

Continuous Assessment Test (CAT) – I AUGUST 2025

Programme	: B.Tech	Semester	:	Fall 25-26
Course Code & Course Title	: BCSE415L Human Computer Interaction	Class Number	:	CH2025260101468 CH2025260100551
Faculty	: Dr. Brindha V Dr. Sridhar R	Slot	:	C1+TC1
Duration	: 90 Mins	Max. Mark		50

General Instructions: < Use this space to provide additional information such as graph sheet, data book etc. >

- Write only your registration number on the question paper in the box provided and do not write other information
- Use statistical tables supplied from the exam cell as necessary
- Use graph sheets supplied from the exam cell as necessary
- Only non-programmable calculator without storage is permitted

Answer all questions

Q. No	Sub Sec.	Description	Marks	CO	BT Level
Part -A Answer all questions					
1	i	A software company is developing a new flight simulator training program for pilots. During early testing, new trainees struggle to recall a sequence of cockpit procedures immediately after they are explained. However, after several weeks of practice, they can perform the same procedures automatically without consciously thinking about each step. Experienced pilots can also quickly recognize airport layouts and aircraft controls based on past flying experiences. Identify and explain which aspects of the scenario involve short-term memory, and long-term memory. (4 marks)	10	CO3	K3
	ii	Distinguish between episodic memory and semantic memory in this context, with examples from the scenario. (3 marks)			
	iii	Identify the sensory input and motor output channels used by pilots in the scenario and explain how each channel supports learning and performance. (3 marks)			
2	i	A multinational company is designing a mobile application that will be used by employees worldwide to quickly enter data during field operations. The employees will be working in varied environments from quiet offices to noisy factory floors and outdoor locations. Some will be using laptops, others tablets or smartphones, and a few will rely on wearable devices with minimal screen size. Evaluate the suitability of various text entry methods for three distinct work contexts described in the scenario. Justify your choice by explaining how it aligns with the environmental conditions, device type, and user needs. Identify any limitations and propose strategies to			

	ii	overcome them (8 marks) Analyse the handwriting recognition input method in the given scenario, identifying and explaining at least three major technical challenges it faces. (2 marks)	10	CO2	K4
		Part -B Answer all questions			
3	i ii iii iv	A software development company has recently shifted to a fully remote work model. Employees now spend an average of 9–10 hours a day working from home on laptops. After a few months, the HR department notices an increase in complaints about back pain, eye strain, and wrist discomfort. Productivity has also dropped slightly, and employees report feeling more fatigued by the end of the day. i Identify and explain at least three ergonomic issues evident in the remote work scenario that could negatively impact employees' health and performance. (6 marks) ii Provide solutions to the ergonomic issues faced in the above scenario by way of equipment modification or work space modification? (4 marks) The company applies Fitts' Law to estimate the time to move the cursor and select a button, where $a = 490$ ms, $b = 230$ ms, d = distance to the target (cm), w = width of the target (cm) iii Calculate the selection time for a button that is very close to the cursor's current position. (2 marks) iv If all buttons are square with side length 1 cm, calculate the time when the next button is 10 cm away. (3 marks)	15	CO3	K3
4	i ii	You are hired as a UX consultant to redesign a mobile ticket booking app for a state transportation service. Users report difficulty navigating the app, frequent booking errors, confusion during payment, lack of visual feedback, and abandonment of bookings. Frequent travellers also face the inconvenience of re-entering the same details repeatedly. i Identify the key usability issues from the scenario and propose a redesign using Schneiderman's Eight Golden Rules, explaining how each rule addresses specific problems and improves user interaction. (10 marks) ii Choose one specific user group (e.g., users with visual impairments, or users from rural areas) and explain how your redesign ticket booking to their unique needs, enhancing their overall experience. (5 marks)	15	C04	K2

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

A handwritten signature followed by the date 13/08/23.