| Roll No. | | | | | | | | | | | | |
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# PRESIDENCY UNIVERSITY

**BENGALURU**

**End - Term Examinations – December 2025**

**Date:** 15-12-2025 **Time:** 1.00pm to 04.00pm

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|---|---|---|
| **School:** SOCSE | **Program**: Computer Science and Engineering | |
| **Course Code:** CDV3406 | **Course Name:** Ai-Powered Chatbots And Automation In Devops | |
| **Semester**: V | **Max Marks**: 100 | **Weightage**: 50% |

| **CO - Levels** | **CO1** | **CO2** | **CO3** | **CO4** | **CO5** |
|---|---|---|---|---|---|
| **Marks** | **26** | **26** | **24** | **24** | |

**Instructions:**

*(i) Read all questions carefully and answer accordingly.*

*(ii) Do not write anything on the question paper other than roll number.*

## Part A

**Answer ALL the Questions. Each question carries 2marks.** **10Q x 2M=20M**

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|---|---|---|---|---|
| **1.** | Define NLU in chatbot systems. | **2 Marks** | **L1** | **CO1** |
| **2.** | What is lemmatization? | **2 Marks** | **L1** | **CO1** |
| **3.** | List two advantages of using AI-based assistants. | **2 Marks** | **L1** | **CO2** |
| **4.** | Define error handling in chatbot flow. | **2 Marks** | **L1** | **CO2** |
| **5.** | What is the Action Server in Rasa? | **2 Marks** | **L1** | **CO4** |
| **6.** | Write any two benefits of chatbot–database integration. | **2 Marks** | **L1** | **CO2** |
| **7.** | What is Jenkins pipeline triggering? | **2 Marks** | **L1** | **CO3** |
| **8.** | State two differences between GitHub bot and GitLab bot. | **2 Marks** | **L1** | **CO3** |
| **9.** | What is alert triage in DevOps? | **2 Marks** | **L1** | **CO4** |
| **10.** | Define LLMs with an example. | **2 Marks** | **L1** | **CO4** |

## Part B

**Answer the Questions.** **Total Marks 80M**

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|---|---|---|---|---|---|
| **11.** | **a.** | Describe a scenario for designing a gym registration chatbot and explain at least four core functionalities, including how each operates within the system. | **10 Marks** | **L2** | **CO1** |
| | **b.** | Classify the types of AI assistants (command interpreter, event classifier, conversational) and explain their characteristics. | **10 Marks** | **L2** | **CO1** |
| **Or** | | | | | |
| **12.** | **a.** | Explain the workflow of Intent Classification using machine learning and outline the steps involved in dataset preparation. | **10 Marks** | **L2** | **CO1** |
| | **b.** | Explain in detail how NLP chatbots work. | **10 Marks** | **L2** | **CO1** |

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| **13.** | **a.** | Describe a fallback strategy in chatbots and explain it with examples of handling ambiguous user queries. | **10 Marks** | **L2** | **CO2** |
| | **b.** | Explain how a chatbot integrates with MySQL or NoSQL databases and outline the integration process. | **10 Marks** | **L2** | **CO2** |
| **Or** | | | | | |
| **14.** | **a.** | Describe the architecture of an AI assistant and explain its key components. | **10 Marks** | **L2** | **CO2** |
| | **b.** | Explain actions and control flow in chatbots with a suitable example, interpreting how they guide conversation. | **10 Marks** | **L2** | **CO2** |

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| **15.** | **a.** | Demonstrate how monitoring and automation tools can be applied in DevOps, explaining their functions and usage. | **10 Marks** | **L3** | **CO3** |
| | **b.** | Illustrate the working of Prometheus and Grafana integration with a chatbot by showing how metrics and alerts are handled. | **10 Marks** | **L3** | **CO3** |
| **Or** | | | | | |
| **16.** | **a.** | Apply the concept of chatbot automation to demonstrate how it can trigger a Jenkins pipeline, providing a simple example workflow. | **10 Marks** | **L3** | **CO3** |
| | **b.** | Demonstrate how GitHub/GitLab bot integrations can be applied in DevOps and illustrate the benefits they provide to workflow automation. | **10 Marks** | **L3** | **CO3** |

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| **17.** | **a.** | Demonstrate how LLMs can be applied to reduce MTTR (Mean Time to Recovery) in DevOps scenarios. | **10 Marks** | **L3** | **CO4** |
| | **b.** | Apply log-based and metric-based anomaly detection methods to a practical scenario and illustrate the differences in their functioning. | **10 Marks** | **L3** | **CO4** |
| **Or** | | | | | |
| **18.** | **a.** | Illustrate how voicebots can be used in customer support operations to improve efficiency and user experience. | **10 Marks** | **L3** | **CO4** |
| | **b.** | Demonstrate the architecture of ChatOps in CI/CD pipelines and show its benefits in modern DevOps workflows. | **10 Marks** | **L3** | **CO4** |