**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**P.O. Box 972-60200 – Meru-Kenya.**

 **Tel: 020-2069349, 061-2309217. 064-30320 Cell phone: +254 712524293, +254 789151411**

**Fax: 064-30321**

**Website:** [**www.mucst.ac.ke**](http://www.mucst.ac.ke) **Email:** **info@mucst.ac.ke**

**University Examinations 2014/2015**

FOURTH YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE

**ICS 2402: USER INTERFACE ARCHITECTURES**

**DATE: DECEMBER 2014 TIME: 2 HOURS**

**INSTRUCTIONS:** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE**

1. List two problems that user interface design has in common with traditional software engineering (2 marks)
2. Describe two techniques for evaluation, highlighting their key points and the differences between them (6 marks)
3. Consider the two design principles “visibility” and “constraints”. For each of the two, explain the principle and describe an example of it being used in a good design.

(6 marks)

1. Using examples outline the difference between qualitative and quantitative evaluation (4 marks)
2. Describe three populations of users with special needs. For each of these populations, suggest three ways current interfaces could be improved to better serve them

(6 marks)

1. Carrie is a novice web designer working with a new web development application for the first time. The application has a design mode and a test mode; users can only upload files to a live server when in test mode. When Carrie is done with her website, she tries to upload the files to the live server while in design mode and receives the following error message:”Error: Cannot update the live server.” What is wrong with this error message and how would you improve it? (6 marks)

**QUESTION TWO (20 MARKS)**

1. The screen-shot above is taken from the Microsoft XP operating system. As can be seen, it helps users to search for files on their computer, in this case the C hard drive. Briefly describe the main features that you feel will support the user of this operating system. (Hint: comment of the interface design, choice of widgets etc). (10 marks)
2. The choice of input device should contribute as positively as possible to the usability of the system. Discuss briefly any three characteristics of a good input device

(6 marks)

1. Discuss the contribution of cognitive psychology in user interface design (4 marks)

**QUESTION THREE**

1. Colour displays are attractive to users and can often improve task performance, but the danger of misuse is high. List four guidelines for using colour and give an example of each (8 marks)
2. Some designers suggest that speech recognition be used in the system, so users can interact with the system by speaking instead of pressing buttons on the dial pad. give two arguments for and three arguments against the proposal (10 marks)
3. The human eyes have a number of limitations. Give examples (2 marks)

**QUESTION FOUR**

1. Examine the user interface below:
2. Point out two design error in the above user interface (2 marks)
3. Which Shneiderman’s Golden Rule has the design violated? Redesign the interface, and draw your design in your answer book (10 marks)
4. Give four benefits (over commands) and four problems of direct manipulation

(8 marks)

**QUESTION FIVE**

1. You have been asked to design a commercial web-site. Users will be able to browse or search for music and then download it to their hard disk and any associated devices, such as MP3 players. Briefly explain how you would identify the potential end-users of such a service and then explain how you would conduct a summative evaluation for these users once the system had been built (10 marks)
2. Name two differences between short term memory (4 marks)
3. Describe three techniques that you would use to elicit user requirements for a new e-commerce site selling electrical appliances, such as fridge and televisions, to the public (6 marks)