B.Sc. Engg. CSE 8th Semester **14 February 2022**
B.Sc. TE (2-Yr)
B.Sc. TE (1-Yr)

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION **SUMMER SEMESTER, 2020-2021**
DURATION: 1 Hour 30 Minutes **FULL MARKS: 75**

CSE 4849/CSE 4885: Human-Computer Interaction

This is a closed book online written exam. Answer script in pdf should be uploaded in the Google classroom of this course. In case of uploading problem send to WhatsApp number 01844056187

Answer the following **3 (three)** questions.
Figures in the right margin indicate marks.

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1. Due to the recent pandemic of COVID-19, we have already lost many lives. The Centers for Disease Control and Prevention (CDC) has already addressed an increase in adverse mental health conditions. Level of anxiety, depressive disorders if not monitored and treated adequately we may observe these patterns more arising. The toxic nature of many social media applications hampers wellbeing and productivity. Hence designing a mental health app requires a lot of studies that synthesize several aspects like, psychology, sociology, UX/UI issues, and so on. Based on the scenario answer the followings:

   a) Explain the interrelated aspects of Human-Computer Interaction (HCI) related to this mental health app for wellbeing. 15 (CO1, PO1)

   b) Draw an HCI framework showing the aspects you considered appropriate for this application. 10 (CO1, PO1)

2. a) Consider the following Calculator interface of Windows OS shown in Figure 1.

Figure 1: An UI of a calculator


Figure 2: A movable tool palette

Explain the design implications of the followings:

i. Visual perception of color, size, shape and objects in terms of Gestalt principle. 6 (CO1, PO1)

ii. Perception of depth cues of the interactive elements. 7 (CO1, PO1)

b) The window shown in Figure 2, is the movable tool palette for selecting drawing tools in Adobe Photoshop. The user selects a tool by clicking on one of the icons in the palette. Assume the user is running Photoshop on a standard desktop machine using a mouse. 12 (CO2, CO3, PO3)

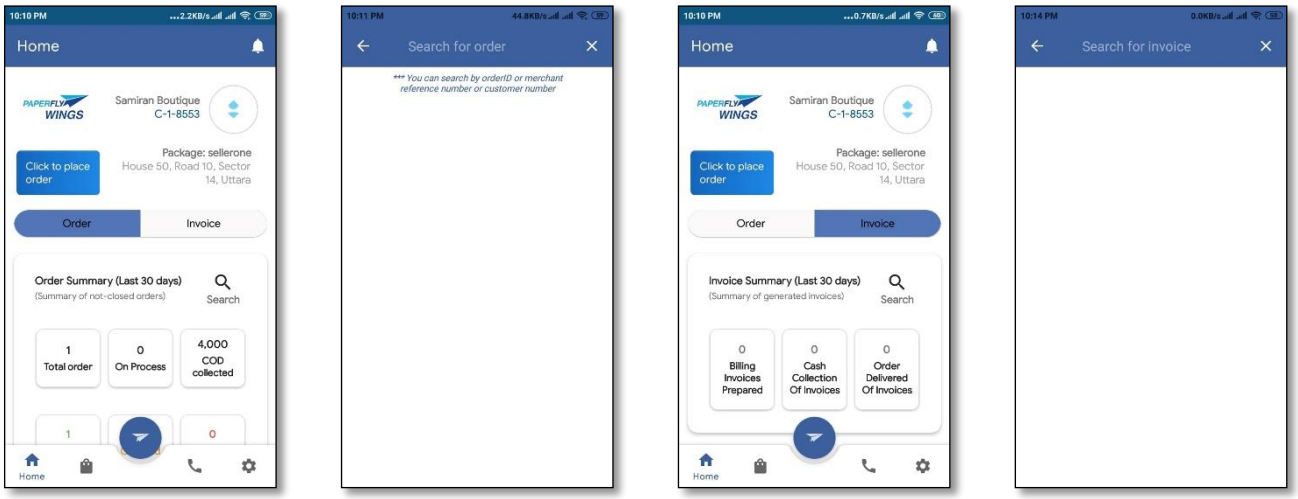
Explain how to redesign the tool to decrease the movement time (MT) based on changing the variables of the prediction model based on Fitts' law. [Hint: You can use hand sketch to show the redesigned tool]

3. a) Consider the searching task in the interfaces shown in Figure 3 (a-d). You are given a choice to select two interaction styles for the task. One is writing a query string in the search box and another one is giving voice commands using natural language. You are asked to use the interaction model to analyze interaction problems involved for the task. Answer the followings:

i. Describe different gulfs with examples in each stage of the interactions for these two styles of interaction and justify which interaction style will give a better user experience. 9 (CO2, PO1)

ii. How can you assess the mappings of different translation languages through the interaction model for the searching task through the interfaces of Figure 3 (a-d)? Explain your answer. 10 (CO2, PO2)

iii. Identify the tasks related to memory recall and recognition and list at least three problems related to concept of information retrieval in the search interfaces of Figure 3 (a-d) 6 (CO3, PO2)



(a) (b) (c) (d)