

Programme	: B.Tech – All Branches	Semester	:	Fall 25-26
Course Code	: BCSE415L	Class Number	:	C2+TC2
Course Title	: Human Computer Interaction	Slot	:	CH2025260101471 CH2025260100553
Faculty	: Dr. Brindha V Dr. Sridhar R	Max. Mark	:	50
Duration	: 90 Mins			

General Instructions

- Write only your registration number on the question paper in the box provided and do not write other information
- Only non-programmable calculator without storage is permitted

Answer all questions

Q. No	Sub Sec.	Description	Marks	CO	BT Level
1	i.	<p>One VIT student, Narendra, is working on a project that compares the worldwide percentage usage of browsers using data collected from Wikipedia. The output of his application is shown below.</p> <p>Graph #1</p> <p>Note: Legend goes anticlockwise from Opera indicated as white</p> <p>During his Review-2, he was asked whether the percentage usage of Firefox had increased, but he was unable to answer confidently. Describe the problem with his choice of chart for representing the data, and recommend a more appropriate chart type that would help him answer this question clearly. [4 marks]</p>	10	CO1	Analyz

ii. Narendra was asked in his review to suggest a suitable chart to represent the variation in day-end stock prices of TCS shares from 1st January 2025 to 31st January 2025. Help him by recommending the most appropriate chart type and explain the reason for your choice. [3 marks]

iii. Suggest the appropriate use of the following:
[a] Hamburger icon [1.5 marks]
[b] UI component Carousel [1.5 marks]

i. A User Interface from a 1970s Car Rental Company application is shown below.

- Identify the deficiencies in the given design. [3 marks]
- Redesign the screen by eliminating the stated deficiencies. [5 marks]

2 A student application has the following interface. Usability studies reveal that students are confused and are NOT using the application effectively. Redesign the layout of the screen to improve usability.

- List the deficiencies in the layout of the buttons. [3 marks]
- Propose a redesigned layout and explain how your design improves usability. [4 marks]

Screen 1.1

S.No	Letter for Action	explanation	Estimated time
1	K	Keystroke [pressing a button or key]	0.28 seconds
2	T(N)	Type a sequence of N letters	$N \times 0.28$ seconds
3	P	Point with mouse on a target on display	1.1 sec
4	B	Press or release mouse button	0.1 seconds
5	BB	Click mouse button twice	0.2 seconds
6	H	Home hands to keyboard or mouse	0.4 seconds

You are working on a Windows system, starting from the boot-up state. Your task is to locate a file inside the F drive within a folder named 'VIT', which contains 100 uniquely named MS-Word (.docx) files. You must open the file 'Absentees.docx', find the word '15BCE1111-Premanand' (present only once in the file), delete it, and then save the file itself.

- Using the KLM (Keystroke-Level Model) and the provided operator time table, compute the total time required to complete this task. [5 marks]
- Suggest strategies to perform this task more efficiently and calculate the improved time. [2 marks]
- What are the deficiencies of the KLM model? [3 marks]

i. A control processor has seven options in its User Interface. If the user's response time was 2.1 seconds for the 100th trial and 1.5 seconds for the 200th trial, estimate the expected response time for the 500th trial. [5 marks]

ii. Life Insurance Application, upon maturity, provides seven annuity options A, B, C, D, E, F, and G, each offering different levels of commutation and equivalent annuity values. If only one choice is given, the customer's reaction time is 2 seconds.

- Assuming customers select all options equally, predict the reaction time. [2 marks]
- If the first three options each have a probability of 20%, the next three options each have a probability of 12%, and the last option has a probability of 4%, predict the

10

CO2

15

CO2

reaction time. [3 marks]

iii.

A VIT Chennai student is applying for a Master's program at NTU, Singapore. In the admission form, there is a field 'Institution of Bachelor's Degree' where the student needs to enter or select 'VIT Chennai'. Since there are thousands of engineering institutions worldwide, NTU wants to provide a learning application that stores and suggests institution names entered by students in previous years. As an employee of VIT Infosystems, suggest the most suitable interface selection option for this field and explain your reasoning. [5 marks]

***** All the best *****

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