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

Autonomous Institute Affiliated to VTU

April 2025 Semester End Make-Up Examinations

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

Branch: Computer Science and Engineering **Duration: 3 hrs.**

Course Code: 22CS7PERPA **Max Marks: 100**

Course: Robot Process Automation Design and Development

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)	Discuss the scope of Robotic Process Automation in modern industries. How does RPA differ from traditional automation techniques? Identify the essential components of an RPA system.	*CO1*	*PO 1*	**10**
	b)	Develop a use case where UiPath can be used to automate a repetitive process in a specific industry. Explain the steps involved and the expected outcomes.	*CO3*	*PO3*	**10**
		OR			
2	a)	Elucidate the components of the UiPath stack and their roles in enabling automation processes. How do these components interact during a typical automation workflow?	*CO1*	*PO1*	**10**
	b)	Compare and contrast manual task recording with automated task recording in UiPath Studio. Provide three real-world examples where the record-and-play functionality of UiPath can be effectively utilized. Describe the workflows and discuss the benefits of automation in these scenarios.	*CO2*	*PO2*	**10**
		UNIT - II			
3	a)	Compare sequences and flowcharts in terms of structure, application, and ease of use. For which type of automation tasks is each more suitable? Provide examples to support your explanation.	*CO2*	*PO2*	**10**
	b)	Design an end-to-end workflow using sequence, flowchart, and control flow concepts to automate the following scenario: "Reading data from an Excel file, validating the data using	*CO3*	*PO3*	**10**

			conditions, and updating a database based on the validation results."			
			OR			
	4	a)	What are arguments in RPA? Differentiate between input, output, and input-output arguments with examples. Design a simple automation where arguments are used to pass data between workflows.	*CO2*	*PO2*	**10**
		b)	Create an RPA workflow that combines multiple concepts: i. Reads data from a CSV file. ii. Converts the data to a data table. iii. Processes the data (e.g., adds a new column with computed values). iv. Saves the updated data to an Excel file. v. Explain each step with screenshots or detailed pseudocode.	*CO3*	*PO3*	**10**
			UNIT - III			
	5	a)	Differentiate between selectors, anchors, and UI frameworks in the context of finding controls. Discuss how their proper usage impacts automation reliability.	*CO2*	*PO2*	**10**
		b)	Illustrate the concept of Screen scraping and how it differs from OCR. Discuss the scenarios where OCR should be preferred.	*CO1*	*PO1*	**10**
			OR			
	6	a)	Describe how mail plugins are integrated into RPA workflows. What are the key functions of mail plugins when automating email-based tasks? Illustrate with an example of automating the extraction of attachments from emails using a mail plugin.	*CO1*	*PO1*	**10**
		b)	Explain how an RPA bot can use a PDF plugin to extract relevant data from an invoice and then automatically enter that data into a web-based application or a database. Describe the workflow step-by-step.	*CO1*	*PO1*	**10**
			UNIT - IV			
	7	a)	Define assistant bots in the context of RPA. Discuss their role in automating repetitive tasks and their benefits in improving efficiency in business processes.	*CO1*	*PO1*	**10**
		b)	Critically evaluate the challenges associated with handling user events and triggering assistant bots in RPA. What are the common pitfalls, and how can these challenges be overcome to ensure smooth and effective automation?	*CO2*	*PO2*	**10**
			OR			
	8	a)	Interpret the concept of exception handling in RPA workflows, common exceptions encountered, and strategies to handle them effectively.	*CO1*	*PO1*	**10**

		b)	List the importance of collecting crash dumps and error reports in RPA. How do they help identify failures. Discuss their role in process improvement and maintaining automation quality.	*CO2*	*PO2*	**10**
			UNIT - V			
	9	a)	Brief about nesting in RPA. Discuss how nesting enhances reusability, modularity, and efficiency with an example.	*CO1*	*PO1*	**10**
		b)	Compare state machines, flowcharts, and sequences in RPA. When would you use each type? Provide practical examples for their effectiveness in different automation scenarios.	*CO2*	*PO2*	**10**
			OR			
	10	a)	Explicate the process of publishing a bot using the publish utility. What are the key steps involved, and what challenges might arise during publishing?	*CO1*	*PO1*	**10**
		b)	How does the orchestration server ensure optimal bot performance through monitoring, scheduling, and load balancing?	*CO1*	*PO1*	**10**

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