THE OPEN UNIVERSITY OF SRI LANKA
DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

BACHELOR OF SOFTWARE ENGINEERING

ECI5161 - HUMAN COMPUTER INTERACTION

FINAL EXAMINATION - 2016/ 17   CLOSED BOOK

Date: 23rd July 2017   Time: 0930 – 1230 hrs

READ THE FOLLOWING INSTRUCTIONS BEFORE ANSWERING THE PAPER

Instructions:

Answer **question 1** in **Part A** and **any 2 questions** from **Part B**

Part A (Compulsory question) 50 marks

Question 1

You are supposed to develop a web site for DoctOnline, which is a proposed project for appointment booking system that provides patients an easy way of booking a doctor's appointment online. This web based portal overcomes the issue of managing and booking appointments according to user's choice or demands. Upon registering with the system, patients have to use the user id and the password to login to patient panel. By using this panel, patients can view various booking slots available and select the preferred date and time. This system also allows users to cancel their booking anytime. Patients will get all their reports and medicine prescriptions in their inbox by notification indication just after appointment session. A secure payment gateway has been used to pay the required fees using their credit cards.

(a) Draw the Task Hierarchy Diagram based on the user analysis and task analysis. Discuss the benefits and drawback of using Hierarchical Task Analysis.   (10 marks)

(b)   (i) What are personas?   (3 marks)

         (ii) Discuss three benefits of creating personas.   (3 marks)

         (iii) Create a persona for a common user.   (4 marks)

(c) What issues shall you take into consideration when designing the interface?   (4 marks)

(d) Draw five prototype screen designs for this system. Those interfaces should satisfy the requirements of the DoctOnline system.   (10 marks)

(e) Describe the colors, font details and other controls used in the prototype and justify your choice.   (6 marks)

(f) How do you use two different evaluation techniques to evaluate these prototypes?

(10 marks)

Part B (Answer only 2 questions, each question carries '25' marks)

Question 2

(a)   (i) Briefly explain the terms recognition and recall.   (4 marks)

(ii) Elaborate an example of how the difference between recognition and recall can be utilized in a user interface.   (6 marks)

(b)   Human memory exists as long-term memory, short-term memory, and sensory memory. Name two differences between long and short term memory.   (4 marks)

(c)   The 'Model Human Processor' was developed by Card, Moran and Newell in 1983 and it offers an integrated description of psychological knowledge about human performance relevant to HCI.

> I. Describe the user interface design tool known as the Model Human Processor.   (5 marks)

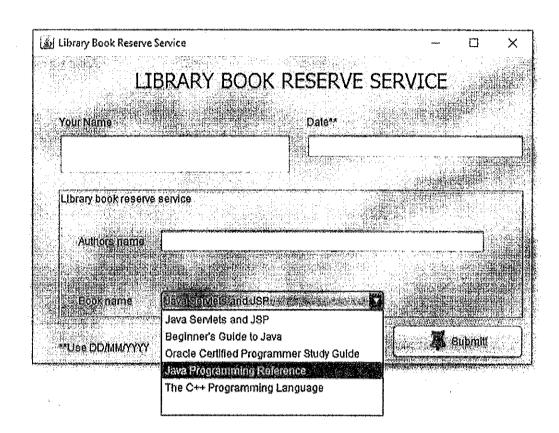> II. Discuss how the model can be applied to the design of the user interface.
>   (6 marks)

Question 3

(a)   (i) Interaction styles are the ways that the user can communicate or otherwise interact with a computer system and some applications have very distinct styles of interaction. Identify and explain four common interaction styles.   (4 marks)

(ii) Discuss the impact of cognition has on human-computer interaction?   (4 marks)

(b)   Various principles need to be followed in order to support usability, making systems easy to learn and easy to use. Discuss the five usability attributes defined by Nielsen, which can be applied to the design of an interactive system in order to promote its usability.   (10 marks)

(c)   (i) A company is going to develop a new e-commerce web site for selling computer items such as laptops, pen drives, keyboards and RAMs to the public. Describe three techniques that you would use to elicit user requirements.   (3 marks)

(ii) The company has decided to go ahead with the development of an extended web site, where customers will be able to access the site using a 3G telephone rather than a conventional PC. Would you recommend this? Justify your answer.   (4 marks)

Question 4

(a)

(a) (i) Describe six things wrong with the above user interface.   (6 marks)

(ii) Name two of the Eight Golden Rules that have been violated by this interface by giving a brief explanation of those rules.   (4 marks)

(iii) Error messages are very important since they are displayed when an unexpected condition occurs, usually on a computer or other device. Identify and explain four features a good error message should include.   (8 marks)

(b) Designers can consider the needs of blind users in the development of a web site. How this will benefit for the sighted users?   (3 marks)

(c) User-Centered Design (UCD) is an approach to interactive system development that focuses to optimize the user interface around how people can, want, or need to work, rather than forcing the users to change how they work to accommodate the system or function. Identify four disadvantages of failing to be user-centered.

(4 marks)

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