University of Ruhuna- Faculty of Technology
Bachelor of Information and Communication Technology Honors Degree

Level 3 (Semester I) Examination, June 2023
Academic Year 2021/2022

Course Unit: ICT3152 – Human Computer Interaction (Theory)   **Duration: 2 hours**

Instructions:
This paper consists of three (03) questions.
Answer **ALL** questions.
The medium of the paper is **ENGLISH**.
All questions carries equal marks.

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01)

a. HCI revolves around prioritizing and enhancing the human experience rather than solely focusing on technology. The user's experience lies at the core of HCI, emphasizing the need to comprehend and improve the way people interact with technology.

    i. **Define** HCI (Human Computer Interaction) in your words. [10 marks]

    ii. **Briefly explain** why HCI is considered as a multi-disciplinary field. [10 marks]

b. The human eye is an extraordinary organ responsible for our sense of sight. It is a complex and complicated structure that allows us to perceive and interpret visual information from the world around us.

    i. **State three (03)** properties that a "human eye" is used to interpret the signals and **write** down **examples** for each property. [18 marks]

    ii. **Briefly explain** the term "Perception" with **an example**. [15 marks]

c. "Design is not just what it looks like and feels like. Design is how it works."

<div align="center">-Steve Jobs -</div>

    i. **Write** down what is known as interaction design. [03 marks]

    ii. **Differentiate** slips and mistakes. [14 marks]

d. Donald Norman suggests that the goal of design is to facilitate the process of users translating their intentions into actions by bridging the gap of execution, making it a seamless and effortless experience.

i. **State seven (07)** stages of Donald Norman's model. [14 marks]

ii. **Explain** the gulf of evaluation and the gulf of execution. [16 marks]

02)

a.
i. **Briefly explain** what the PACT analysis is and why it is important. [06 marks]

ii. You have been assigned as the main engineer of the Faculty of Technology Library Management System. As the first step of the development of this system, you are required to produce the report of the PACT analysis. **Conduct the PACT analysis**. Your analysis should contain two (02) items for each component of the PACT analysis. [24 marks]

b.
i. The ISO 9241 definition on "Usability" is as follows:

*Usability is the **effectiveness, efficiency** and **satisfaction** with which users achieve specific goals in particular environments.*
   Briefly explain the effectiveness, efficiency and satisfaction. [09 marks]

ii. **What** is known as "Usability Engineering"? [08 marks]

c. *A system can have numerous users. Without users systems are like abandoned buildings.*

i. **What** are the **two (02)** basis of system user classification? [08 marks]

ii. **Briefly explain** the following users. [20 marks]
    1. Direct users
    2. Support users
    3. Novice users
    4. Expert users

d.   *"Every great design begins with an even better story."*
                         - Lorinda Mamo -
i. **State five (05)** goals of Usability Engineering.[15 marks]

ii. **Write down two (02)** usability attributes. [10 marks]

03)

a. *"Usability is not a luxury; it is a necessity."*

i. **State four (04)** of Nielsen's "Ten Heuristics". **Briefly explain two (02)** of them. [20 marks]

ii. **Explain** how you utilize Nielsen's "Ten Heuristics" for better UI design and UI evaluation. [10 marks]

b.

"Heuristic evaluation allows designers to step into the shoes of the user and identify usability issues that might otherwise go unnoticed."

i. **Explain** why it is needed multiple UI heuristic evaluators. [10 marks]

ii. **Write down** the heuristic evaluation process. [10 marks]

c.
i. You have been appointed as the UI/UX engineer of the DNS software solution company. Under yourself, there are two UI/UX interns and they do not know about the design rules. **Write a short note** on the importance of applying design rules for UI to educate the interns. [10 marks]

ii. Ben Shneiderman's Eight Golden Rules are widely used in the industry. **Briefly explain** the following rules of the "Eight Golden Rules". *You may use examples as needed.* [14 marks]
   1. Strive for Consistency
   2. Offer informative feedback

d. *"Design is everywhere. From the dress you're wearing to the smartphone you're holding, its design."*

- Samadara Ginige -

i. **State four (04)** GUI characteristics. [08 marks]

ii. Consider the following scenario and **design three (03)** User Interfaces. [18 marks]

Easy Rent" is a car Rental Company which has done its all business processes by manual methods. Now the company is launching a new online platform to simplify the car rental process for its customers. The goal is to create an intuitive and user-friendly user interface (UI) that simplifies the booking process and enhances the overall user experience.

The company has 02 rent packages namely "Time travel" & "Distant travel". A time travel package allows the customer to have time-based plans, whereas distant travel allows distant-based plans.

The customers can select one of the above package and select packages, then proceed to the online payment methods such as Hela-Pay or Visa etc. and confirm the payments.

Furthermore, the customers can view, cancel, and edit the booking of the car.

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