



MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)
University Examinations for 2015/2016 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND SEMESTER EXAMINATION FOR DEGREE IN
BACHELOR OF SCIENCE (COMPUTER SCIENCE AND MATHEMATICS)

SCO 307: HUMAN COMPUTER INTERACTION

Date: 12/8/2016

Time: 8:30-10:30

INSTRUCTIONS

This paper consists of FIVE questions.

Answer QUESTION ONE and other TWO questions in this paper.

1.
 - (a)
 - (i) Define the term *acceptance* as used Human Computer Interaction. (2 marks)
 - (ii) A new system's user interface is based on Nielsen's model. Explain **three** heuristics that could have been incorporated in it. (6 marks)
 - (b)
 - (i) Outline **two** effects of age on the design of a Human Computer Interface. (2 marks)
 - (ii) Distinguish between *guidelines* and *standards* as used in Human Computer Interaction. (4 marks)
 - (iii) Explain **two** types of user support that may be incorporated in a newly developed user interface. (4 marks)
 - (c) Explain each of the following terms as used in Human Computer Interaction: (6 marks)
 - (i) Fit;
 - (ii) Task;
 - (iii) Well being.

- (d) An international airline is considering introducing a new booking system for use by associated travel agents to sell flights directly to the public. Identify each of the following categories of stakeholders for the system.
- (i) Primary;
 - (ii) Secondary;
 - (iii) Tertiary. (6 marks)
2. (a) Explain each of the following terms as used in Human Computer Interaction. (4 marks)
- (i) Learnability;
 - (ii) Flexibility.
- (b) Study the following Visual Basic program segment and answer the question that follows.
- ```
Private Sub cmddisplay-click()
Dim Student As String
Student = Inputbox("Enter Student Name", VbYesNoCancel , "Student Name", Name)
End Sub
```
- Sketch the resultant object when this program segment is executed. (4 marks)
- (c) A University Student Management Information System allows students to check their academic results or fees balance. To check one of the two a student enters his registration number through a textbox. The system then displays the student name through a label and allows him to select what he wants to check through option buttons. The output is then displayed through a list box when a command button is clicked. Assuming a Visual Basic programming environment sketch the interface. (4 marks)
- (d) (i) Name **four** types of printers that may be used for output. (2 marks)
- (ii) Describe **three** design approaches that may be used in Human Computer Interaction. (6 marks)
3. (a) (i) Define the term universal design as used in Human Computer Interaction. (2 marks)
- (ii) Outline three principles applied in universal design. (3 marks)
- (b) Describe **three** Human Computer Interaction evaluation techniques. (6 marks)
- (c) Distinguish between *decay* and *interference* states of human memory in relation to Human Computer Interaction. (4 marks)
- (d) (i) Explain the term ergonomics as used in Human Computer Interaction. (2 marks)
- (ii) Why ergonomics important in the design of a user interface. (3 marks)

4. (a) (i) Outline **three** precautions that people who rely on computer monitor for output can take. (3 marks)
- (ii) A security firm has proposed to install touch sensitive screens to control entry into a building. Using HCI knowledge critic this proposal. (6 marks)
- (b) Describe **three** aspects of the *loop of interaction* as used in Human Computer Interaction. (6 marks)
- (c) (i) “*Human–computer interaction is affected by the forces shaping the nature of future Computing*”. Justify this statement. (2 marks)
- (ii) Outline **three** characteristics of future Human Computer Interaction. (3 marks)
5. (a) Explain **two** types of menus that could be used in a user interface. (4 marks)
- (b) Distinguish between *multimodal* and *multimedia* systems as used in Human Computer Interaction. (4 marks)
- (c) Designing an effective Human Computer Interaction involves a variety of fields. Describe **four** of these fields. (4 marks)
- (d) (i) Explain each of the following mental model principles as used in Human Computer Interaction. (4 marks)
- I. Principle of pictorial realism;
- II. Principle of the moving part.
- (ii) A new user interface uses speech recognition for input. Explain **two** challenges its users may encounter. (4 marks)