



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR SCIENCE IN
INFORMATION SYSTEMS**

3RD YEAR 1ST SEMESTER 2016/2017 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: IIS 3312

COURSE TITLE: HCI AND USABILITY

EXAM VENUE:

STREAM:

DATE: DEC 2016

EXAM SESSION: BIS

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) Define Usability in light of Human Computer Interaction (2 marks)
- b) Bus Car Company dealing with car hire services has approached you to develop online car hire system. The system should, at the very minimum, allow the customer to select dates of travel, pick up and drop off locations, manual or automatic, category of car (e.g. small, medium, large), and type/model of car (within the chosen category).
- i. Choose a suitable interaction style or styles that would be recommended for this function. (4 marks)
 - ii. Justify your choice of interaction style(s) and other usability aspects. (4 marks)
- c) The Goals of Interaction Design on Usability and User Experience Goals are critical on the interaction design, Discuss any four of these goals based on the Usability and User experience (8 marks)
- d) Explain the need of user-centered design in the recent trend designs (4 marks)
- e) List and discuss any three main factors to consider when analyzing human factors in the design of interactive computer systems (6 marks)
- f) ICONS developed in HCI are metaphorical in nature explain any FOUR reasons why such considerations should be used when developing metaphors (8 marks)
- g) Explain, using an examples, the principles of cognitive walk through (2 marks)

QUESTIONS TWO [20 MARKS]

- a) The Interdisciplinary Design of Human-Computer Interaction (HCI) combines knowledge and methods associated with many professionals. Discuss at least *FOUR* professional areas associated with HCI. (8 marks)
- b) A variety of interaction styles (e.g. direct manipulation) can be used to support a conceptual model of Human computer interaction. Describe three such interaction styles. (6 marks)
- c) Discuss the following in HCI
- i. Windowing system (1 marks)
 - ii. Explain three benefits of using windows (3 marks)
 - iii. Explain TWO ways of managing multiple windows (2 marks)

QUESTION THREE 20MARKS

- a) Explain Norman's model Principles of interaction and Usability in Human Computer Interface (8 marks)
- b) Describe the term evaluation in Human Computer Interface and highlight the importance of the same (4 marks)
- c) Explain, using an examples, the principles of cognitive walk through (2 marks)
- d) Define the following terms as used in HCI
 - i. Visual affordance (2 marks)
 - ii. Combo box (2 marks)
 - iii. Dialogue box (2 marks)

QUESTIONS FOUR [20 MARKS]

- a) Briefly explain the meaning of the following terms:
 - i) Task analysis (2 marks)
 - ii) Metaphor (2 marks)
 - iii) Computer Supported Cooperative Work (2 marks)
- b) State and explain any three non-computer method of developing prototypes (6 marks)
- c) Define ergonomics and explain how the following factors affect the levels of interactions.
 - i. The physical environment of the interaction
 - ii. Health issues
 - iii. Arrangement of controls and displays (8marks)

QUESTION FIVE [20 MARKS]

- a) List and briefly explain any three Principles of Flexibility that support usability (6 marks)
- b) Brief discuss any two techniques for doing task Analysis. (4 marks)
- c) List and explain any **FOUR** techniques for building a good Usability Design. (6 marks)
- d) “Affordance” and “visibility” are critical aspect of usability design principle Discuss (4 marks)