



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR SCIENCE IN
INFORMATION AND COMMUNICATION TECHNOLOGY**

3RD YEAR 1ST SEMESTER 2016/2017 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: ICT 3315

COURSE TITLE: HUMAN COMPUTER INTERACTION

EXAM VENUE:

STREAM:

DATE: Dec- 2016

EXAM SESSION:

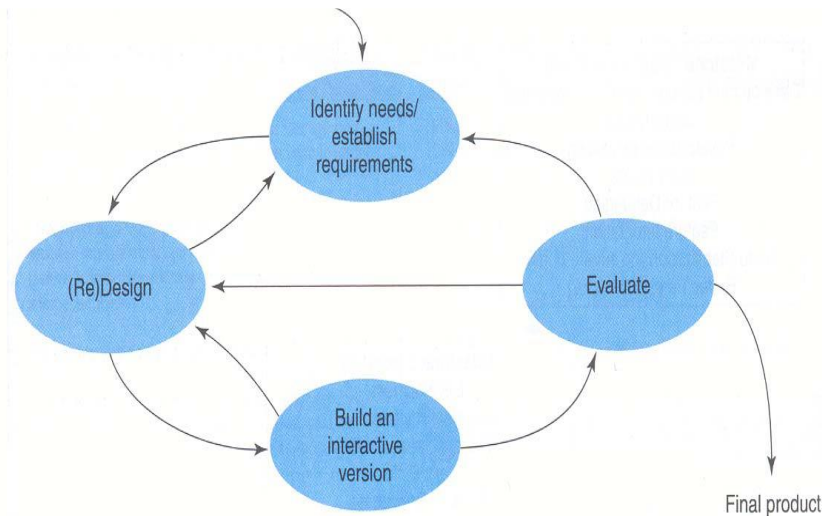
TIME: 2.00 HOURS

INSTRUCTIONS:

1. Answer Question 1 (Compulsory) and ANY other two questions
2. Candidates are advised not to write on the question paper
3. Candidates must hand in their answer booklets to the invigilator while in the examination room

QUESTION ONE [30 MARKS]

- a) Explain the context of user interaction and the factors to consider when designing it (4 marks)
- b) Discuss any SIX general principles of Human Computer Interface / Interface Design (6 marks)
- c) Briefly explain what is meant by the terms perception, physiology and cognition (4 marks)
- d) Explain the purpose evaluation in Human Computer Interaction (2 marks)
- e) The figure below shows the activities in HCI Design, briefly describe each activity and its relevance in the forming the stage of the next phase (4 marks)



- f) Explain any four reasons why there is need to evaluate interfaces and Computer systems before being rolled out to the users (4 marks)
- g) List and explain six components of Norman's models Design Principles (6 marks)

QUESTION TWO [20 MARKS]

- a) Explain the process of designing user interface for an interactive interface (4 marks)
- b) Explain how the following disciplines have contributed the to the study of HCI?
 - i. Social and organization psychology (2 marks)
 - ii. Ergonomic or human factors (2 marks)
 - iii. Computer science (2 marks)
- c) An important part of the interface designer's job is to assist the user in forming a suitable mental model of the system. Outline two mental models used in HCI and give the difficulties encountered when dealing with the mental (6 marks)
- d) Define Conceptual Models and state the steps for developing a conceptual models (4 marks)

QUESTION THREE [20 MARKS]

- a) The following figure is an extract of **WIMP** interaction style identify , discuss its features and how it may be usefully in the usability of the computer systems (8 marks)



- b) The focal point of Gestalt theory is the idea of "grouping," or how we tend to interpret a visual field or problem in a certain way. Explain briefly the **four** main factors that determine grouping. (4 marks)
- c) State and explain any four Metaphor creation principles (4 marks)
- d) Explain the meaning of the following in regard to usability principles (4 marks)
- Affordance
 - Mapping

QUESTION FOUR [20 MARKS]

- a) Shneiderman's Golden Rules of design have contributed immensely to the growth of interface design and implementation Explain atleast FOUR of such rules (4 marks)
- b) List and explain any three types of evaluation techniques that enables designers understand the system usability (6 marks)
- c) One of the principles of user interface design is identification of the primary interaction styles. State and discuss any *four* primary interaction styles on a user interface (8 marks)
- d) Identify two different ways in which 'functional ageing' can affect interface development (2 marks)

QUESTION FIVE 20MARKS

- a) Explain any four Evaluating Designs techniques in Human Computer interaction (8 marks)
- b) Explain any FOUR Reasons Why Products/user interface are Hard to Use (8 marks)
- c) Explain Computer supported collaborative work as used in HCI (4 marks)