



(Knowledge for Development)

KIBABII UNIVERSITY

**UNIVERSITY EXAMINATIONS
2021 /2022 ACADEMIC YEAR**

**END OF SEMESTER EXAMINATIONS
YEAR THREE SEMESTER TWO EXAMINATIONS**

**FOR THE DEGREE OF
BACHELOR OF SCIENCE COMPUTER SCIENCE**

COURSE CODE : CSC 323

**COURSE TITLE : HUMAN COMPUTER
INTERACTION**

DATE: 2/9/2022

TIME: 9.00 A.M -11.00 A.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO

QUESTION ONE (COMPULSORY) [30 MARKS]

- a. Explain the meaning of the following as used in the study of Human-computer Interaction.
- i. Human-computer Interaction [1 mark]
 - ii. Usability [1 mark]
- b. State any three goals of Human-computer Interaction. [3 marks]
- c. Explain the basic principles/attributes that support usability? [3 marks]
- d. Suppose you are asked to design a system to support the desk clerks in a bank office. Why is it a good idea to play the role of desk clerk yourself for some time, as part of the analysis activities? [2 marks]
- e. What are the Problems with usability engineering? [2 marks]
- f. Outline the memory structure. [2 marks]
- g. What are the Devices for virtual reality and 3D interaction? [2 marks]
- h. Define Reasoning and state three main types of reasoning? [4 marks]
- i. How the HCI ensure the following when designing, selecting, commissioning or modifying software: that it is suitable for the task and that it provides feedback on performance. [2 marks]
- j. With examples explain the various types of users and the organizational issues to be considered in designing an interactive system? [4 marks]

QUESTION TWO [20 MARKS]

- a. What are the steps for Interaction design process? [2 marks]
- b. Explain any TWO levels of interaction with computer? [4 marks]
- c. There are a number of factors to be considered in the analysis and design of a system using HCI principles. Discuss any THREE of these factors. [6 marks]
- d. Explain the meaning of prototyping and state the techniques used during the prototyping process. [2 marks]
- e. Discuss any two main approaches to prototyping. [4 marks]
- f. What are the several factors that can limit the speed of an interactive system? [2 marks]

QUESTION THREE [20 MARKS]

- a. What are the mental models and why they are important in interface design? [2 marks]
- b. Outline the stages in Norman's model of interaction. [4 marks]
- c. Explain how you can assess/evaluate the interface of an interactive system using the following techniques:
 - i. Heuristic Evaluation [2 marks]
 - ii. Think aloud protocol [2 marks]
 - iii. Ethnography [2 marks]
- d. Outline Any TWO the approaches present for user support [2 marks]
- e. Analyze Cognitive walkthrough: on what usability attribute is focused, when can be applied, who is involved in evaluation and state requirements to perform cognitive walkthrough of a system [6 marks]

QUESTION FOUR [20 MARKS]

- a. Discuss the principles of good UI design. Evaluate the suitability of the manual tour booking form using UI design principles. [5 marks]
- b. Define Moore's law [2 marks]
- c. What are the stages of execution and evaluation cycle? [2 marks]
- d. Decide how the 'golden rules' and heuristic help interface designers take account of cognitive psychology? Illustrate your answer with the design of Microsoft office word. [8 marks]
- e. What are the benefits of usability evaluations? Describe at least three. [3 marks]

QUESTION FIVE [20 MARKS]

- Describe the characteristic difference between the question dialogue and command line dialogue of the line oriented interface [6marks]
- b) Virtual system have three sensory cues, describe supported in the three dimensions [6marks]
 - c) Define the term interface architecture and show its importance on the interaction design [4marks]
 - d) Discuss the advantages of a screen containing label fields to be filled by the user [4marks]