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**University Examinations 2016/2017**

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

**CCS 3430: USER INTERFACE ARCHITECTURES**

**DATE: DECEMBER 2016 TIME: 2 HOURS**

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

**QUESTION ONE (30 MARKS)**

1. Explain the following terms as used in user interface architecture (6 marks)
2. User interface architecture
3. Usability
4. Perceived affordance
5. Successful designers must be able to go beyond the intuitive judgments and look for helpful guidance. Such guidance is available in the forms of guidelines, principles and standards. Distinguish between principles, guidelines and standards. Provide one example for each of them (6 marks)
6. Discuss the importance of ecological and constructivist theories in user interface design

(4 marks)

1. Describe task analysis in the design of user interfaces and clearly explain HTA (4 marks)
2. Describe any three interaction styles mentioning the advantages and disadvantages of each. (6 marks)
3. Give two benefits and two challenges of a user interface employing speech recognition as a way of obtaining input from users (4 marks)

**QUESTION TWO (20 MARKS)**

1. Design guidelines are an important part of usability engineering. Discuss five such guidelines and provide examples. (10 marks)
2. What is the difference between recognition and recall in relation to human memory? Discuss the implications of this for interface designers (4 marks)
3. Describer the two main kinds of prototyping. Be careful to include examples of each. (6 marks)

**QUESTION THREE (20 MARKS)**

1. Explain the importance of cognitive psychology in Human Computer Interaction (2 marks)
2. Suggest two ways in which current Meru University website interfaces could be improved to better serve each of the following population of users with special needs: (6 marks)
3. Examine the following interface and answer the questions that follow:
4. Describe four things wrong with the interface on above (4 marks)
5. Name two of the Shneiderman’s eight golden rules of interface design that have been violated by this interface. Give a brief explanation of those rules. (4 marks)
6. Colour displays are attractive to users and can often improve task performance, but the danger of misuse is high. List four guidelines for using color and give an example of each (4 marks)

**QUESTION FOUR (20 MARKS)**

1. Explain the usability engineering process (8 marks)
2. Describe two techniques that you would use to elicit user requirements for a new e-commerce site selling electrical appliances, such as fridges and televisions, to the public.

(4 marks)

1. Distinguish between formative and summative evaluation (2 marks)
2. Explain three user interface evaluation techniques and outline demerits with each technique (6 marks)

**QUESTION FIVE (20 MARKS)**

1. Identify and explain the two types of variable and give example in the context of HCI (4 marks)
2. Identify six factors that can influence the choice of evaluation technique (6 marks)
3. One argument against the current interface design of Microsoft Word is that it has all the functional menu items appearing together which cause the interface to be too complex thus confusing and frustrating to novice users. An alternative design is to provide different levels of functional complexity, so users can choose the level that is suitable for them, then advance to higher level as they get familiar 3with the tool, thus feel more comfortable and learn more efficiently. You are asked to conduct usability testing to compare these tow designs.
4. What are the general principles of subject selection in usability testing (4 marks)
5. List and briefly describe the steps in the usability testing you would conduct (4 marks)
6. What are the two major limitations about usability testing (2 marks)