



(Knowledge for Development)

**KIBABII UNIVERSITY
(KIBU)**

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR**

**END OF SEMESTER EXAMINATION
YEAR THREE SEMESTER TWO EXAMINATION**

**FOR THE DEGREE OF
(INFORMATION TECHNOLOGY)**

COURSE CODE: BIT 324

COURSE TITLE: HUMAN COMPUTER INTERACTION

DATE: 09/09/2022 TIME: 2.00 P.M. - 4.00 P.M.

INSTRUCTIONS

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

- a. What is Human Computer Interaction [2 Marks]
- b. HCI can be used in all disciplines wherever there is a possibility of computer installation. Mention Four areas where HCI can be implemented with distinctive importance [4 Marks]
- c. A computer system comprises various elements, each of which affects the user of the system, with examples explain the difference between text entry and pointing input devices [4 Marks]
- d. Discuss the following types of output channels [6 Marks]
- i. Visual channel
 - ii. Auditory channel
 - iii. Haptic channel
- e. Explain the four parts of the interaction framework used for communication between the user and the system [4 Marks]
- f. Define Ergonomics as used in Human Computer Interaction [2 Marks]
- g. What is the difference between utility and effectiveness as used in HCI goals [4 Marks]
- h. Illustrate mapping and affordance as used in the design of everyday things [4 Marks]

QUESTION TWO [20 MARKS]

- a. Learnability makes use of various factors to familiarize a user to a new system, state the difference between predictability and synthesizability as used in learnability [4 Marks]
- b. Discuss Shneiderman's "eight golden rules of interface design. [16 Marks]

QUESTION THREE [20 MARKS]

- a. State the difference between the principle of familiarity and Generalizability as used in Learnability. [4 Marks]
- b. Robustness concerns itself with supporting the user in successfully accomplishing an action with the system and assessment of the action. There are various principles to be applied to support a system robustness explain the four principles applied to support system robustness. [8 Marks]
- c. The ISO standard describes 6 key principles that will ensure a design is user centered: The design is based upon an explicit understanding of users, tasks and environments explain at least five key principles. [5 Marks]
- d. Define Dialog as used in Human Computer Interaction. [1 Marks]
- e. Discuss the Benefits of Human Computer interaction. [2 Marks]

QUESTION FOUR [20 MARKS]

- a. Discuss User pre-emptive and System pre-emptive ways of dialog initiative used in flexibility. [4 Marks]
- b. State the seven Principles of Universal Design. [7 Marks]
- c. Briefly explain what we are likely to see in future Human- Computer interfaces. [3 Marks]
- d. Give the distinction between a process-oriented and a structure-oriented design rationale technique. [2 Marks]
- e. Discuss the core UCD (User Centered Design) principles that communicate the essence of UCD and serve as the framework for individual methods and techniques. [4 Marks]

QUESTION FIVE [20 MARKS]

- a. Flexibility refers to the diversity of ways in which the user and the system exchange information. This can be achieved through categorized ways, consisting mainly of Dialog Initiative, Multithreading, Task migratability, Substitutivity and Customizability. State and explain the difference between Multithreading and Task migratability. [4 Marks]
- b. With the aid of a well labeled diagram explain the four distinct phases involved in User centered design. [8 Marks]
- c. Discuss the Gulf of Execution and the Gulf of Evaluation. [4 Marks]
- d. What is a TASK Analysis? [2 Marks]
- e. Explain the Functions of a Computer as used in Human computer interaction. [2 Mark]