(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2020/2021 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: 07/10/2021 **TIME: 09.00 A.M – 11.00 A.M**

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

(a) In order to produce computer systems with good usability, developers must achieve specific goals of human computer interaction (HCI) List down the four goals of HCI (4 marks)

(b) Using an example, describe the meaning of visibility and affordance and state how each can be achieved in a system (6 marks)

(c) Differentiate the concept of cognitive load from the concept of disorientation in HCI (4 marks)

(d) Describe the idea of link affordance with respect to a website (2 marks)

(e) Outline the different functions on how icons can be used in interfaces (4 marks)

(f) When simple issues in software require labels or instructions, the design is bad. Explain the actions afforded by common user interface controls (4 marks)

(g) i. Differentiate between structural models from functional models in HCI (2 marks)

ii. Illustrate which model would be applied greatly by users of a computer system (4 marks)

QUESTION TWO [20 MARKS]

(a) An understanding of the way humans perceive visual information is important in the design of visual displays in computer systems. With an example for each, differentiate between constructivist and ecological theories of perception in a computer system. (4 marks)

(b) Closely related to mental models in HCI is the idea of gulfs between the interface of a system and the users. Illustrate how both the users and the designers can overcome both the Gulf of Evaluation and the Gulf of Execution in computer systems (8 marks)

(c) With examples explain how a good design can make use of icons in interfaces states the specific function of an icon in each case (8 marks)

QUESTION THREE [20 MARKS]

(a) Desktop metaphor has been used successfully in operating systems. State the metaphor(s) used in the following types of applications and in each, suggest the familiar knowledge. (10 marks)

i. Data storage
ii. Spreadsheets
iii. The web
iv. Graphics packages
v. Media players

(b) Suggest five guidelines which can be used to improve affordance on text links and on graphical links found on a website. (10 marks)

QUESTION FOUR [20 MARKS]

(a) With a relevant illustration, explain the meaning of the term Graphical User Interface (GU) and justify why GUI is also known an WIMP (6 marks)

(b) Windowing systems have a fixed generic language for its imaging model. Elaborate on this statement (4 marks)

(c) Describe five rules/guidelines used to ensure that commands are meaningful to users of application software. For each guideline, use a relevant example from the Microsoft application software (10 marks)

QUESTION FIVE [20 MARKS]

a) With the aid of examples, fully describe your understanding of ONE of the following design heuristics:

i. Visibility of system status;

ii. Match between system and real world. (4 marks)

b) Give examples and explain how the following may help to increase software usability: Cognitive Walkthrough, Paper Prototyping. (6 marks)

c) At several stages in the usability engineering process, methods are used that try to ensure that as many ideas for design as possible are considered. Identify ONE of these methods and fully explain how it tries to encourage ideas. (10 marks)