


Name:			
Enrolment No:			
<b>UPES</b> <b>End-Semester Examination, May 2025</b>			
<b>Program Name: B.Tech. CCVT</b> <b>Course Name : DevOps</b> <b>Course Code : CSDV 3017</b> <b>Nos. of page(s) : 2</b> <b>Calculator allowed: No</b>		<b>Semester: VI</b> <b>Time : 03 hrs</b> <b>Max. Marks: 100</b>	
<b>Instructions:</b> Please attempt according to the time provided and given weightage. <b>Clearly mention question number only on left margin.</b> <b>Start answering each question on a fresh page.</b>			
<b>SECTION A</b> <b>Attempt all questions</b>			
<b>S. No.</b>		<b>Marks</b>	<b>CO</b>
Q 1	Compare Agile and DevOps in terms of goals, practices, and methodologies. How do both approaches complement each other in software development.	4	CO2
Q 2	Explain SCM, compare pros and cons of centralized vs distributed SCM.	4	CO1
Q 3	Give a brief about the benefits of DevOps and how it addresses the challenges posed by silos in software development.	4	CO1
Q 4	Explain integration delivery and deployment in CI/CD.	4	CO2
Q 5	Explain is DevSecOps.	4	CO2
<b>SECTION B</b> <b>Attempt all questions</b>			
Q 6	How can the right tools be selected for various stages of the DevOps lifecycle. Discuss the roles of Docker, Jenkins, and Ansible in automation. Briefly explain the importance of monitoring tools, Version control, and code repositories.	10	CO3
Q 7	Write about the Kanban board and present its role in DevOps. Mention the method Kanban uses to improve the visibility of work and promote continuous delivery. Explain taking example of JIRA/Trello. OR Explain the typical lifecycle of an issue in software development, covering stages from creation to resolution	10	CO4
Q8	Compare the Waterfall and Gated Waterfall models, highlighting their advantages and disadvantages in software development.	10	CO4
Q9	Explain git-flow workflow showing types of branches, branching and merging strategies. Draw an example git-flow and write list of commands with explanation to create it.	10	CO4
<b>SECTION C</b> <b>Attempt all questions</b>			
Q 10	Explain GitHub Actions with a practical example. Compare the pros and cons of GitHub Actions versus Jenkins in terms of ease of use, integration capabilities, scalability, and cost-effectiveness. OR	20	CO4

	Describe the Jenkins pipeline process using a Scripted Pipeline approach with SCM (Source Code Management) for Continuous Delivery. Include steps for configuring credentials (such as SSH keys or API tokens) and discuss different triggering options (e.g., SCM polling, webhooks, manual triggers). Provide a relevant example to illustrate the workflow		<b>CO4</b>
Q 11	Define Observability and Monitoring in the context of modern DevOps practices. Explain the differences between metrics, logs, and traces with examples. Discuss the importance of application containerization by comparing a traditional deployment approach with a Docker-based deployment, highlighting key benefits such as isolation, scalability, and dependency management.  <b>OR</b> Explain the following monitoring tools: Node Exporter, Prometheus, and Grafana. Provide an example of how they can be used together to monitor a Linux system, detailing the role of each component in the observability pipeline.	<b>20</b>	<b>CO5</b>