



MACHAKOS UNIVERSITY

University Examinations for 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

THIRD YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

SCO307 HUMAN COMPUTER INTERFACE

SIT308 HUMAN COMPUTER INTERACTION

DATE: 16/4/2019

TIME: 11.00-1.00 PM

INSTRUCTIONS

Answer **question ONE** and any other **TWO** questions.

QUESTION ONE (30 MARKS)

- a) Explain each of the following terms as used in HCI:
 - i. Flexibility; (2 marks)
 - ii. Affordance. (2 marks)
- b) John, a system analyst designed a human computer interface for a system. Explain **three** goals of this interface. (6 marks)
- c) A newly established supermarket would like to design a human computer interface for its inventory control system.
 - i. Outline four metaphors that could be used during the design. (4 marks)
 - ii. Describe **three** design principles the supermarket could apply. (6 marks)
- d)
 - i With the aid of appropriate examples, explain the acronym WIMPS as used in human computer interaction. (4 marks)
 - ii Usability is at the core of Human Computer Interaction. Describe **six** indicators of a system which has high usability. (6 marks)

QUESTION TWO (20 MARKS)

- a) Outline **three** types of individual differences that a system designer would consider when designing a human computer interface. (3 marks)
- b) Explain each of the following terms as used in human computer interaction:
 - i. External consistency; (2 marks)
 - ii. Usability engineering; (2 marks)
 - iii. Universal design. (2 marks)
- c) Mosh Hospital has implemented a new human computer interface. Outline **five** general guidelines that the hospital could have considered when creating the interface. (5 marks)
- d) Peter is a visually challenged student in a local university that does most of its communication through the student portal. Describe **three** aids the university could have included in the portal to enable him use the system comfortably. (6 marks)

QUESTION THREE (20 MARKS)

- a) i Outline **two** challenges of speech recognition as a human computer interface. (2 marks)
- ii Describe **two** methods used to ease reading of numbers in a computer. (4 marks)
- b) i Explain the term cognition as used in human computer interface. (2 marks)
- ii Describe **three** ways through which cognition improves human computer interaction. (6 marks)
- c) Students at Maisha University have been complaining about the performance of their portal. Describe **three** methods that could be used to evaluate the portal. (6 marks)

QUESTION FOUR (20 MARKS)

- a) Outline **four** factors considered when selecting an interaction style. (4 marks)
- b) Distinguish between *command based* and *form fill* user interfaces. (4 marks)
- c) A student management information system uses a menu-based user interface. Explain **three** types of menus that could be incorporated in the system. (6 marks)
- d) i Explain the term *fit* as used in human computer interaction. (2 marks)
- ii A system analyst carried out a task analysis in order to design a user interface. Explain **two** types of this analysis. (4 marks)

QUESTION FIVE (20 MARKS)

- a) Outline **four** professionals who could work together to create a good user interface. (4 marks)
- b) Many users of system prefer to select options rather than type the information.
 - (i) Outline **three** reasons that could have led to this preference. (3 marks)
 - (ii) Explain **two** limitations of such a system. (4 marks)
- c) Differentiate between *perception* and *representation* as used in human computer interaction. (4 marks)
- d) With the aid of a well labelled diagram, illustrate the Don Norman's model of interaction. (5 marks)