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# PRESIDENCY UNIVERSITY

BENGALURU

## End - Term Examinations – MAY 2025

Date: 21-05-2025

Time: 01:00 pm – 04:00 pm

School: SOIS	Program: BCA	
Course Code: CSA1007	Course Name: Introduction to Devops	
Semester: IV	Max Marks: 100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	26	24	14	14	22

### 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

1.	Name the few significance in modern software development.	2 Marks	L1	CO1
2.	Differentiate between Waterfall and Agile methodologies.	2 Marks	L1	CO1
3.	List any four commonly used Git commands and explain their purpose.	2 Marks	L2	CO1
4.	What is the function of a Jenkins master node in a CI/CD pipeline?	2 Marks	L2	CO2
5.	State two advantages of using CI/CD in a DevOps workflow.	2 Marks	L2	CO2
6.	What is a playbook in Ansible? How does it differ from an ad-hoc command?	2 Marks	L2	CO3
7.	Write any one Ansible modules for playbook and explain their purpose.	2 Marks	L2	CO3
8.	What is the purpose of a Dockerfile?	2 Marks	L2	CO4
9.	Define the term "container" in Docker. How is it different from a virtual machine?	2 Marks	L2	CO4
10.	What is a Kubernetes Pod? Mention any two characteristics.	2 Marks	L2	CO5

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

<b>11.</b>	<b>a.</b>	Define DevOps	<b>2 Marks</b>	<b>L1</b>	<b>CO1</b>
	<b>b.</b>	Explain the advantages of adopting DevOps in large-scale software development	<b>8 Marks</b>	<b>L2</b>	<b>CO1</b>
	<b>c.</b>	Illustrate how DevOps improves the software delivery lifecycle with an example	<b>10 Marks</b>	<b>L3</b>	<b>CO1</b>
<b>Or</b>					
<b>12.</b>	<b>a.</b>	What is the Waterfall model?	<b>2 Marks</b>	<b>L1</b>	<b>CO1</b>
	<b>b.</b>	Compare Agile and Devops methodologies.	<b>8 Marks</b>	<b>L2</b>	<b>CO1</b>
	<b>c.</b>	Evaluate a real-world scenario to suggest whether Agile, or Waterfall would be most effective.	<b>10 Marks</b>	<b>L3</b>	<b>CO1</b>

<b>13.</b>	<b>a.</b>	Write a Git commands for connecting into github.	<b>2 Marks</b>	<b>L1</b>	<b>CO2</b>
	<b>b.</b>	Explain the Git file lifecycle with appropriate status transitions.	<b>8 Marks</b>	<b>L2</b>	<b>CO2</b>
	<b>c.</b>	Illustrate Git version control using a simple project—create, commit, and push files to GitHub.	<b>10 Marks</b>	<b>L3</b>	<b>CO2</b>
<b>Or</b>					
<b>14.</b>	<b>a.</b>	What is Jenkins?	<b>2 Marks</b>	<b>L1</b>	<b>CO2</b>
	<b>b.</b>	Write a neat diagram of Jenkins architecture and explain its components.	<b>8 Marks</b>	<b>L2</b>	<b>CO2</b>
	<b>c.</b>	Illustrate the simple CI/CD pipeline in Jenkins using GitHub integration.	<b>10 Marks</b>	<b>L3</b>	<b>CO2</b>

<b>15.</b>	<b>a.</b>	Give a an example on system module in Ansible.	<b>2 Marks</b>	<b>L1</b>	<b>CO3</b>
	<b>b.</b>	Describe the role of playbooks and inventory files in Ansible.	<b>8 Marks</b>	<b>L2</b>	<b>CO3</b>
	<b>c.</b>	Create an Ansible playbook to install and configure Apache server on a remote Linux machine.	<b>10 Marks</b>	<b>L3</b>	<b>CO3</b>
<b>Or</b>					
<b>16.</b>	<b>a.</b>	What is a Docker container	<b>2 Marks</b>	<b>L1</b>	<b>CO4</b>
	<b>b.</b>	Explain the difference between a Docker image and a Docker container.	<b>8 Marks</b>	<b>L2</b>	<b>CO4</b>
	<b>c.</b>	Build and run a Docker container for a sample Python web app	<b>10 Marks</b>	<b>L3</b>	<b>CO4</b>

<b>17.</b>	<b>a.</b>	Compare the following: Pod, Node, Cluster.	<b>2 Marks</b>	<b>L1</b>	<b>CO5</b>
	<b>b.</b>	Explain the working of Kubernetes Deployment	<b>8 Marks</b>	<b>L2</b>	<b>CO5</b>
	<b>c.</b>	Write and deploy a Kubernetes YAML file for a sample web application	<b>10 Marks</b>	<b>L3</b>	<b>CO5</b>
<b>Or</b>					
<b>18.</b>	<b>a.</b>	What does CI/CD stand for?	<b>2 Marks</b>	<b>L1</b>	<b>CO5</b>
	<b>b.</b>	Explain how CI/CD enhances software reliability.	<b>8 Marks</b>	<b>L2</b>	<b>CO5</b>
	<b>c.</b>	Analyze and design an end-to-end DevOps pipeline using Git, Jenkins, Ansible, Docker, and Kubernetes.	<b>10 Marks</b>	<b>L3</b>	<b>CO5</b>