"Investing in Africa's Future"

COLLEGE OF ENGINEERING AND APPLIED SCIENCES (CEAS)

NCSC 303: HUMAN COMPUTER INTERACTIONS

END OF SECOND SEMESTER EXAMINATIONS

APRIL/MAY 2025

LECTURER: MS ELIZABETH MAFU

TIME: 3 HOURS

INSTRUCTIONS

You are required to answer questions as instructed in each section

Start each question on a new page in your answer booklet

Answer all questions in Section A and B and any three from Section C

SECTION A

Question 1 – *Mark the statements below as **true** or **false**.* **[10]**

a. Repeat is the remarkable facility that lets us reverse a previous action.
b. Efficiency refers to how good a system is at doing what it is supposed to do?
c. Conventional wisdom says that error messages tell the user when he has made some mistake.
d. In a heuristic evaluation a group of test users conducts a formal experiment
e. Cyber psychology refers to the psychological and sociological aspects of computer use by individuals and groups.

Question 2 — *select the letter adjacent to your answer* **[10]**

a. What does HCI stand for?

   A. Human Computer Interface
   B. Human Computer Interaction
   C. Human Computer Implementation
   D. Human Computer Industry

b. Which of the following are important in the design focus of HCI?
   A. Thinking of the user
   B. Testing the HCI
   C. Involving the users
   D. All of the above

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c. Which one of these would NOT be found in a good HCI?

   A. Common shortcuts, like CTRL+Z for undo.
   B. Icons that can have specific meanings.
   C. A long command line to achieve a function.
   D. Sounds that convey meanings.

d. Which one of these is a good reason for taking care to design a good computer-human interface?

   A. Not every user is a computer expert
   B. Well-designed HCIs allow the software to be sold at a better price.
   C. Well-designed HCIs use less computer resources.
   D. Well-designed HCIs allow the computer to run faster

e. Operating systems deliberately include an electronic "click" sound for keyboard and mouse activities. This describes which of the eight golden rules for designing interactive interfaces?
   A. Offer informative feedback
   B. Offer simple error handling.
   C. Support internal locus of control
   D. Strive for consistency

SECTION B

Question 3 – *Give a word or phrase which suits each description* **[10]**

a. What term is used to describe the branch of computer science that focuses on the interaction between humans and computers?
b. What is the practice of designing interactive products to be user-friendly and efficient called?
c. Since it is not always clear that Web page objects are clickable, or when control has recognized the click, designers should be careful to apply the principle of _____
d. Each dialog within the system should be organized with a clear sequence–a beginning, middle, and end. This describes which of the rules for designing interactive interfaces?
e. What is the concept that describes how easily a person can use a product or service?

Question 4

Which process should be carried out first, cognitive walkthrough or contextual inquiry? Support your answers fully. **[10]**

SECTION C – *select any three questions from this section*

Question 5

Use Norman's design questions below to discuss a specific interaction device, such as an overhead projector, printer, scanner, or elevator.

Note* The question —how easily can you…should be answered by describing the actual device and how the interface looks and functions. For instance, the first question —How easily can you determine the device's function? should be answered by listing the functions (Execution) and describing how each function is made visible to the user (Evaluation).

Given a particular interface design, how easily can you; (Norman, 1990)

1. Determine the function of the device.
2. Tell what actions are possible.
3. Determine mapping from intention to physical movement.
4. Act.
5. Tell if the system is in the desired state.
6. Determine the mapping from system state to interpretation.
7. Tell what state the system is in. **[20]**

Question 6

You have been tasked to redesign a learning management system to replace Google Classroom. The aim is to enhance communication among the stakeholders and improve the effectiveness of managing learning in the institution. Carry out a task analysis i.e. listing all tasks and subtasks done on Google Classroom.

*Task analysis is used mainly to investigate an existing situation. It is used to determine functionality by distinguishing the tasks and subtasks performed. **[20]**

Question 7

You have been presented with the situation below. Recommend a contextual inquiry, state you are going to do it and it will benefit the hospital. **[20]**

Case Study: Improving Nurse Workflow in a Hospital

Background

A hospital has noticed that its nurses are spending an excessive amount of time on paperwork and administrative tasks, taking away from their core responsibility of patient care. The hospital wants to redesign its nurse workflow to make it more efficient and reduce administrative burdens.

Problem Statement

How might we redesign the nurse workflow to reduce administrative tasks, improve efficiency, and enhance patient care?

Question 8

Explain usability, accessibility, and user experience as they are used in HCI. Critically analyze how they are interconnected and their contribution to intuitive interaction design. **[20]**

Question 9

Describe **Nielsen's** heuristics listed below, stating elements of HCI and UI that you could use to achieve them.

i. Visibility of system status
ii. Match between the system and the real world,
iii. User control and freedom,
iv. Consistency and standards,
v. Error prevention **[20]**

END OF EXAMINATION