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**PRESIDENCY UNIVERSITY**

**Bengaluru**

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| **End - Term Examinations – JANUARY 2025** |
| **Date:** 13 – 01- 2025 **Time:** 09:30 am – 12:30 pm |

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| **School:** SOCSE | **Program:** B. Tech. – CSE (DevOps) | |
| **Course Code :** CSE3046 | **Course Name :** DevOps Tools and Internals | |
| **Semester**: V | **Max Marks**: 100 | **Weightage**: 50% |

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| **CO - Levels** | **CO1** | **CO2** | **CO3** | **CO4** | **CO5** |
| **Marks** | **22** | **22** | **28** | **28** | **-** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Do not write anything on the question paper other than roll number.*

**Part A**

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| **Answer ALL the Questions. Each question carries 2marks. 10Q x 2M=20M** | | | | |
| **1** | Name the tools used in CI/CD process & configuration phase. | **2 Marks** | **L1** | **CO1** |
| **2** | Define Hypervisor | **2 Marks** | **L1** | **CO2** |
| **3** | What are Ansible Playbooks? | **2 Marks** | **L1** | **CO3** |
| **4** | What are Ansible Modules? Provide an example. | **2 Marks** | **L1** | **CO3** |
| **5** | Define ad-hoc commands in Ansible? Provide an example. | **2 Marks** | **L1** | **CO3** |
| **6** | List the difference between roles and tasks in Ansible? | **2 Marks** | **L1** | **CO3** |
| **7** | Define the concept of a "build" in Jenkins? | **2 Marks** | **L1** | **CO4** |
| **8** | What are the different ways to configure Jenkins jobs? | **2 Marks** | **L1** | **CO4** |
| **9** | How do you start Jenkins manually? | **2 Marks** | **L1** | **CO4** |
| **10** | What is a freestyle job in Jenkins? | **2 Marks** | **L1** | **CO4** |

**Part B**

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| **Answer the Questions Total 80 Marks.** | | | | | |
| **11.** | **a.** | Illustrate the difference between git merge and git rebase? Explain when to use each with examples. | **10 Marks** | **L2** | **CO1** |
| **b.** | i. Compare Waterfall and Agile methodologies.  ii. Explain why Git is called Distributed Version Control System. | **10 Marks** | **L2** | **CO1** |
| **Or** | | | | | |
| **12.** | **a.** | i. Construct the procedure to manage the conflicts that arises during merging the two branches with correct syntax.  ii. Explain the difference between cloning and fork with the commands required to implement both. | **10 Marks** | **L2** | **CO1** |
| **b.** | Joe has got GitHub link from Rama ‘https://github.com/rama/BankingProject.git’ which has 2 files ‘FindBalance.java’ and ‘CreateAccount.java’. Joe must put this code in his local repository and do the following operations and share back the files by uploading in GitHub.  Add a new file ‘CreateReport.java’. Edit the contents of ‘FindBalance.java’ by including 2 lines of java code. Delete the file ‘CreateAccount.java’. Develop the steps/procedure to implement this. | **10 Marks** | **L2** | **CO1** |
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| **13.** | **a.** | Demonstrate the process of Pulling Docker Images and Spinning Containers with proper syntax | **10 Marks** | **L3** | **CO2** |
|  | **b.** | i. Compare image and containers in Docker  ii. Explain briefly on Docker Daemon. | **10 Marks** | **L2** | **CO2** |
| **Or** | | | | | |
| **14.** | **a.** | Demonstrate the process of building an image with Dockerfile and pushing the image to DockerHub. | **10 Marks** | **L3** | **CO2** |
|  | **b.** | i. Explain the docker life cycle with neat diagram  ii. Explain the difference between the commands stop, kill and pause with respect to docker. Provide the correct syntax for all these 3 commands. | **10 Marks** | **L2** | **CO2** |

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| **15.** | **a.** | What are Ansible facts, and how are they useful? Create a playbook to demonstrate the use of facts for conditional task execution. | **10 Marks** | **L3** | **CO3** |
| **b.** | Explain the role of Inventory in Ansible. Differentiate between static and dynamic inventory with examples. | **10 Marks** | **L2** | **CO3** |
| **Or** | | | | | |
| **16.** | **a.** | Explain the Ansible Playbook structure and develop a playbook to install a web server | **10 Marks** | **L3** | **CO3** |
| **b.** | Illustrate Ansible Tower with neat diagram | **10 Marks** | **L2** | **CO3** |

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| **17.** | **a.** | Explain Jenkins Master-Slave architecture using diagram and by providing the roles of Master & Slave. | **10 Marks** | **L2** | **CO4** |
| **b.** | What is Jenkins Plug-ins? Explain the process of installing and managing plugins in Jenkins? | **10 Marks** | **L2** | **CO4** |
| **Or** | | | | | |
| **18.** | **a.** | Demonstrate Jenkins Build Pipe Lines (Parent and Child Builds & Sequential Builds) in detail with examples | **10 Marks** | **L2** | **CO4** |
| **b.** | What are the different types of Jenkins Jobs? Explain each type with a scenario. | **10 Marks** | **L2** | **CO4** |

**\*\*\*\*\* BEST WISHES \*\*\*\*\***