THE HONG KONG POLYTECHNIC UNIVERSITY

DEPARTMENT OF COMPUTING

EXAMINATION

Course   : MSc Scheme - 61030

Subject : COMP5517 Human Computer Interaction

Group   : 101, 102, 103, 104, 105, 1888

Session : 2010 / 2011 Semester I

Date   : 15 December 2010   Time : 18:30-20:30

Time Allowed: 2 Hours   Subject Lecturer: Vincent Ng

This question paper has _____5_____ pages (cover included).

Instructions to Candidates:

1. This is an open book examination.
2. Students should attempt ALL questions.
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!

Question 1 [29 marks]

a. Describe a major difference between the definitions of HCI proposed by Baecker and Buxton in 1987, and by ACM SIGCHI in 1992. How important is the definition in recent HCI development? (4 marks)

b. In our vision system, context can help to resolve ambiguity. Illustrate the idea with a sketch or a description. (3 marks)

c. For the game of Wason's card, how should interface designers learn from this game? Describe an interface design scenario that designers should be aware of behavior of people similar to what can happen in the game. (6 marks)

d. Describe 2 major characteristics of short term memory and provide examples of how these characteristics would affect user interface design. (6 marks)

e. There is a hypothesis that people can read material with a strong coherence. Describe an experiment that can verify this effect. The description should include the followings: (10 marks)

    (i) The participants
    (ii) Analyzing method
    (iii)Representative tasks to be examined
    (iv)Measurements that would be appropriate

Question 2 [21 marks]

An electronic store wants to provide an auto-checkout service for their customers. New systems would be installed and each system has a touch screen LCD display together with a barcode reader. A customer can bring a number of items to the auto-counter, check out the items and pay with an octopus card. The system should have the following functions:
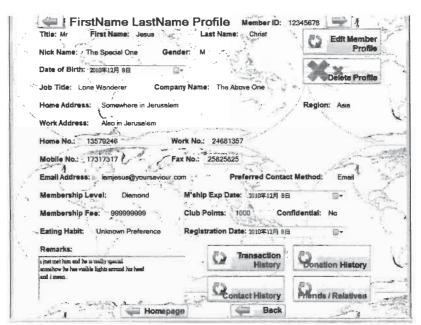
- Start purchasing, cancel or confirm the final purchase
- Display the price of a scanned item and confirm its purchase
- Display the total sum of the scanned items
- Display the names, prices and quantities of the scanned items
- Cancel the purchase of an item
- Print receipt

a. Design the touch screen panel to satisfy the above requirements while considering the 8 golden rules of Shniederman. Provide a sketch of your design and discuss how any 3 of the rules have applied in your design. (10 marks)

b. With the design done in (a), provide a state transition diagram to show the interactions of responding to checkouts. Your design should support the scenario described below. (6 marks)

- A customer brings 5 items to check out. After he has finished with the forth item, he likes to cancel the purchase of the second item. After scanning all items that he wants to buy, he pays with his octopus card.

c. What is a dangerous state in a state transition diagram? Suggest 2 considerations to avoid any dangerous state for answering (b). (5 marks)

Question 3 [25 marks]

a. Describe the four criteria of evaluating a metaphor. (4 marks)

b. Provide 2 examples of how metaphors are used in the design of Window Desktop. (4 marks)

c. The company, Tide, offers a stain detective application to provide household users to learn about stain removal. The detective was developed based on a card sorting activity in which rooms, where the stain would occur, in a house were mapped. It used the metaphor of a typical house to facilitate users' search for a particular stain type as shown in the figure below. Is this metaphor appropriate for Hong Kong? Justify your answer. (5 marks)

d. A donor management application is used to maintain donor and donation information. The screen shown below shows the donor information and other available functions of the system. Suggest 3 problems in the screen design shown below. (6 marks)

e. Provide 2 of the 7 different dimensions of achieving contrast in visual design. Suggest how to improve the screen design in (d) with the 2 dimensions provided. (6 marks)

Question 4 [25 marks]

a. Provide 2 possible issues when including multimedia contents on web pages. Suggest possible solutions to handle the issues. (6 marks)

b. What is global navigation of a webpage design? Provide an example of a webpage which supports vertical global navigation. (6 marks)

c. For the five content types of webpages, which one should adopt the inverted pyramid approach? Justify your answer. (4 marks)

d. Provide 3 characteristics of direct manipulation. Give an example of how direct manipulation is used in webpage design. (5 marks)

e. A kiosk is to be used in an elderly home for old age people. Discuss 2 possible considerations when choosing an appropriate input device for pointing and selecting objects on the display screen of the kiosk. (4 marks)

- END OF EXAMINATION PAPER -