question 3 [20 marks]

a. **What are the four golden rules of designing web pages? Provide a design example for how each of the rules applies. (8 marks)**

b. **How should text be organized in a web page by adopting the inverted pyramid approach? (2 marks)**

c. **Discuss how any 2 of the following principles for successful web page navigation can be applied. (4 marks)**

- **Be easily learned**
- **Remain consistent**
- **Provide feedback**
- **Appear in context**
- **Offer alternatives**

d. **What is the time/space matrix of groupware? Suggest a new handheld device which is a product not existing now to fit into at least two cells of the time-space matrix, giving a motivation for your answer (6 marks)**

- END OF EXAMINATION PAPER -