Machakos University

Supplementary/Special Examinations

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

THIRD YEAR SECOND SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE (COMPUTER SCIENCE)
BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

SCO307/SIT308: HUMAN COMPUTER INTERACTION

DATE: **Time:**

Instructions
*This paper consists of **FIVE** questions.*
*Answer question **ONE** and other **TWO** questions in this paper.*

Question One

(a) (i) Explain the term *fit* as used in Human Computer Interface. (2 marks)

(ii) Describe **three** modes through which a user could communicate with a computer system. (6 marks)

(b) (i) A software development company has contracted professionals to design software within their national context. Explain **three** principles of this type of design. (6 marks)

(ii) Using the spiral model, describe the stages in user interface development. (6 marks)

(c) (i) Outline **three** requirements for user support. (3 marks)
(ii) Explain the term adaptive help systems as used in Human Computer Interaction. (2 marks)

(d) In a supermarket transaction processing system, a cashier searches for an item by entering the name of the item in a textbox. The quantity and price are selected through option buttons and combo box respectively. The information is then stored into a data base when a button "Save" is clicked. The saved information can be edited when a button "Edit" is clicked. Assuming Visual Basic environment, sketch the interface. (5 marks)

Question Two

(a) Explain each of the following terms as used in Human Computer Interaction. (4 marks)
(i) usability;
(ii) accessibility.

(b) Explain the classes of individual differences encountered in Human Computer Interaction. (6 marks)

(c) Describe **two** types of user interfaces that could be incorporated in a transport management system. (4 marks)

(d) (i) A secretary in a busy office has developed back pains due to long hours of computer use. Outline **three** precautions that she could have taken. (3 marks)

(ii) A university uses a Dot Matrix printer when printing students results. Outline three factors it could have considered when making this decision. (3 marks)

Question Three

(a) (i) Define the term *prototype* as applied in Human Computer Interaction. (2 marks)

(ii) Explain the stages in prototyping model. (3 marks)

(b) Mary, a computer scientist designed a biometric system for opening a door. Outline **three** ergonomic features she could have incorporated in the design. (3 marks)

(c) (i) A student developed a user interface which required a lot of memorization. Explain **two** ways through which this could be reduced. (4 marks)

(ii) Distinguish between *heuristic* and *usability testing* evaluations as used in Human Computer Interaction. (4 marks)

(d) Describe **three** approaches that could be used when developing a Human Computer Interface. (6 marks)

Question Four

(a) Explain **three** methods that could be used to gather information about a proposed user interface. (6 marks)

(b) Human Computer Interaction has gone through many changes over the years. Explain **three** paradigms that have influenced these changes. (6 marks)

(c) (i) Distinguish between *multisensory* and *multimodal* systems. (4 marks)

(ii) A student developed a user interface for a company. Explain **two** ways through which he could make navigating the interface easier. (4 marks)

Question Five

(a) (i) Outline **three** types of menu that could be included in a user interface. (3 marks)

(ii) A student prefers using touch screen as an input mode. Explain **two** challenges associated with this mode. (4 marks)

(b) John, a computer expert has been tasked with forming a team to develop a human computer interface. Explain **four** other professionals he could incorporate in the team. (8 marks)

(c) Describe **five** principles of user interface design proposed by Norman. (5 marks)