

Course Title:	Human Computer Interaction			Course Code:	CSC356	Credit Hours:	3(2-1)
Course Instructor:	M. Arslan Sarwar			Program Name:	BSCS, BSSE		
Semester:	6 th , 7 th	Batch:	FA20, SP20	Section:	FA20-A,B,C, SP20-C	Date:	23-06-2023
Time Allowed:	3 hours (180 Minutes)			Maximum Marks:	50		
Student's Name:				Reg. No.	CUI/	/SWL	

Important Instructions / Guidelines:
Read the question paper carefully and answer the questions according to their statements.
Mobile phones are not allowed. Calculators must not have any data/equations etc. in their memory.

Final term Examinations SP23

Q#1 Answer shortly.

(CLO-1/SO-1) [6x3=18]

- a) Describe the relationship among technology and other three components of PACT (people, activities, and context).
- b) What is the importance of "Context" in designing usable interfaces? Support your argument with example.
- c) What is figure-ground Gestalt principle? Give an example of it.
- d) Which one of similarity, proximity and uniform connectedness is more dominant in a scene according to gestalt principles of visual perception?
- e) When designing a screen, what do you suggest about on what basis items should be grouped and how they must be ordered?
- f) Which of the navigation drawer and bottom navigation is better for mobile apps? Tell why?

Q#2 Define expert evaluation and user testing, the two methods used in HCI for evaluation. Also tell pros and cons of each. (CLO-1/SO-1) [6]

Q#3 Answer the following questions about how a form should be designed such that it's fast to parse and efficient to fill (CLO-2/SO-2,4) [6]

- a) How the labels should be aligned with text fields? Give reason
- b) Should the form be single column or multi-column? Give reason
- c) If user need to select one option from three options, how should form allow that? Give reason
- d) How should the text fields of form display errors user has made while input?
- e) How should the form be handled if number of fields are as large as 20 or more?
- f) What care should be taken if the form is to be filled on mobile device?

Q#4 Consider you are a usability specialist in Parc Hotel at Luxemburg. You have to design a system that cleaners need to use while cleaning the rooms. Cleaners in the morning logs into the system using

5-digit PIN and they have to select a trolley (Trolley 1 to Trolley 15) which contains 5 cleaning items (sponges, bedsheets, covers, bathrobes, sofa covers). After selecting trolley, system must show cleaner the list of rooms she have to clean. When she pick a room to clean, she must have to use some way to confirm she is actually inside that room to clean it, so that hotel is sure that cleaner is not making fake entries (you are free to use any technology here like QR code, barcode, NFC tag). After confirming, she will select or enter quantity of each cleaning item she used to clean that room, and will finally confirm room clean. After submitting, that room will appear in her list of rooms as cleaned, so that she don't choose same room again for cleaning. You also need to consider following design implications which are discovered in PACT analysis:

People: Cleaners are aged, with less experience of using technology, cannot pay much attention.

Activity: This activity is performed several times a day and is time constrained (they are in lot hurry because they have to clean dozens of rooms in short time)

Context: Indoor environment with sometimes good sometimes poor lightening conditions. They have organizational pressure of completing tasks as earliest yet update the cleaned rooms accurately.

Technology: You are free to choose whichever you want but it will be better if it cost the hotel less.

You need to answer the following:

(CLO-3/SO-4) [15]

- a) Which technology you will use to provide cleaner the interface and which technology you will use to confirm if she is inside the room [2]
- b) Perform a hierachal task analysis (HTA) of this cleaning task of cleaner starting from login and ending at confirming a room clean. Use textual HTA and introduce at least 3 plans. [5]
- c) Design the interface/mock-ups which cleaner will use for all these activities using lead pencil/colors. Don't forget to consider design implications given above. [8]

Q#5 Evaluate the User Interface you designed in above question (Parc Hotel Room Cleaning case study) according to the following user interface design guidelines of Nielsen and Molich:

(CLO-5/SO-2-5) [5]

- i. Visibility of system status
- ii. Match between system and real world
- iii. Aesthetic and minimalist design
- iv. Error prevention
- v. Recognition rather than recall

Also name the type of evaluation you have performed here.