KABARAK   **UNIVERSITY**

UNIVERSITY EXAMINATIONS
MAIN CAMPUS
FIRST SEMESTER, 2020/2021 ACADEMIC YEAR
EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE; BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

COMP 468/ INTE 451: USER INTERFACE DESIGN.

STREAM: [Y4S1]   **TIME: 9:00-11:00AM**

EXAMINATION SESSION: SEP-DEC   **DATE: 12/02/2021**

INSTRUCTIONS

There are 5 questions in this paper. Answer Question 1 –Compulsory, and Any Other Two Questions.

QUESTION 1 (30 MARKS) –COMPULSORY QUESTION

a) Describe four different interaction styles used to accommodate the dialog between user and computer.   **(8 Marks)**

b) What are mental models, and why are they important in user interface design? **(4 Marks)**

c) Explain two ways in which a system designer can do to minimize the memory load of the user as they interact with the user interface?   **(4 Marks)**

d) Explain the term recognition in relation to human capabilities.   **(2 Marks)**

As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart, Jesus as Lord. (1 Peter 3:15)
Kabarak University is ISO 9001:2015 Certified

Page **1** of **4**

e) Company Epic has experienced declining sales during the last six months. Epic wants to break this negative trend by a new innovative product line, i.e. tablets for youths, between 12-18 years of age. The target group consists of young people who like new cool gadgets for a reasonable price. The management's watchword for the new product line is "simplicity and coolness". You are a project manager at Cool Design, a consultant company in Nairobi. You are hired to design the interface of the new tablet. There are no restrictions stated by company Epic as long as the interface fulfills the requirement of simplicity and coolness.

(i) Describe your design process, from idea to finished product.   **(4 Marks)**

(ii) Draw a low fidelity prototype of the user interface for the new tablet.

(2 Marks)

(iii) Explain two design principles you would consider in order to fulfill the requirement of simplicity and coolness.   **(4 Marks)**

(iv) Describe a technique that you would use to evaluate your prototype.

(2 Marks)

QUESTION 2 (20 MARKS)

a) Explain the term cognition in relation to human capabilities?   **(2 Marks)**

b) Draw a diagram to show the model human processor.   **(2 Marks)**

(i) List the three Sub-systems of the model human processor.   **(3 Marks)**

c) List any three cognitive processes.   **(3 Marks)**

d) You drag a folder to make a copy of its contents. An animation appears on the screen, showing files moving from one folder to another.

(i) What design principle is addressed in this example?   **(1 Mark)**

(ii) Briefly, justify your answer.   **(2 Marks)**

e) Interface Metaphors are powerful graphical user interface design tools.

(i) Explain what is meant by an interface metaphor. Provide one example. **(3 Marks)**

(ii) How can using metaphors in the design of the user interface be beneficial to the users of the system.   **(4 Marks)**

As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart, Jesus as Lord. (1 Peter 3:15)
Kabarak University is ISO 9001:2015 Certified

Page **2** of **4**

QUESTION 3 (20 MARKS)

a) Explain the following concept in HCI:

    (i)   Gestalt Principles   **(2 Marks)**

b) Consider the following statement: In order to improve an interface design, it is necessary to consult with the primary users of the system. Explain two reasons in detail why this is important. **(4 Marks)**

c) You are deciding between using a menu based interface or a command language based interface.

    (i) Explain one advantage and one disadvantage for each interaction style.

                                                  (4 Marks)

    (ii) For a hand-held application that is used often, which is most likely a better choice? And why? **(2 Marks)**

d) Discuss the role of each of the following activities in the early stages of the user interface design process.

    (i) Prototyping   **(2 Marks)**

    (ii) Iteration process   **(2 Marks)**

e) Explain one design implication for the following on the user interface design of a system.

    (i) Attention   **(2 Marks)**

    (ii) Perception   **(2 Marks)**

QUESTION 4 (20 MARKS)

a) Heuristic evaluation is a good approach to evaluate an existing user interface without involving its users.

    (i) Describe what is meant by heuristic evaluation. **(2 Marks)**

    (ii) Describe how, as a software engineer, you would conduct a heuristic evaluation on the user interface of an existing system. **(4 Marks)**

    (iii) Identify two benefits of heuristic evaluation. **(4 Marks)**

b) Explain the role of low-fidelity prototyping during user research. **(2 Marks)**

c) You have been asked to design a website for a company. Users (employees) will be able to register and then request for company resources such as phones, laptop, etc.

As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart, Jesus as Lord. (1 Peter 3:15)
Kabarak University is ISO 9001:2015 Certified

Page **3** of **4**

(i) Draw a low fidelity prototype of the user interface(s) of your application.

(4 Marks)

(ii) Briefly explain two ways of how you would test for the success or failure of your design as you get close to the final delivery of your application. **(4 Marks)**

QUESTION 5 (20 MARKS)

a) As a software designer in a company, you have been tasked to improve the user experience of one of the systems used by your clients. Describe two ways that you would use in order to accomplish your task.

(4 Marks)

b) Mismatches between the designer's mental model and the user's mental model may occur. Explain two consequences of this mismatch on the user interface design.

(4 Marks)

c) In developing user interfaces of application systems, it is important to know and understand the users, hence:

  i) Describe the three categories of users. **(6 Marks)**

  ii) For each of the category of users mentioned above, explain one user Interface design guideline that would help you as the designer to address their needs.

(6 Marks)

As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart, Jesus as Lord. (1 Peter 3:15)
Kabarak University is ISO 9001:2015 Certified

Page **4** of **4**