Total No. of Questions: [06]

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May 2024 (REEXAM)

TY (SEMESTER - II)

COURSE NAME: CLOUD COMPUTING Branch: Computer Engineering COURSE CODE: CSITUA32203

(PATTERN 2020)

Time: [2 Hrs] **[Max. Marks: 60]**

Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **Use of scientific calculator is allowed.**
3) **Use suitable data wherever required.**
4) **All questions are compulsory. Solve any two sub questions each from each Question 1, 2, 3, 4, 5, and 6 respectively.**

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) Describe the seven layers of the OSI model and explain the function of each layer.	[5]	CO 1	Understand
	b) Demonstrate how to subnet a given IP address range into smaller subnets.	[5]	CO 1	Understand
	c) Explain the following Linux commands in detail with example: 1) cat 2) copy 3) chmod 4) df 5) ssh-keygen	[5]	CO 1	Understand
Q2	a) Apply the properties of cloud computing to design a scalable and resilient application architecture for a web-based startup	[5]	CO 2	Apply
	b) Apply auto-scaling policies to an EC2-based web application to dynamically adjust the number of instances based on varying traffic loads, ensuring optimal performance and cost-efficiency.	[5]	CO 2	Apply
	c) Given a business requirement to securely isolate different departments within a company's AWS infrastructure, design and implement a VPC with multiple subnets and network ACLs to meet this requirement.	[5]	CO 2	Apply
Q3.	a) Examine the benefits of using Terraform for multi-cloud deployments, including the advantages of provider-agnosticism and the ability to abstract cloud-specific details.	[5]	CO 3	Analyze
	b) Critically analyze the advantages of Terraform over other Infrastructure as Code (IaC) tools in terms of ease of use, scalability, and community support.	[5]	CO 3	Analyze

	c) Critically evaluate Terraform's approach to provider discovery and fetching, and discuss strategies for managing provider versions and dependencies in production environments.	[5]	CO 3	Analyze
Q.4	a) Create a simple YAML file that defines a basic Ansible playbook to install a nginx package and stop a service on a remote server.	[5]	CO 4	Apply
	b) Design a snippet of an Ansible playbook that demonstrates the following: 1. Installation of a list of common packages. 2. Conditional installation of role-specific packages using variables or when statements.	[5]	CO 4	Apply
	c) Apply the ansible ad-hoc commands to achieve creation of a new file on remote server.	[5]	CO 4	Apply
Q.5	a) Write a short note on Kubernetes architecture.	[5]	CO 5	Understand
	b) Explain how does Kubernetes simplify containerized Deployment?	[5]	CO 5	Understand
	c) What are the main objectives of virtualization? How does virtualization is enhancing infrastructure utilization?	[5]	CO 5	Understand
Q.6	a) Analyze the advantages and limitations of CI/CD pipeline in software development and deployment.	[5]	CO 6	Analyze
	b) Analyze the importance of Jenkins pipeline in DevOps.	[5]	CO 6	Analyze
	c) Examine at least three tools for each phase of DevOps: Planning, Development, Continuous Integration, Deployment, Monitoring.	[5]	CO6	Analyze