



**MAKERERE UNIVERSITY**

**SCHOOL OF COMPUTING & INFORMATICS TECHNOLOGY**

**END OF SEMESTER I EXAM, 2015/2016**

**PROGRAMME: Bachelor of Science - Computer Science, Bachelor of Information Technology, Bachelor of Science – Software Engineering**

**YEAR OF STUDY: III**

**COURSE NAME: USER INTERFACE DESIGN**

**COURSE CODE: CSC 3119, BIT 3103, CSC 3208**

**DATE: 18<sup>th</sup> December 2015**

**INSTRUCTIONS**

- I. ATTEMPT ALL QUESTIONS IN SECTION A (40 MARKS)**
- II. ATTEMPT ANY THREE QUESTIONS IN SECTION (60 MARKS)**
- III. DO NOT OPEN THIS EXAM UNTIL YOU ARE TOLD TO DO SO**

## **Section A (40 Marks)**

- I.** Write short notes on any two Evaluation Techniques used in Interaction Design **[4 Marks]**
- II.** Differentiate between low fidelity prototyping and high fidelity prototyping **[4 marks]**
- III.** Define the term Conceptual Model **[1 Mark]**
- IV.** Differentiate between Synchronous and Asynchronous communication. **[2 Marks]**
- V.** Participatory design is one of the ways one can gather User interface requirements, state two disadvantages of Participatory Design. **[2 Marks]**
- VI.** As user interfaces have become more prominent, serious legal issues have emerged. State three Legal Issues that may affect the design and implementation of User Interfaces. **[3 Marks]**
- VII.** State any three expert review methods used to evaluate user interface Designs **[3 Marks]**.
- VIII.** Briefly describe any three principles of direct manipulation **[3 Marks]**
- IX.** Give four benefits of direct manipulation over command line interfaces. **[4 Marks]**
- X.** Describe any two advantages of an Asynchronous Distributed Interface over an interface that is Synchronously Distributed **[2 Marks]**
- XI.** In certain interfaces, it is necessary to inform users of an abnormal condition or time-dependent information. It is important that the display of this information catches the user's attention. Suggest any two ways a designer can successfully attract attention **[4 Marks]**
- XII.** Define the following terms as far as user interface design is concerned.
  - a. Usability **[1 Mark]**
  - b. Ethnographic Observation **[1 Mark]**
- XIII.** List any three guidelines for organizing the display of a user-interface **[3 Marks]**
- XIV.** Briefly describe the term Triangulation as used in Interaction Design **[3 Marks]**

## Section B [60 Marks]

- I (i) Define the term Evaluation Paradigm as used in Interaction Design **[2 Marks]**
- (ii) Write short notes on the four core evaluation paradigms as used in Interaction **[8 Marks]**
- (iii) You have been recruited as User Experience consultant for Ramos Inc. and tasked to develop a Web based ticketing system. Discuss how you would use the **DECIDE** framework to plan its evaluation **[10 Marks]**
- 2(a) Differentiate between effectiveness, efficiency, and satisfaction by giving examples of each from your experiences with software interfaces. **[6 Marks]**
- (b) Is each of the following examples from word processing software a test of effectiveness, or of efficiency? Justify each answer.
- i) Number of keystroke and mouse movements needed to copy a section of text. **[2 Marks]**
  - ii) Ability to change page margins **[2 Marks]**
  - iii) Maximum limit on the size of document files **[2 Marks]**
  - iv) The fact that the computer must be rebooted in order for changes in default settings to take effect **[2 Marks]**
  - v) Availability of a feature to sum up the numbers in a table's columns **[2 Marks]**
- (c) There are various good reasons for investing in user testing. Briefly describe any four **[4 Marks]**.

3(a) An airline company is designing a new on-line reservation system. They want to add some direct-manipulation features. For example, they would like customers to click a map to specify the departure cities and the destinations, and to click on the calendar to indicate their schedules.

From your point of view,

- i) Explain three benefits of the new idea compared with their old system, which required the customer to do the job by typing text. **[6 marks]**
  - ii) Explain three problems of the new idea compared with their old system, which required the customer to do the job by typing text. **[6 marks]**
- (b) Briefly describe any four of the phases for conducting Usability testing **[8 Marks]**

4 (a) What is a prototype?

**[2 Marks]**

b) Explain two instances where you as a designer would use Low-fidelity prototyping instead of High-fidelity prototyping.

**[4 Marks]**

c) The way we design the physical interface of the interactive product must not conflict with the user's cognitive processes involved in achieving the task. Another well-known set intended for informing design is Shneiderman's eight golden rules of interface design. Explain five of the eight golden rules of interface design that you can use as Guidelines for user-interface physical design.

**[10 Marks]**

d) A User-centered approach to interaction design is emphasized along with iterations. Explain two reasons why it is important to involve users at all?

**[4 Marks]**

5. The four basic activities of interaction design are: 1. Identifying needs and establishing requirements, 2. Developing alternative designs, 3. Building interactive versions of the designs, and lastly 4. Evaluating designs

a) Explain two ways in which a designer can generate alternative designs? **[4 Marks]**

b) Suggest one key functional, data, environmental and usability requirement for each of the following scenarios:

i. A system for use in a university's self-service cafeteria that allows users to pay for their food using a credit system.

**[8 Marks]**

ii. A system to support distributed design teams, e.g., for car design.

**[8 Marks]**