



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 2022/2023 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: ICB 3309

COURSE TITLE: HUMAN COMPUTER INTERACTION

EXAM VENUE:

STREAM:

DATE: Sep-Dec 2022

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

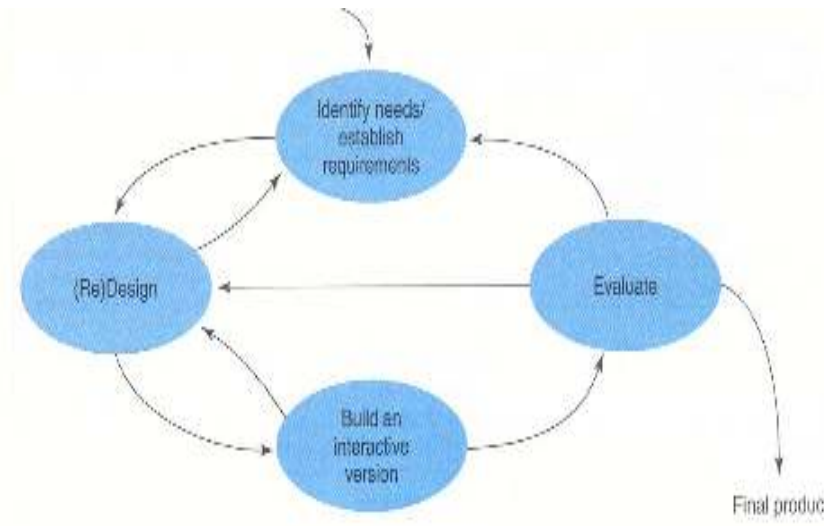
30 MARKS

a) Define Human Computer Interaction

2 marks

b) The figure bellow shows the activities in HCI Design, briefly describe each activity and its relevance informing the stage of the next phase os development

6 marks



c) Describe what a conceptual model is and explain the three different kinds

6 marks

d) What is the meaning of 'User-Centered Design'? Explain any four characteristics of User-Centered Design.

10 marks

e) Discuss the main contributions from the following disciplines to the study of HCI?

i. Cognitive psychology

2 marks

ii. Social and organization psychology

2 marks

iii. Ergonomics factors

2 marks

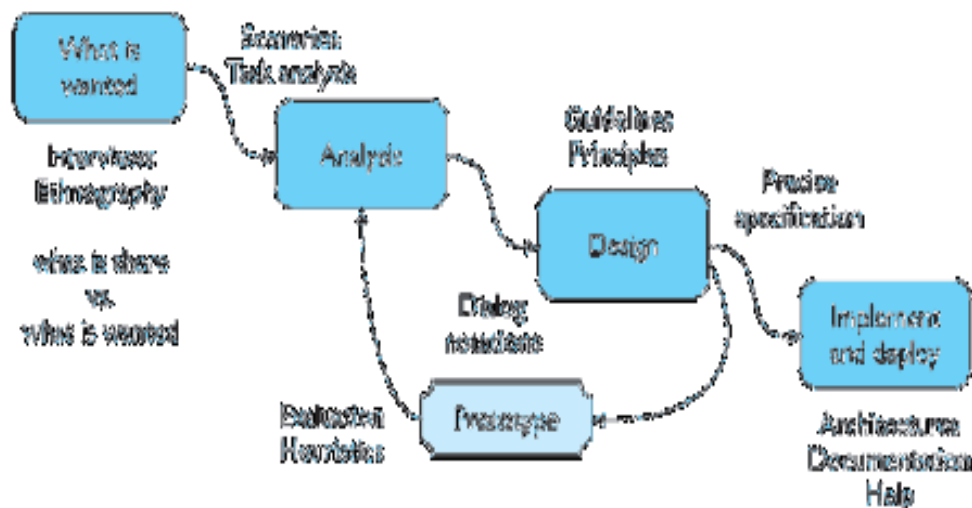
QUESTION TWO

20 MARKS

- a) Environmental factors can impair users' ability to recall information that is necessary to operate complex, computer systems. Briefly explain how such disruptions can impair both short-term AND long-term memory. **6 marks**
- b) Apple In Company introduce iphone 7.0 series and hard to conduct usability testing the device explain various of evaluations techniques and clearly explain each type which they ought to adopt **4 marks**
- c) State the Norman's seven principles for transforming difficult tasks into simple one **6 marks**
- d) Describe the differences between expert-based and user-based usability testing, discussing their advantages and disadvantages. **4 marks**

QUESTION THREE [20 MARKS]

- a) The following figure is an extract of interaction design process identify, and discuss the phases of the designs processes **8 marks**



- b) 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. **4 marks**
- c) Explain 'flexibility principle' as one of the usability support principles and discuss four features that make up the flexibility principle. **8 marks**

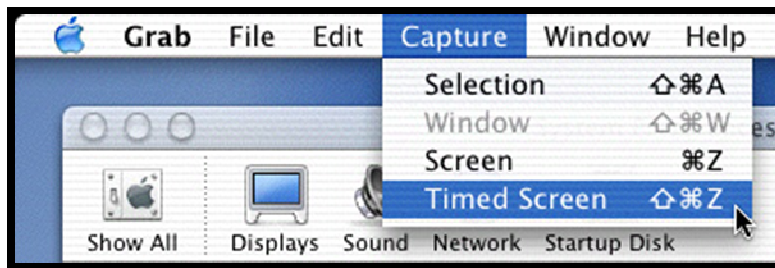
QUESTION FOUR [20 MARKS]

- a) Usability goals are mainly concerned with meeting usability criteria. Name at least 4 of the usability criteria and briefly explain each. 4 marks
- b) . At the center of Interaction Design is the usability goals. Draw a clearly labeled diagram showing this interaction and the user experience. 6 marks
- c) Identify three different ways in which 'functional ageing' can affect interface development. 6 marks
- d) A HCI theory normally serves for at least one of the purposes: explanation or prediction. **Nielsen's 10 Usability Principles** is a good example. Name at least 4 of the 10 Nielsen's usability principles. (4 Marks)

QUESTION FIVE

20 MARKS

- a) System users often judge a system by its interface rather than its functionality. State whether you support the statement or not and explain the reason of your choice? (3 marks)
- b) Using a diagram below, answer the following questions?



- i) Name this type of interaction style? 1 mark
- ii) List two advantages and two disadvantages of this interaction style? 4 marks
- iii) List three other types of interaction styles you know? 3 marks
- c) Give the difference between conceptual design and physical design? 3 marks
- d) Define the term Evaluation as use in HCI design and highlight how it is measured 6 marks