



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)