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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: VII**

Branch: Artificial Intelligence and machine Learning **Duration: 3 hrs.**

Course Code: 24AM7PEHCI **Max Marks: 100**

Course: Human Computer Interaction

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	CO	PO	Marks
1	a)	Illustrate the essential components of the interaction framework in Human-Computer Interaction (HCI) concerning social and organizational contexts.	CO1	PO1	**06**
	b)	Apply Norman's execution-evaluation cycle to analyze a user's experience with a smartphone app for navigation. Describe each stage of the cycle in relation to the user's actions and feedback received during the interaction.	CO2	PO3	**08**
	c)	"Explain how the gulf of evaluation and the gulf of execution influence the user experience with a system."	CO1	PO1	**06**
		OR			
2	a)	Explain the key milestones in the development of Human-Computer Interaction (HCI).	CO1	PO1	**06**
	b)	Design a user interaction plan for a home automation system that incorporates multiple interaction styles. Integrate each interaction styles to provide a seamless user experience.	CO2	PO3	**08**
	c)	Illustrate the Double Diamond design process in HCI.	CO1	PO1	**06**
		UNIT - II			
3	a)	Differentiate HCI patterns from other design rules in terms of their origin and focus.	CO1	PO1	**06**
	b)	Design a navigation strategy for a new online travel planning platform targeting young adults, integrating both global and local navigation structures to optimize user experience. Provide specific examples of navigation components, page layouts, and user flows.	CO2	PO3	**08**
	c)	Explain the key principles that impact the learnability of a system or an interface.	CO1	PO1	**06**
		OR			

	4	a)	Write Shneiderman's Eight Golden Rules of Interface Design.	*CO1*	*PO1*	**06**
		b)	Write a detailed scenario for a user interaction with an online grocery shopping application that includes user's goals, the context in which they are using the app, the specific interactions they engage in, and the anticipated outcomes of their experience.	*CO3*	*PO3*	**08**
		c)	Describe Norman's Seven Principles for Transforming Difficult Tasks into Simple Ones.	*CO1*	*PO1*	**06**
			UNIT - III			
	5	a)	Create a GOMS description of the task "book a ride using a mobile ride-hailing app". Explain the issue of closure in terms of GOMS description.	*CO2*	*PO3*	**10**
		b)	Design a set of production rules for the chatbot to decide whether to provide a solution, escalate the issue, or request additional information. Discuss their effectiveness in improving customer satisfaction.	*CO2*	*PO3*	**10**
			OR			
	6	a)	Create a Task Action Grammar (TAG) representation to model the actions involved in ordering food through an online food delivery platform.	*CO2*	*PO3*	**10**
		b)	i. Design Backus-Naur Form (BNF) representation for a command-line interface that allows users to perform file operations such as creating, renaming, and deleting files. ii. Illustrate how this representation can model user commands, including the syntax for specifying file names and operations.	*CO2*	*PO3*	**10**
			UNIT - IV			
	7	a)	Describe with suitable example significance of Synchronous distributed interfaces in collaboration.	*CO1*	*PO1*	**10**
		b)	Differentiate face-to-face interfaces with Synchronous distributed and Asynchronous distributed interfaces.	*CO1*	*PO1*	**10**
			OR			
	8	a)	Explain the guidelines for designing Synchronous local (face-to-face) Interfaces.	*CO1*	*PO1*	**10**
		b)	Explain the different types of collaboration, with their respective goals and tools. Provide example for each type of collaboration.	*CO1*	*PO1*	**10**
			UNIT - V			
	9	a)	Develop a hierarchical task analysis to find information on a website. Assume the site has a search facility as well as normal links. Explain the rule to stop the decomposition of hierarchical task analysis.	*CO2*	*PO3*	**10**
		b)	Explain the factors that distinguish different evaluation techniques.	*CO1*	*PO1*	**06**
		c)	Describe the uses of task analysis	*CO1*	*PO1*	**04**

			OR			
	10	a)	Explain the essential components and key questions involved in conducting a cognitive walkthrough to evaluate system's usability.	*CO1*	*PO1*	**10**
		b)	Describe the sources of information and data collection for task analysis.	*CO1*	*PO1*	**05**
		c)	Describe the importance of the Entity-Relationship (ER)-based technique in task modeling, with an example, for defining roles, tasks, and interactions within a system.	*CO1*	*PO1*	**05**

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