"Investing in Africa's future"

COLLEGE OF BUSINESS, PEACE, LEADERSHIP AND GOVERNANCE (CBPLG)

NCSC 303: HUMAN COMPUTER INTERACTION

END OF SECOND SEMESTER EXAMINATIONS

MAY 2021

LECTURER: DR. YOGESH AWASTHI

DURATION: 7 HOURS

INSTRUCTIONS

Answer the questions as per the instructions given in the sections

Start **each** question on a new page on your answer sheet.

The marks allocated to **each** question are shown at the end of the section.

Section A (60 Marks)

Q1. Answer any six questions from Section A.

Each question carries 10 marks

a. Understanding users and their behaviour is an important factor influencing user-interface design. An automatic syringe is designed to administer proper dose of medicine to the patient. Create a prototype user interface for the same that can set the dose (4 digit numeric) with minimal human error while setting the dose. Justify your design.

b. Create a prototype user-interface for a digital wrist watch. How will you make sure that users using analogue wrist watch will have no problem using the new design?

c. Explain Shneiderman's three pillars of design.

d. Explain in detail about the usability measures. Discuss the organizational design to support usability.

e. Discuss the ways in which a full-page word processor is or is not a direct manipulation interface for editing a document using Shneiderman's criteria

f. Why do we really want usability? Explain with suitable examples. Discuss the Social impact statement for early design review.

g. Draw the Users Mental Model for a Transfer of Money from one account to another on an Automated Teller Machine (ATM).

h. What are the various models to analyse, interpret and finally visualize and represented by the researcher in contextual inquiry?

Section B (40 Marks)

Q2. Answer any two questions from Section B.

Each question carries 20 marks

a. There are four main translations involved in the interaction framework namely articulation, performance, presentation and observation.

> i. The compact disk player has a button for power off. However its remote control does not have a power off button.

ii. It is difficult in a command line interface to determine the result of copying and moving files in a hierarchical file system.

iii. User is unable to figure out which switches from the bank to turn on to lit the front portion of a classroom.

iv. The user is unable to know whether the voice recorder is in playing or recording state.

Specify in each of the above four cases which of the interaction framework translations are ineffective.

b. What is design? What is the golden rule of design? Illustrate the process of interaction design.

c. The cognitive walkthrough is a formalized way of imagining people's thoughts and actions when they use an interface for the first time. During a cognitive walkthrough the evaluator needs to ask four questions as below

i. Is the effect of the action the same as the user's goal at that point?

ii. Will users see that the action is available?

iii. Once users have found the correct action, will they know it is the one they need?

iv. After the action is taken, will users understand the feedback they get?

Given below is an action sequence for creating a customized voicemail message on an iPhone.

    Tap Voice email.

    Tap Greeting.

    Tap Custom. '

    Tap Record and speak your greeting.

    When you finish, tap Stop.

    To listen to your greeting, tap Play.

    To re-record, repeat steps 4 and 5.

    Tap Save.

Imagine an iPhone interface and create a report of the cognitive walkthrough for the above mentioned task in context with the review questions.

END OF EXAMINATION