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Infrastructure University Kuala Lumpur

FINAL EXAMINATION
MARCH SEMESTER 2016

BACHELOR OF INFORMATION TECHNOLOGY (HONS) IN SOFTWARE ENGINEERING
BACHELOR OF INFORMATION TECHNOLOGY (HONS) IN NETWORK TECHNOLOGY
BACHELOR OF COMPUTER SCIENCE (HONS)
BACHELOR OF MULTIMEDIA (HONS)

HUMAN COMPUTER INTERACTION
(BTT 306)

(TIME : 3 HOURS)

MATRIC NO. : | | | | | | | | | |

IC. / PASSPORT NO. : | | | | | | | | | | | | | | |

LECTURER : SUHAILA MOHD NORDIN

GENERAL INSTRUCTIONS

1. This question booklet consists of 6 printed pages including this page.
2. **SECTION A:** Answer **ALL** Questions in the Answer Booklet
   SECTION B: Answer **TWO (2)** questions in the Answer Booklet.

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INSTRUCTIONS: **TIME: *3 HOURS***

SECTION A **(60 MARKS)**

There are TEN (10) questions in this section. Answer ALL Questions in the Answer Booklet.

1. Answer the following question:
   a) Define HCI

   (1 mark)

   b) Highlight the goal of HCI.

   (1 mark)

2. Describe THREE (3) human factors that affect how people interact with computer system.

   (3 marks)

3. Human perception in interaction is depending on input from THREE (3) different senses perception. List the senses involved.

   (3 marks)

4. Answer the following question
   a) Describe User Interface metaphors.

   (2 marks)

   b) Give an example to support your answer.

   (1 mark)

5. Describe FOUR (4) Categories of stakeholder according to HCI theories.

   (4 marks)

6. Assuming the interface developer is required to develop an android application for online banking system , Give TWO (2) examples for each category/classification of stakeholder as per describe in Q5.

   (4 marks)

7. Draw Abowd and Beale's Interaction Diagrams.

   (5 marks)

8. Give an example of ergonomic features for the following design perspective:
"Ergonomics good at defining standards and guidelines for constraining the way we design certain aspects of systems – to suit the environments/users"

(4 marks)

9. Explain the "process of establishing knowledge about the users" or user profiling.
(6 marks)

10. Describe the following data gathering techniques.

a) Workshops or focus groups
(3 marks)

b) Naturalistic observation
(3 marks)

11. Define Hierarchical Task Analysis.
(3 marks)

12. Show step by step the procedure for carrying out Hierarchical Task Analysis.
(6 marks)

13. Refer to the following scenario:
"It is Saturday morning and Marwan plan to clean his three stories house"

a) Prepare a Hierarchical task analysis in textual representation for the following scenario
(9 marks)

b) Describe your plan.

(2 marks)

SECTION B **(40 MARKS)**

There are THREE (3) questions in this section. Answer ANY TWO (2) questions in the Answer Booklet.

1. *Universal design in computers strives to overcome many kind of restrictions, with the aim to provide means that the computer can be used by all under all circumstances. A system builder's perspective tries to cover the requirements of the heterogeneous user group and the huge diversity of environments and situations of use. However, a complete coverage seems unrealistic and from an individual perspective a user might still identify that s/he is not able to use a computer. On the other hand every identified case of exclusion can be fed back into the development loop for future improvement. In each case the system builder needs to understand diversity rather than stereotype average users and "standard" user environments. However, universal design in computers (and information and communication technologies) does not necessarily suggest producing a one size-fits all product or service (CEUD 2009). Rather it seeks to use the flexibility and inbuilt machine intelligence to provide products and services that are usable and accessible to the widest range of people (related to the term diversity). This can also be achieved by configuration of components or software based on a standard product.*

(International Encyclopedia of Rehabilitation: Dortmund University, Germany)

Based on the article above answer the following question.

a) Elaborate FIVE (5) criteria for benchmarking a universal design in Human Computer Interaction.

(10 marks)

b) Describe THREE (3) populations of users with special needs.

(3 marks)

c) For each of these populations, suggest THREE (3) ways current interfaces could be improved to serve them better.

(7 marks)

2. Refer to figure 1.0 to answer:

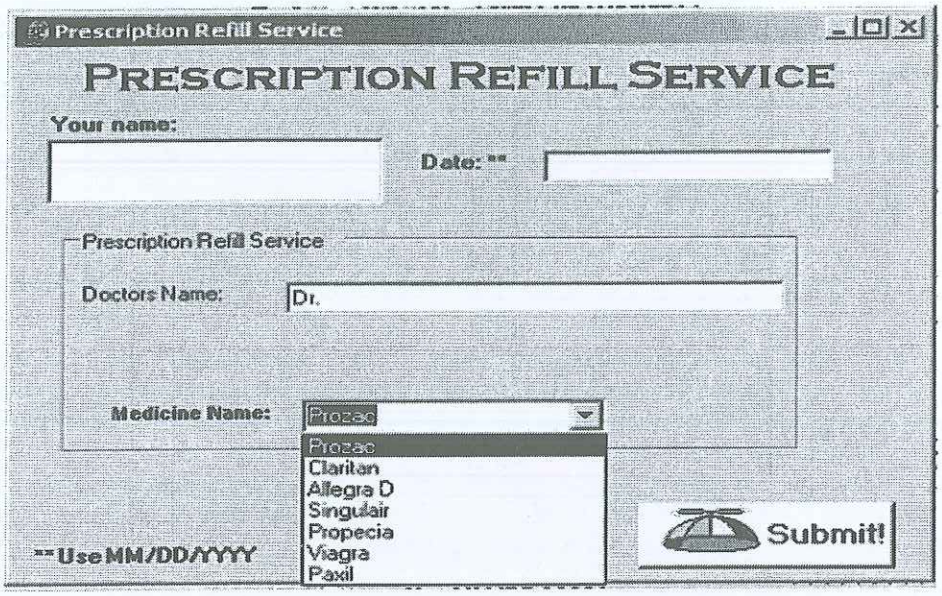

Figure 1.0

a) Describe FIVE (5) mistakes that can be identified from the interface above, based on Human Computer Interaction design perspective.

(10 marks)

b) Briefly explain the FIVE (5) of "The Eight Golden Rule" of design that have been violated by this interface.

(10 marks)

3. Refer to Figure 1.0 to answer Question 3.

a) Describe the FOUR (4) principles of direct manipulation that should have been implemented by the interface design.

(8 marks)

b) Choose TWO (2) of the principles from your answer in question 3(a) that can be applied in order to update the interface above. Use TWO (2) example to support your answer.

(4 marks)

c) Draw a sketch of improved the design and justify your design.

(8 marks)

***** END OF QUESTIONS *****