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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

MCA

SEM:IV- THEORY EXAMINATION (2025-2026)

Subject: Robotic Process Automation

Time: 3Hours

Max. Marks:100

General Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.
2. Maximum marks for each question are indicated on right hand side of each question.
3. Illustrate your answers with neat sketches wherever necessary.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.
6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION – A

20

1. Attempt all parts:-

- | | | |
|-------|---|---|
| (1.1) | In the context of RPA development methodologies, how does the lifecycle primarily differ from the traditional Software Development Life Cycle (SDLC)?[CO1,K1] | 1 |
| | A) RPA requires a longer testing phase due to complex coding. | |
| | B) RPA focuses on automating existing UI-based tasks rather than building new underlying functionality. | |
| | C) SDLC does not involve a "Design" phase, whereas RPA does. | |
| | D) RPA is strictly a Waterfall process, while SDLC is always Agile. | |
| (1.2) | Name the component of the RPA architecture is responsible for the centralized deployment, monitoring, and scheduling of the digital workforce? [CO1,K1] | 1 |
| | A) The Bot Runner | |
| | B) The Development Studio | |
| | C) The Orchestrator / Control Center | |
| | D) The Process Recorder | |

- (1.3) Select variable type is unique to certain RPA platforms (like UiPath) and can store various types of data, including text, numbers, and dates, automatically converting them based on the required operation? [CO2,K1] 1
- A) String
B) GenericValue
C) Object
D) Dynamic
- (1.4) In RPA development, what is the primary functional difference between a "Sequence" and a "Flowchart"? [CO2,K1] 1
- A) Sequences support loops, while Flowcharts do not.
B) Flowcharts are better suited for simple, linear processes, while Sequences handle complex branching.
C) Sequences are linear and best for small processes; Flowcharts use connectors for complex, non-linear logic and multiple decision paths.
D) Only Sequences allow the use of the "Assign" activity.
- (1.5) Data scraping is mainly used for: [CO3, K1] 1
- A) Encrypting files
B) Collecting information from websites or documents
C) Formatting disks
D) Creating animations
- (1.6) Select Input Method is generally considered the fastest and works in the background, but does not support hotkeys or empty field functionality?[CO3, K1] 1
- A) Default (Hardware Events)
B) Send Window Messages
C) Simulate Type / Simulate Click
D) Chromium API
- (1.7) Relate which type of trigger is primarily used to monitor a specific UI change, such as a button disappearing or a text box appearing, before the Assistant Bot executes an action? [CO4,K1] 1
- A) System Trigger
B) Element Trigger
C) Hotkey Trigger
D) Mouse Trigger
- (1.8) In the "Try-Catch" mechanism of RPA, which block is executed regardless of whether an exception occurred or was successfully handled? [CO4,K1] 1
- A) Try

- B) Catch
C) Finally
D) Throw
- (1.9) While publishing a project from the development environment to the Server, what is the primary purpose of the .nupkg file created by the publish utility?[CO5,K1] 1
- A) To act as a temporary log file for debugging.
B) It serves as a versioned package containing the compiled workflow and its dependencies.
C) To provide the Robot with the source code in a human-readable text format.
D) To encrypt the local machine's credentials for server access.
- (1.10) Choose the mandatory requirement for "Provisioning a Robot" on the Server before it can execute tasks?[CO5,K1] 1
- A) The Robot must be installed on the Server machine itself.
B) The machine name and the specific Windows username must be registered on the Server.
C) The Robot must have a minimum of 16GB RAM assigned.
D) A "Delete Package" command must be issued first to clear the cache.
2. Attempt all parts:-
- (2.1) Distinguish between "Attended Bots" and "Unattended Bots" in terms of their triggering mechanism and typical use cases. [CO1,K4] 2
- (2.2) Explain the difference between "Variables" and "Arguments" regarding their scope and purpose in a project. [CO2,K2] 2
- (2.3) Define "Anchors" in the context of PDF automation and explain why they are necessary when dealing with fluctuating form layouts. [CO3,K1] 2
- (2.4) Define "Assistant Bots" and describe a scenario where a "Hotkey Trigger" would be more effective than a "System Trigger." [CO4,K1] 2
- (2.5) Differentiate between "Attaching a Robot" and "Deploying a Robot" to the Server. [CO5,K4] 2
- SECTION – B** 30

Answer any one of the following-

- (3.1) Illustrate the robotic control flow architecture used in RPA with a suitable example from a business process. [CO1,K3] 6
- (3.2) Define RPA Advanced Concepts and explain the importance of process standardization in Robotic Process Automation.[CO1,K1] 6
- Answer any one of the following-
- (3.3) Discuss "Data Table Variables" in RPA. How are they initialized, and what are three common activities used for Data Table manipulation? [CO2,K2] 6

(3.4)	Explain the working of the Assign Activity and Delay Activity in automation workflows. [CO2,K2]	6
Answer any <u>one</u> of the following-		
(3.5)	Compare and contrast "Screen Scraping" and "Data Scraping". Provide a technical scenario for when each should be used. [CO3,K2]	6
(3.6)	Explain the major challenges faced in Advanced Citrix Automation and suggest suitable solutions? [CO3,K2]	6
Answer any <u>one</u> of the following-		
(3.7)	Explain the mechanism of "Monitoring System Event Triggers." Provide a technical example of how an Assistant Bot can monitor an incoming Email to trigger a specific workflow. [CO4,K2]	6
(3.8)	Describe the logic and ethical considerations of "Monitoring a Copying Event and Blocking it" using RPA. ([CO4,K2]	6
Answer any <u>one</u> of the following-		
(3.9)	Explain the "Publishing and Managing Updates" lifecycle. How does the Server handle multiple versions of the same process? [CO5,K2]	6
(3.10)	Analyze the role of centralized server management in handling multiple bots efficiently. [CO5,K4]	6
SECTION – C		50
4. Answer any <u>one</u> of the following-		
(4.1)	Describe the major automation techniques used in organizations and evaluate their effectiveness in business process automation.[CO1,K2]	10
(4.2)	Discuss the risks and challenges in implementing large-scale RPA and explain the impact of AI and Machine Learning in RPA. [CO1,K2]	10
5. Answer any <u>one</u> of the following-		
(5.1)	Differentiate between While loop, Do While loop, and For Each activity with suitable examples. Explain the use of Break activity.[CO2,K4]	10
(5.2)	Illustrate "Data Manipulation and Gathering" in RPA. Explain how a developer manages "Imported Namespaces" and performs "Text Manipulation" to handle unstructured data. [CO2,K3]	10
6. Answer any <u>one</u> of the following-		
(6.1)	Analyze the differences between Dynamic Selectors and Wildcards (* and ?). Explain how wildcard characters can be used to fine-tune selectors containing changing window titles. [CO3,K4]	10
(6.2)	Describe the workflow for "Information Retrieval" from PDF and Excel. Describe the process of extracting a specific piece of data from a PDF using "Anchor Base" and then writing that data into a filtered Excel Data Table. [CO3,K2]	10
7. Answer any <u>one</u> of the following-		
(7.1)	Explain the importance of debugging in RPA development and compare different execution control tools used during debugging.[CO4,K2]	10
(7.2)	Distinguish between Business Rule Exceptions and Application Exceptions, and explain the 'Retry' logic. [CO4,K4]	10
8. Answer any <u>one</u> of the following-		
(8.1)	Analyze the Architecture of "Server-Bot Interaction." How does the Server act as a centralized control unit for a distributed digital workforce? [CO5,K4]	10
(8.2)	Illustrate the steps required to manage robots using a centralized RPA server from development to deployment. [CO5,K4]	10