Reg. Number:	

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Continuous Assessment Test (CAT) – I - JAN 2025

Programme	:	B.Tech Computer Science and Engineering / B.Tech. Computer Science and Engineering (Cyber Physical Systems)	Semester	:	Winter 24-2025
Course Code & Course Title	:	BCSE415L - Human Computer Interaction	Class Numbers	:	CH2024250502633
Faculty(s)	:	Dr. Deepika Roselind J	Slot	:	B2+TB2
Duration	:	1 hour 30 Minutes	Max. Mark		50

Answer all questions

Q. No	Sub Sec	Description	Marks
1		Examine the following interface:  i. Specify any five UI Golden Rules that have been violated by this interface with justification. [5 Marks] ii. Provide detailed recommendations for modification to address the violations and increase the user productivity. [5 Marks]	10
2		Assume that you are part of a design team developing the HomeChef App, a cooking assistance mobile application that helps users search recipes, follow step-by-step cooking instructions, manage ingredient lists and set timers. i. Conduct a Hierarchical Task Analysis for the recipe search process in the HomeChef App. [6 Marks] ii. While using the app, users have reported difficulties with the recipe search process and interacting with small buttons, especially when their hands are messy while cooking. Suggest design changes that would enhance button accessibility and interaction speed based on Fitts' Law. [4 Marks]	10

3		Imagine that you are designing a self-service information kiosk for a public library that allows users to search for books, check availability, reserve materials, and access their account details without assistance. The kiosk will serve a diverse range of users, including children, elderly patrons, individuals with visual or hearing impairments and those unfamiliar with technology. i. As an HCI designer, design an UI for self-service kiosk designed to cater to the needs of diverse visitors and justify your selection with appropriate examples. [8 Marks] ii. Identify and justify the selection of input and output devices that would be most suitable for users interacting with the library kiosk. [2 Marks] iii. Recommend innovative accessibility features, customizations and design strategies to enhance the usability and inclusiveness of the user interface, with a particular focus on elderly patrons, individuals with disabilities and first-time users. [5 Marks]	15
4		The Green Leaf Cafe has introduced a coffee brewing robot to serve a variety of coffee beverages upon request, available 24/7. Additionally, the cafe features an automated delivery system using robots to transport the brewed coffee to designated tables within the cafe. Customers place their orders using a touchscreen kiosk located at the entrance. You have been tasked with designing the software interface for this touchscreen kiosk. i. Apply GOMS technique to analyse the interaction process for placing an order through the touchscreen kiosk. Provide a detailed analysis of the sequence of actions and operations involved in completing an order. (7 Marks) ii. Design the user interface (UI) for the touchscreen kiosk. Demonstrate how the principles of GOMS can be applied to optimize and streamline the sequence of steps required to complete the ordering process for both novice and experienced users. Your design should include a clear layout and user flow that minimizes the number of operations and interactions required. (8 Marks).	15
********** All the best **********			

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Reg. Number:	21BPS1045

Continuous Assessment Test(CAT) – I - February2024

Programme	:	B.Tech (ECE/CPS)	Semester	:	Winter 23-2024
Course Code & Course Title	:	BCSE415L Human Computer Interaction	Class Numbers	:	CH2023240501482 CH2023240501486
Faculty(s)	:	Anita Christaline. J, Arthi. M.	Slot	:	B2
Duration	:	1 hour 30 Minutes	Max. Mark		50

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
1		You are tasked with designing the user interface of a desktop calendar application for business personnel. The application should allow users to organize meetings and events, invite team members and external users, schedule appointments, and plan the day. Additionally, users should be able to create a quick chat, set up an online meeting, or assign a task. Your task is to design interfaces for any two of these features. Interpret your design, considering the implications of consistency, metaphor, and Fitt's Law.	10
2		The state's tourism department is in the process of creating an interactive web application called 'City Trip Planner,' tailored for both travelers and tourists visiting the state. The app will incorporate information such as opening and closing times of amusement parks, scenic routes, hotel choices, dinner costs, and multi-modal vehicle bookings, aiming to serve as a one-stop platform for making tour planning easier and more enjoyable. As a UI designer, your task is to design this app, using Norman's Execution-Evaluation Cycle as a guide to assess and refine the user experience. Elaborate the impact of Norman's cycle in your design.	10
3		Consider the task of copying a file from one folder to another in a desktop computer. Implement and illustrate with flowcharts atleast two different ways in which this task could be implemented. Also assess these implementations in	10

		terms of GOMS model.	
4		The state agriculture department is planning to develop a mobile app named "MyLand", for the benefit of the farmers. The app provides features such as weather forecasts and prediction, crop production and market advisory, schedule video call by agriculture expert, current market price and trend for crops. The app enables farmers to easily showcase their crops, quote prices, and connect directly with potential buyers for sales. Assume that you are an UI designer for MyLand app. Design such an app and justify your UI design by applying Shneiderman's Eight Golden Rules.	10
5		Assume that you are managing a restaurant where customers can select their food from a mobile app called "Foodyapp." Design a screen layout featuring food menu items with details such as type, price, and name. Consider design parameters such as grouping, ordering, decoration, alignment of items, and the use of white spaces in the layout. Justify the design strategies employed to maintain simplicity without sacrificing essential functionality.	10
********** All the best **********			

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Reg. Number:	

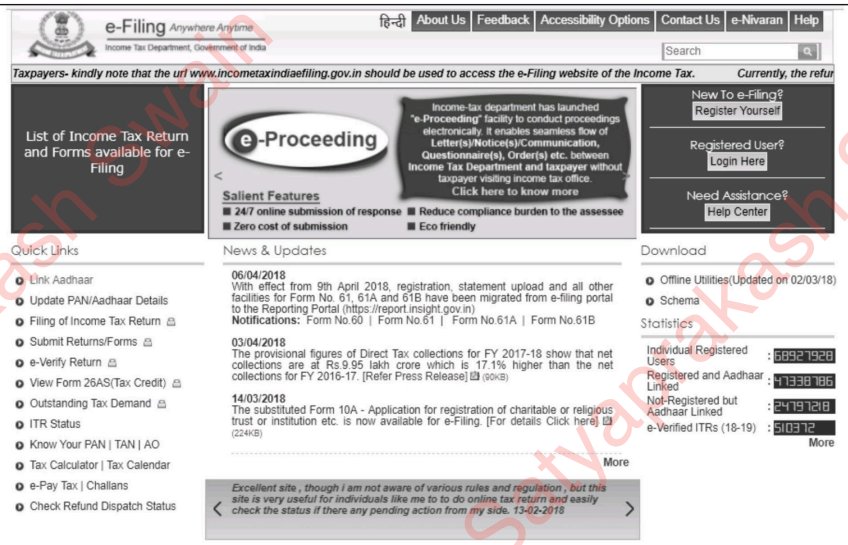
Model Question Paper

Programme	:	**B.TECH (CSE)**	Max. Mark	**100**
Course Code & Course Title	:	**BCSE415L** **Human Computer Interaction**	Duration	**3 Hrs**

General Instructions:

- Write only your registration number on the question paper in the box provided and do not write other information.
- Use scale and pencil, draw diagrams and give illustrations whenever necessary

Answer all questions

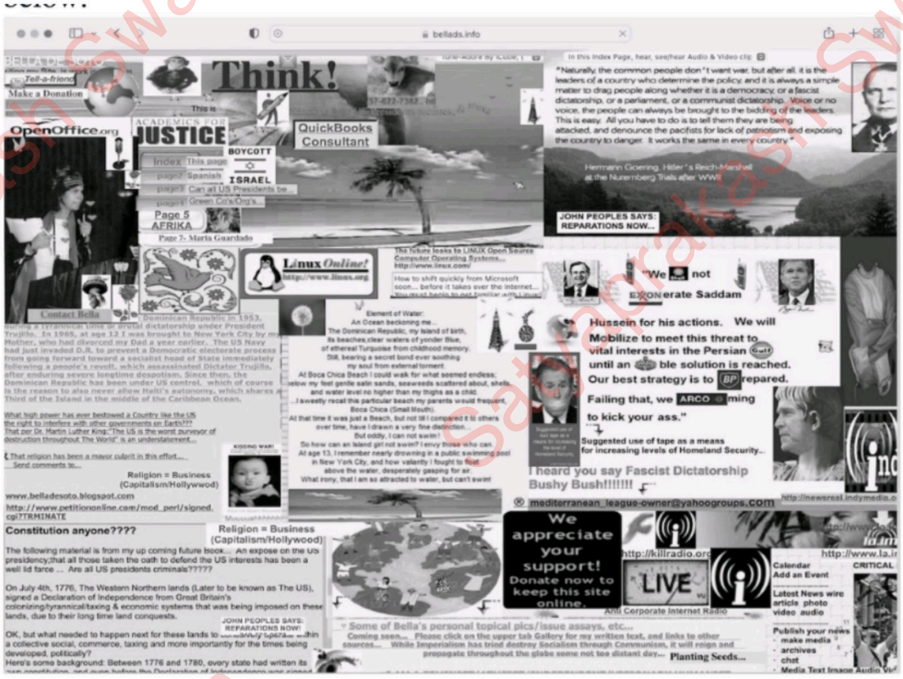
Q. No	Sub Sec.	Description	Marks
1		 The figure above shows the front page of the Indian Government Income Tax Department website. You have been assigned the task of designing a mobile-friendly version of this page that can be viewed effectively on small screens, such as mobile phones or PDAs. The redesigned page must retain the same functionality and content as the current version. **a.** Outline a structured plan to identify the specific needs of mobile users accessing the website. Your plan should focus on layout-related aspects to ensure usability and accessibility on small screens while preserving the website's core functionalities. [15] **b.** Describe the systematic procedures you would implement to evaluate the effectiveness of your redesigned mobile-friendly version. [15]	75

		c. Design a mobile-compatible user interface by providing at least two screen diagrams that illustrate your proposed layout and navigation structure. [15] **d.** Justify the utilization of the Eight Golden Rules of Interface Design in your proposed interface. Additionally, discuss the advantages of applying these principles to enhance usability and user experience in your design. [15] **e.** Illustrate the implications of the GOMS (Goals, Operators, Methods, and Selection Rules) model in analysing your UI design. Explain how the model helps in evaluating user interactions and improving task efficiency. [15]	
2		You have been hired as a UX designer for a leading corporate firm tasked with designing a **technology-supported small workroom** that facilitates **face-to-face collaboration** for **small to medium-sized groups (2-6 people)**. The goal is to create an environment that enhances **team interaction, productivity, and seamless information sharing.** **a.** Assume that the firm aims to equip the workroom with advanced display technologies to support effective collaboration. Identify and briefly explain **five key factors** you need to consider when selecting and outfitting the room with display solutions, keeping in mind the usability, accessibility, and technological integration requirements. [10] **b.** Design **mock UI layouts** for the workroom's display interfaces, providing at least **three screen designs** that showcase how users will interact with the display systems for activities such as presentations, brainstorming sessions, and remote collaboration. Ensure your designs address user experience principles and collaboration efficiency. [15]	25

HCI MODEL QUESTIONS

1. You are part of a team of HCI designers tasked with creating an online learning platform tailored for students preparing for competitive exams. To accomplish this, the platform will incorporate various interactive features such as practice tests, flashcards, video lectures, real-time progress tracking, schedule the timetable, personalized recommendations, and discussion forums.
    i. Design the interface with appropriate interaction style based on human-problem solving approach for any two features of the application.
    ii. Elaborate on any sequence of task interaction in your interface design that justifies your choice of elements that optimize the interface using the human-problem solving approach.

2. Consider the screenshot of the website design provided and answer the questions provided [10] below.



    i. Specify the Norman's principles of interaction design that have been violated in this website design.
    ii. Examine the impact of Norman's principles on increasing the user productivity.

3. The Olympics committee has put together a team of website designers for creating a website for the 'Paralympics 2024' games. The design team is committed to embodying accessibility and inclusivity principles to ensure that all users, including those with disabilities, can fully engage with the platform. The Olympics committee requires the design team to incorporate essential features

such as alt text for images (concise description of an image), captions for videos, intuitive navigation options and assistive technologies etc for providing accessibility to all users.

i. Considering this goal, elaborate on how the website team would approach the design process for user with disability to incorporate essential features recommended by the committee to create a user-friendly UI that can be accessed by users with disabilities.

ii. Design and customize the appropriate input and output devices that facilitate user input and output on the 'Paralympics 2024' games website.

iii. Design web and mobile compatible wireframes for any scenario that clearly depicts the layout and functionality of the app's primary screen with neat illustration. Detail the principles and guidelines used for your design.

4. Imagine you are a member of a design team responsible for developing a fitness and wellness app focused on promoting healthy habits and physical activity among users. The app will include features like workout routines, nutrition tracking, goal setting, progress monitoring, community challenges and expert advice.

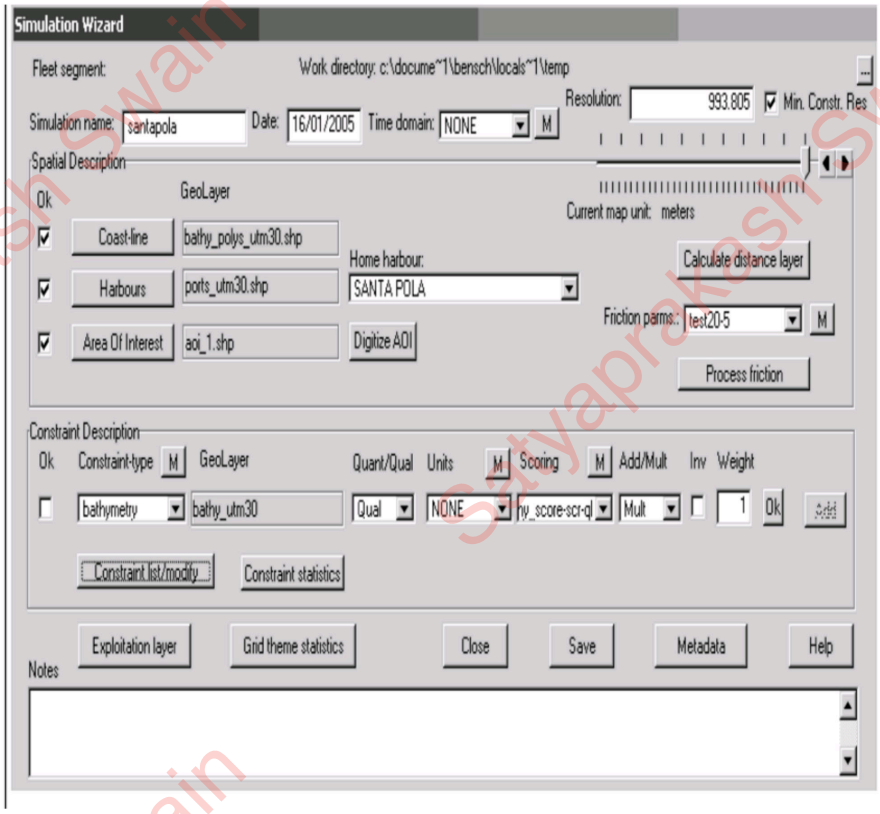
   i. Design the interface with appropriate interaction style based on human-problem solving approach for any two features of the application.

   ii. Elaborate on any sequence of task interaction in your interface design that justifies your choice of elements that optimize the interface using the human-problem solving approach.

5. Suppose you are an HCI designer involved in creating a travel planning application that utilizes [20] augmented reality (AR) to offer personalized travel recommendations and immersive experiences to users. The app is designed to cater to both adventure-seeking millennials and older travelers who may prefer more traditional travel planning methods. As an experienced designer interpret, refine, and extend the Eight Golden Rules of interface design for the UI of the travel planning application.

6. The Indian Railways has been planning to develop "Rail Yatri Guide" a touch screen kiosk, as a single-point enquiry station for answering all the queries of passengers, including guidance and navigation for accessing various facilities available at the railway station. Assume that you are the UI designer for the on-screen application of the "Rail Yatri Guide" kiosk. Develop a hierarchical task analysis (HTA) diagram for "Rail Yatri Guide". Also, design two interfaces and critically analyse the implications of Fitts' law on the design.

7. It's been said that the human mind can remember 7(+ or -) 2 chunks of information. Discuss the truth of this statement, and cite two situations in which it has been misused in the design of computer interfaces.
8. As a UI designer, you are tasked with designing a word editor application. To create an effective interface, you aim to analyze the features of the Microsoft Word interface to understand the best plan for your design. Specifically, you focus on analyzing the design task of saving an existing file to implement the changes made. Microsoft Word offers different options for saving a file, such as choosing the option to save using the mouse or using the shortcut key 'Ctrl+S. List the sequence of subtasks involved in any two scenarios to save the document in Microsoft Word and estimate the time taken by different users for the above-mentioned tasks using the GOMS model of 'saving a file.'
9. Examine the following interface:



Name the UI Golden Rules that has been violated in the above interface. Examine the impact of the Golden Rules on increasing the user productivity.

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Reg. Number	22BPS1155

Continuous Assessment Test (CAT) – I

Programme	:	B.Tech. CSE (CPS)	Semester	:	Fall Semester 2024-2025
Course Code & Course Title	:	BCSE415L- Human Computer Interaction	Class Number	:	CH2024250102739 CH2024250100555
Faculty	:	Dr. Lakshmi Harika Palivela Dr. Arthi M	Slot	:	C1+TC1
Duration	:	1½ Hours	Max. Mark		50

General Instructions:

- 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	Description	Marks
1	A healthcare technology company is developing a smart home assistant called "CareCompanion," specifically designed for elderly individuals living alone. The assistant helps users manage daily tasks such as controlling home appliances (TV, lights), setting reminders (tablets intake, doctor appointments) through spoken alerts, staying connected with family, and maintaining safety via notifications on a tablet screen. Design with a neat sketch of UI that captures the multimodal interaction as input from elderly user with cognitive impairments or forgetfulness. Evaluate the combination of different input modes that can be applied to capture reminders effectively. Analyze how these modes can be designed to ensure tasks are not overlooked, particularly for users who may struggle with memory or responding promptly.	10
2	Assume you are the UI designer for an on-screen application for an "Airline Ticket Booking System," which is a self-service kiosk at airports designed to help passengers book, manage, and check the status of their flights. i) Create a semantic network diagram that will assist designer to map the technical information during the app-building process. (6 M) ii) As a user interacting with the self-service kiosk for the Airline Ticket Booking System at the airport, how do the	10

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Continuous Assessment Test- II OCTOBER 2024

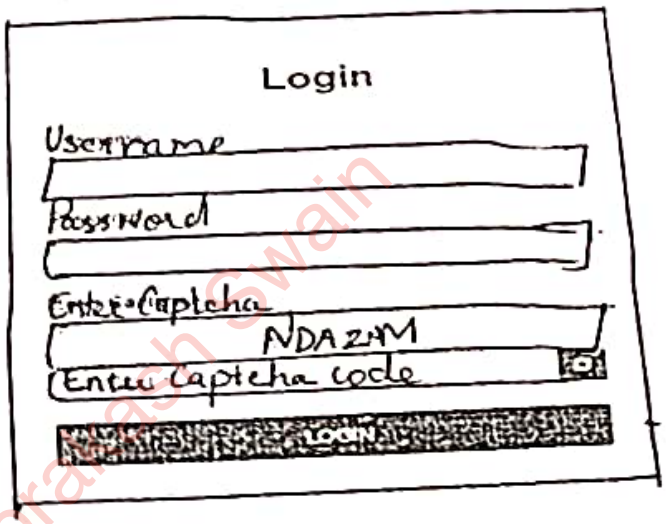
Programme	B.Tech (CSE)		
Course	Human Computer Interaction	Semester	FALL Semester 2024-2025
		Code	BCSE415L
		Class Nbr	CH2024250100556 CH2024250102740
Faculty	Dr V.Nivethitha & Dr. Maheswari S		
Time	90 minutes	Slot(s)	C2+TC2
		Max. Marks	50

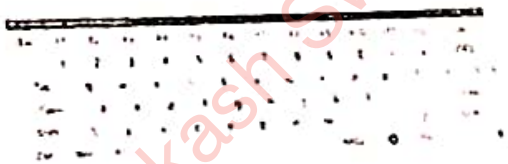
Answer ALL the Questions

Q.No	Question	Marks
1.	Consider a scenario where a user logs into a secure application. To enhance security, the application includes a CAPTCHA verification step and offers the option to enable a virtual keyboard for entering the password. The user can either use the mouse to enter the password via the virtual keyboard or directly type it using the physical keyboard.	[10]

(a) Estimate the time required for the user to complete the login process using both methods (virtual keyboard and physical keyboard) by applying the Keystroke-Level Model (KLM) encoding method. Include both physical and cognitive operators in your analysis. [6 Marks]

(b) Illustrate the placement of the M (mental) operator in your evaluation, and explain the heuristics used for determining its position. [4 Marks]





22BPS1172

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Continuous Assessment Test- I AUGUST 2024

Programme	: B.Tech (CSE)	Semester	: FALL Semester 2024-2025
Course	: Human Computer Interaction	Code	: BCSE415L
		Class Nbr	: CH2024250100556 CH2024250102740
Faculty	: Dr V.Nivethitha & Dr. Maheswari S	Slot(s)	: C2+TC2
Time	: 90 minutes	Max. Marks	: 50

Answer ALL the Questions

1. A major city transportation authority is planning to develop a 'City Transit Guide,' a touchscreen kiosk for its citizens. The kiosk should serve as a comprehensive, user-friendly touchpoint for passengers, addressing their queries related to transit, such as bus and train schedules, ticket purchasing, and station amenities. [10]

   a) As a UI designer, conceptualize and design the input and output interfaces of the kiosk. [6 M].

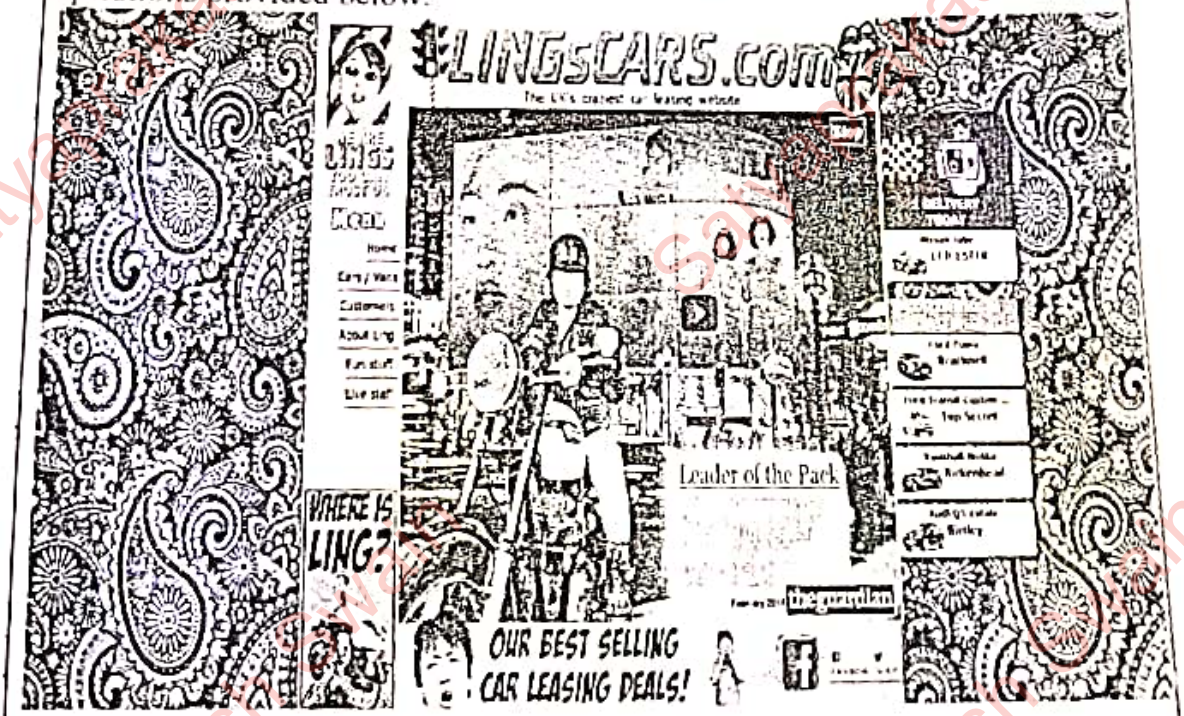
   b) Formulate how customization and accessibility options can be incorporated into the design to ensure the kiosk caters to a diverse range of users, including those with disabilities. [4 M]

2. Imagine you are designing a mobile banking app where users frequently perform tasks like transferring funds, checking balances, and managing multiple accounts. Everyday users might regularly check their account balances or make quick payments, while financial professionals need to swiftly navigate between multiple client accounts and execute complex transactions. [10]

   a) Design two interfaces applying Fitts' Law principles to enhance user experience and increase productivity. [5 M].

   b) Analyze and discuss the features that would be most beneficial for both everyday users and financial professionals. How would you ensure that the UI design addresses the specific needs and preferences of these two distinct user groups? [5 M]

3. Evaluate the following interface. Analyze and identify the UI Golden Rules that have been violated in this design. Examine the impact of these violations on user productivity. [1

	users working memory and long-term memory contribute to selecting options, navigating through different screens, and recalling information during the booking process? (4 M)	
3	Alex is a high school student using an interactive learning platform designed to simulate a virtual science lab. The platform allows students to perform experiments, analyze results, and collaborate with peers in a virtual environment. Alex is working on a chemistry experiment to explore the effects of different chemical reactions. He needs to mix various compounds, observe the reactions, and record the outcomes, all within the virtual lab. The UI leverages multiple input and output devices to create an immersive and accessible learning experience. Design an appropriate UI to satisfy the above requirements and identify the essential input and output devices for the interactive learning app. Justify your selection.	10
4	Consider the screenshot of the website design provided and answer the questions provided below:  Specify the Normans principles that have been violated by this Web design. Explain how adhering to these principles could enhance user productivity and overall experience.	10

Help? Chat with Us!" Desperate for a quick resolution, she chooses the AI-powered chatbot for assistance. The chatbot greets her and inquiries about her issue. After Sarah explains her concerns about potential unauthorized access, the chatbot quickly checks her account status. It identifies an unauthorized transaction, locks her account to prevent further issues and guides Sarah through securing her account. Relieved by the swift assistance, Sarah appreciates the support and feels empowered to address the situation effectively.

Consider the interaction scenario between Sarah and the AI-chatbot, elaborate a formal storyboarding technique to understand the users, users requirements and the UI design consideration.

4	Suppose you are an HCI designer working on an e-learning platform that integrates virtual reality (VR) to offer personalized learning experiences. The platform is designed to cater to two distinct groups: tech-savvy college students and older adult learners who may be less comfortable with advanced technology. i. Analyse how the Model Human Processor (MHP) can be applied to differentiate the cognitive processes of college students and older adult learners when interacting with the virtual reality (VR) learning platform. [5 M] ii. Propose user interface design strategies based on MHP principles, such as information presentation, ease of navigation and user engagement to accommodate the cognitive differences between these two user groups effectively. [5 M]	10
5	Jakob Nielsen's 10 usability heuristics (principles) are often used for usability evaluation and to analyse the User Experience of applications and/or systems. You have been asked to evaluate the UI of the website provided below. Compose examples of how you would evaluate the given web UI to satisfy each heuristic (principle).  	10

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

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Continuous Assessment Test (CAT) – II (October 2024)

Reg. Number	23BAS1160

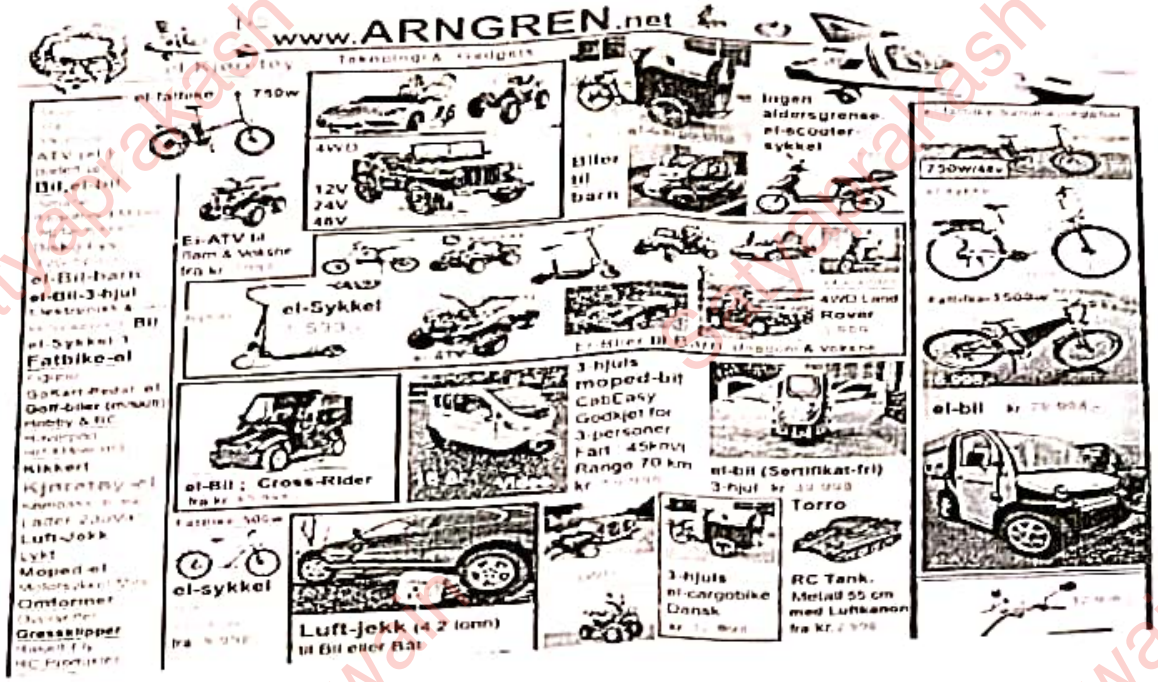
Programme	:	B.Tech (CSE) Cyber Physical Systems	Semester	:	Fall 24-25
Course Code & Course Title	:	BCSE415L- Human Computer Interaction	Class Number	:	CH20242501000555 CH20242501002739
Faculty	:	Dr. Arthi M Dr. Lakshmi Harika Palivela	Slot	:	C1+TC1
Duration	:	1½ Hours	Max. Mark		50

General Instructions:

- Write only your registration number on the question paper in the box provided and do not write other information.

Answer all questions

Q. No	Description	Marks
1	A warehouse operator is tasked with updating the inventory in an e-commerce management system software. Design a user interface (UI) for an inventory entry screen that involves the following steps: selecting a specific product from the inventory list using the mouse, entering the quantity of items received (e.g., "150") via keyboard input, and pressing Enter to submit the update. i. Using the Keystroke-Level Model (KLM), identify two different action sequences for completing the task of entering one inventory item in your UI design, and estimate the time required for the operator to complete the process. (6M) ii. Analyze the potential impact of introducing a barcode scanner to replace the manual product selection process. How would this change affect the overall task time according to KLM? (4M)	10
2	You are tasked with designing a mobile recipe application aimed at users who want to discover new recipes, learn cooking techniques, and improve their culinary skills. The app offers a wide variety of recipes, ranging from quick weeknight dinners to elaborate gourmet meals, ensuring something for everyone. Users should be able to search for recipes based on dietary preferences, available ingredients, preparation time, and cooking methods. Design a wireframe for two core features of the application. Analyze the user-friendliness of your wireframe based on two different user scenarios. Describe each scenario in detail and explain how your design supports ease of use for the user in each case.	10
3	Sarah Thompson, a busy professional in her early 30s, has recently encountered a frustrating issue with her bank account. After receiving multiple alerts about unusual activity, she fears that her account may have been compromised. With a looming deadline for an important payment, Sarah is feeling anxious and agitated, urgently needing clarity on her account status and immediate assistance to resolve the issue. As Sarah navigates her bank's mobile app, she notices a chat icon labelled "Need	10



4 Assume you are designing the UI for an application for a cafeteria. [10]

a) Identify the most suitable navigation style for each of the following tasks in a café management application: accessing the main café menu, viewing detailed menu options (e.g., appetizers, entrees, desserts), and managing staff schedules. Examine why each navigation style is appropriate for these tasks. [5 M]

b) Articulate methods to reduce screen scanning and navigation time within the application. Develop a strategy for designing the interface to minimize the effort required to find and access key features. [5 M]

5 Imagine you are designing a chat application specifically for elderly users who may have varying levels of tech experience and physical motor skills, focusing on easy-to-read text, simple navigation, and user-friendly interactions. [10]

a) Analyze the factors affecting clarity and ease of use for users with limited vision and technology experience. Explain how you would structure and order the elements and text on the screen to accommodate these needs. [5 M]

b) Design a UI diagram that illustrates how to incorporate two features of visually pleasing composition into the chat screen. Describe how these features enhance usability and accessibility for elderly users. [5 M]

2. You are designing an interactive control system for a smart home, where users can control various home devices (e.g., lights, thermostats, security cameras, and entertainment systems). The control system must feature a menu structure that enables users to quickly select and control devices across multiple rooms in their home (e.g., Living Room, Bedroom, Kitchen). The goal is to design a menu interface that minimizes the time required for users to locate and interact with devices, even as the number of devices increases. [10]

(a) Design a user interface (UI) with a menu structure that applies Hick's Law to efficiently organize home devices, enabling users to interact with them quickly. **[7 Marks]**

(b) Justify how the application of Hick's Law in your UI design improves user access and interaction efficiency. **[3 Marks]**

3. Imagine you're designing a user interface for a travel planning platform that helps users create custom vacation itineraries. The platform features an interactive map for exploring destinations, along with options for selecting activities and accommodations across categories like adventure, relaxation, culture, and eco-tourism. Personalized recommendations are provided based on user preferences, and each destination includes descriptions, images, pricing, and reviews. [10]

Create a storyboard that illustrates the user journey through two key features: Destination Exploration via the interactive map and Activity/Accommodation Selection. Highlight key interactions and design elements that enhance the user experience. Your storyboard should include the following details:

- The initial interface for exploring destinations.
- Steps for navigating and interacting with the map.
- Steps for selecting activities or accommodations.
- How personalized recommendations guide decision-making at each stage.

This storyboard should provide insights into user experience and design requirements.

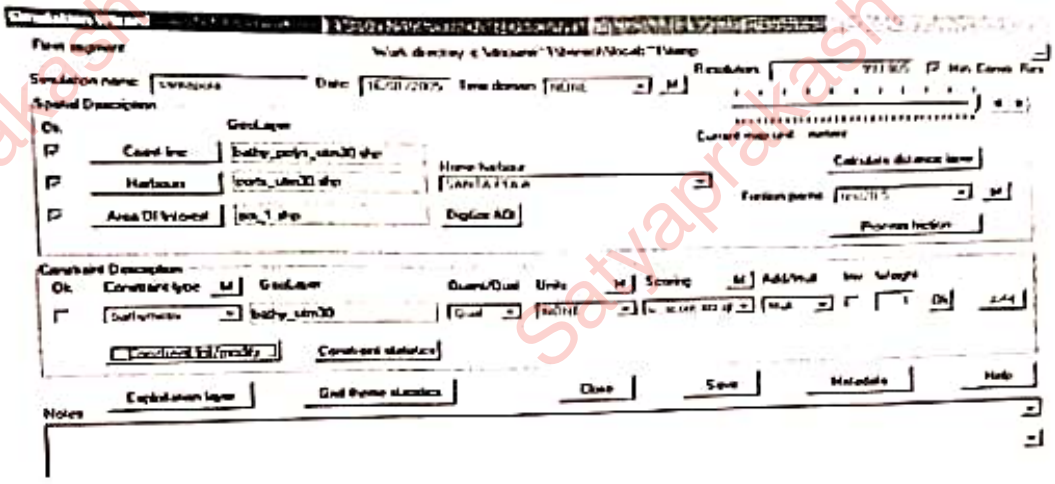
4 As part of a design team developing a disaster management platform, create wireframe UI designs for two key features. These features may include real-time rescue team tracking, resource allocation (e.g., food, medical supplies), live updates/alerts to affected citizens, coordinating relief agencies and displaying critical data (e.g., maps of high-risk zones, weather forecasts). [10]

Design two wireframes that prioritize usability and simplicity for high-stress situations. Also, consider how your designs can operate effectively under conditions with intermittent network connectivity. Justify your design decisions based on usability and functionality.

5 Consider the web design provided below.

(a) Evaluate the below given web UI based on Nielsen's usability heuristics. Analyze how well the design meets each heuristic. [8 Marks] [10]

(b) Identify any usability issues and suggest design improvements to address them. [2 Marks]



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Reg. Number	22BCS1155

Continuous Assessment Test (CAT) – 1

Programme	:	B.Tech. CSE (CPS)	Semester	:	Fall Semester 2024-2025
Course Code & Course Title	:	BCSE415L- Human Computer Interaction	Class Number	:	CH20242501027 39 CH20242501005 55
Faculty	:	Dr. Lakshmi Harika Palivela Dr. Arthi M	Slot	:	C1+TC1
Duration	:	1½ Hours	Max. Mark		50

General Instructions:

- 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	Description	Marks
1	A healthcare technology company is developing a smart home assistant called "CareCompanion," specifically designed for elderly individuals living alone. The assistant helps users manage daily tasks such as controlling home appliances (TV, lights), setting reminders (tablets intake, doctor appointments) through spoken alerts, staying connected with family, and maintaining safety via notifications on a tablet screen. Design with a neat sketch of UI that captures the multimodal interaction as input from elderly user with cognitive impairments or forgetfulness. Evaluate the combination of different input modes that can be applied to capture reminders effectively. Analyze how these modes can be designed to ensure tasks are not overlooked, particularly for users who may struggle with memory or responding promptly.	10
2	Assume you are the UI designer for an on-screen application for an "Airline Ticket Booking System," which is a self-service kiosk at airports designed to help passengers book, manage, and check the status of their flights. i) Create a semantic network diagram that will assist designer to map the technical information during the app-building process. (6 M) ii) As a user interacting with the self-service kiosk for the Airline Ticket Booking System at the airport, how do the	10

5	You are tasked with designing an advanced UI for a digital library application that serves both users with disabilities (such as visual or motor impairments) and those without disabilities. The design team has to incorporate essential features such as alt text for images (concise description of an image), captions for videos and intuitive navigation options etc for providing accessibility to all users. Considering this goal, elaborate on how the website team would approach the design process for user with disability to incorporate essential features. Design a mobile compatible wireframe for any two scenarios that clearly depicts the layout and functionality of the app's primary screen with neat illustration.	10

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

VIT
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CHENNAI

Reg. Number:	22BCB1014

Continuous Assessment Test (CAT) – I - JAN 2025

Programme	:	B.Tech. CSE and its Specializations	Semester	Winter 2024-25
Course Code & Course Title	:	BCSE415L Human Computer Interaction	Class Number	CH2024250502026 CH2024250502034
Faculty	:	Dr. PRAVEEN JOE I R Dr.M.VIDHYALAKSHMI	Slot	C1+TC1
Duration	:	90 mins	Max. Mark	50

General Instructions:

- Write only your registration number on the question paper in the box provided and do not write other information.
- Use scale and pencil, draw diagrams and give illustrations whenever necessary

Answer all questions

Q. No	Sub Sec.	Description	Marks
1		Discuss how human cognitive processes, including memory, thinking, reasoning, and problem-solving, influence the design of user interfaces in Human-Computer Interaction. In your answer, consider the role of emotion in user experience and how emotional responses can impact decision-making and interaction with technology. Provide one detailed illustration to support your arguments.	15
2		Imagine you are designing an advanced software application for an architect working on the blueprint of a new building. The application allows the architect to design the building in a 3D environment, edit floor plans, and visualize different design elements in real time. The architect will need to input detailed specifications, make precise changes, and explore the design from different perspectives. To enhance the user experience and streamline workflow, you decide to incorporate a range of input and display devices, including text entry devices, positioning and pointing tools, display devices, and 3D interaction tools. In the context of the architecture design software described above, explain how you would incorporate **at least 10 different devices** for text entry, positioning, pointing, drawing, display, and 3D interaction to facilitate the architect's tasks. In your answer, discuss the specific role of each device and how it contributes to improving the user's efficiency, accuracy, and overall experience in the design process.	15

3		Consider two human problem solving models of your choice. How might they complement each other in a real-world problem-solving scenario? Provide an example of a problem where both models could be applied, highlighting the strengths and potential limitations of each model in that context.	10
4		Imagine you are designing the interface for a new mobile banking application. The app is meant to be used by a wide range of customers, from tech-savvy users to those with minimal experience using smartphones. The goal is to make the app user-friendly, intuitive, and efficient, ensuring that users can perform tasks such as checking balances, transferring money, and paying bills without confusion.	10

VIT

Vellore Institute of Technology

CHENNAI

Reg. Number:	

Continuous Assessment Test (CAT) – I - JAN 25

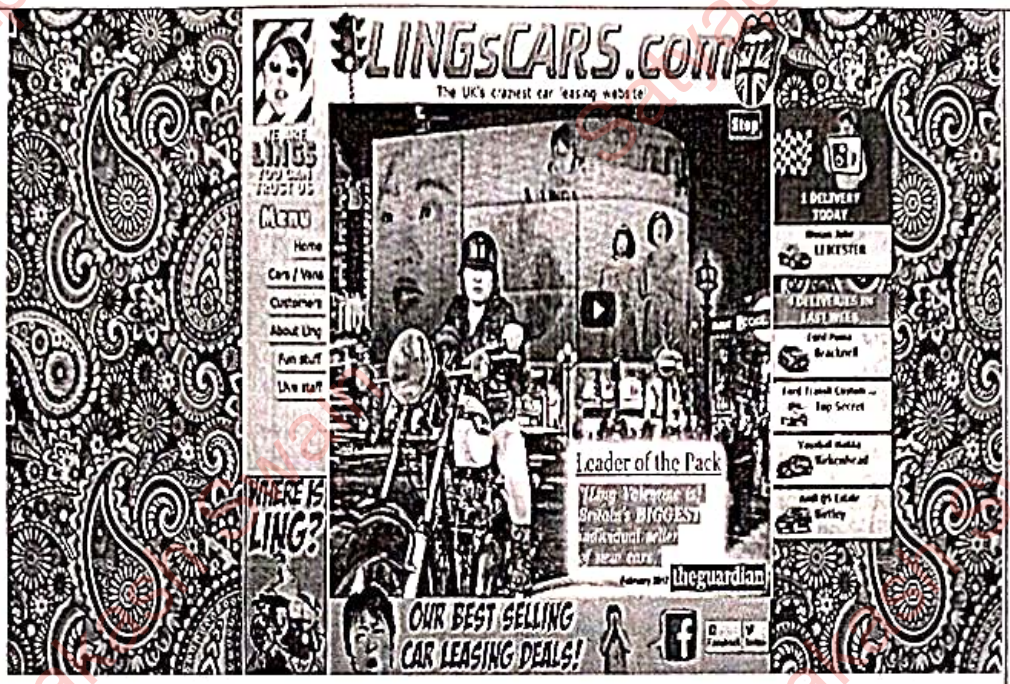
Programme	:	B.Tech (CSE)	Semester	:	Winter Semester 2024-2025
Course Code & Course Title	:	BCSE415L - Human Computer Interaction	Class Number	:	CH2024250502029 CH2024250502036
Faculty	:	Dr. J. Prassanna Dr. Vidhya Lakshmi M	Slot	:	C2+TC2
Duration	:	1½ Hours	Max. Mark		50

General Instructions:

- Write only your registration number on the question paper in the box provided and do not write other information.

Answer all questions

Q. No	Description	Marks
1	It is commonly stated that the human mind can remember 7 (± 2) chunks of information. Discuss the validity of this claim and provide two examples where it has been misapplied in computer interface design.	10
2	Assume that Indian Railways plans to develop 'Rail Yatri Guide,' a touchscreen kiosk serving as a single-point inquiry station for passengers. It will provide navigation assistance and access to various railway station facilities. As a user interface (UI) designer for this kiosk, develop a hierarchical task analysis (HTA) diagram for your UI design plan. Additionally, critically analyze the implications of Fitts' Law on the interface design.	10
3	You are designing a user interface (UI) for an interactive learning platform that simulates a virtual science lab for high school students. The platform allows students to conduct experiments, analyze results, and collaborate in a virtual environment. In a chemistry experiment, students mix compounds, observe reactions, and record outcomes within the virtual lab. Design a suitable UI to meet these requirements and identify the essential input and output devices for an immersive and accessible learning experience. Justify your choices.	10

4	 Examine the above provided website screenshot and identify the Norman's principles violated in its design. Explain how following these principles can improve user productivity and overall experience	10
5	In a dynamic travel website, users interact with the application for travel planning and booking. The interface should allow travelers to explore destinations, search based on preferences, plan itineraries, and complete bookings seamlessly. Users should also be able to browse flights, accommodations, and activities to create personalized travel experiences. Considering the human problem-solving model, design and illustrate the hierarchical planning of the interface for this scenario.	10
	**********All the best **********	

Reg. Number

VIT
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)
CHENNAI

Continuous Assessment Test (CAT) – I - JAN 2025

Programme	:	B.Tech Computer Science and Engineering / B.Tech. Computer Science and Engineering (Cyber Physical Systems)	Semester	:	Winter 24-2025
Course Code & Course Title	:	BCSE415L - Human Computer Interaction	Class Numbers	:	CH2024250502633
Faculty(s)	:	Dr. Deepika Roselind J	Slot	:	B2+TB2
Duration	:	1 hour 30 Minutes	Max. Mark		50

Answer all questions

Q. No	Sub Sec	Description	Marks
1		Examine the following interface:  i. Specify any five UI Golden Rules that have been violated by this interface with justification. [5 Marks] ii. Provide detailed recommendations for modification to address the violations and increase the user productivity. [5 Marks]	10
2		Assume that you are part of a design team developing the HomeChef App, a cooking assistance mobile application that helps users search recipes, follow step-by-step cooking instructions, manage ingredient lists and set timers. i. Conduct a Hierarchical Task Analysis for the recipe search process in the HomeChef App. [6 Marks] ii. While using the app, users have reported difficulties with the recipe search process and interacting with small buttons, especially when their hands are messy while cooking. Suggest design changes that would enhance button accessibility and interaction speed based on Fitts' Law. [4 Marks]	10

3		Imagine that you are designing a self-service information kiosk for a public library that allows users to search for books, check availability, reserve materials, and access their account details without assistance. The kiosk will serve a diverse range of users, including children, elderly patrons, individuals with visual or hearing impairments and those unfamiliar with technology. i. As an HCI designer, design an UI for self-service kiosk designed to cater to the needs of diverse visitors and justify your selection with appropriate examples. [8 Marks] ii. Identify and justify the selection of input and output devices that would be most suitable for users interacting with the library kiosk. [2 Marks] iii. Recommend innovative accessibility features, customizations and design strategies to enhance the usability and inclusiveness of the user interface, with a particular focus on elderly patrons, individuals with disabilities and first-time users. [5 Marks]	15
4		The Green Leaf Cafe has introduced a coffee brewing robot to serve a variety of coffee beverages upon request, available 24/7. Additionally, the cafe features an automated delivery system using robots to transport the brewed coffee to designated tables within the cafe. Customers place their orders using a touchscreen kiosk located at the entrance. You have been tasked with designing the software interface for this touchscreen kiosk. i. Apply GOMS technique to analyse the interaction process for placing an order through the touchscreen kiosk. Provide a detailed analysis of the sequence of actions and operations involved in completing an order. (7 Marks) ii. Design the user interface (UI) for the touchscreen kiosk. Demonstrate how the principles of GOMS can be applied to optimize and streamline the sequence of steps required to complete the ordering process for both novice and experienced users. Your design should include a clear layout and user flow that minimizes the number of operations and interactions required. (8 Marks).	15

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