

B.E. Information Technology
Third Year First Semester Examination 2025
Subject: Cloud Computing

Time: 3 hours

Full Marks: 100

All answers under the same Course Outcome (CO) **must be grouped together.**

Avoid scattering responses across different pages to **prevent mark deductions.**

COs	Questions	Marks
CO1 [15]	1. Answer any 6 (six) from (a) and any one out of (b) and (c) a. What is meant by i. Measured service ii. On-demand self-service iii. Vendor lock-in iv. Multi-tenant design v. Cloud Ecosystem vi. Resource Elasticity vii. Rapid Elasticity viii. Cloud Simulator b. Mention and explain the characteristics of the multi-cloud system. 5 c. Explain some of the service specialties of cloud computing.5	$(6 \times 2) + 3 = 15$
CO2 [25]	2. Answer the questions as mentioned below a. Explain the characteristics of virtualization. b. What are access and application virtualization? c. Mention different types of virtualization. d. What is CPU virtualization? 3. Answer any one a. Compare and contrast containers and hypervisors. b. Describe the concept of Kubernetes and its key components. 4. Answer any one a. Explain the role and components of Docker in containerization. b. Compare and contrast hosted virtualization with bare metal virtualization. 5. Answer any one a. Compare and contrast the storage, memory, and data virtualization	$(3+4+3+2) + 4 + 4 + 5 = 25$

[Turn over

	b. What is Hyper-V, explain the working principle of the Hyper-V system with a suitable diagram	
CO3 [20]	6. Answer any one - How do different service models (IaaS, PaaS, SaaS) cater to varying business needs? - Explain the main differences between different service models. 7. Answer any one - Compare and contrast the four primary cloud deployment models: public, private, community, and hybrid clouds. - Discuss the advantages and disadvantages of public, private and hybrid cloud models in terms of cost, control, and scalability. 8. Answer any two - How does dynamic provisioning address the issues of under-provisioning and over-provisioning in traditional computing models? - Explain the concept of "fault tolerance" and its importance in cloud services. - Discuss the concept of scalability in cloud computing. How is it different from elasticity? - Discuss the challenges associated with achieving uniform access and service portability in cloud computing, and propose strategies to overcome them.	$4 + 6 + (5+5) = 20$
CO4 [28]	9. Answer any two - What are Availability Zones and why are they important? - Explain the characteristics of Amazon S3. - What is the pricing model or how the pricing is decided on Amazon S3? 10. Answer any two - Why do customers prefer Amazon EC2? - Explain the concept of object storage as implemented in Amazon S3. - How does Cross Region Replication work in Amazon S3? 11. Answer any one - Compare and contrast the features of Amazon S3 and Amazon EBS. Discuss the significance of Lifecycle Management in Amazon S3. - How Amazon S3 is different from Amazon RDS, EBS? Write short note on DynamoDB. 12. Answer the following question - Explain the step-by-step process to set up EC2 instances in AWS and mention the working principle of EC2 Service in AWS.	$(3 + 3) + (3 + 3) + 6 + 10 = 28$
	13. Answer any three	$3 \times 4 = 12$

CO5 [12]	a. What role does IAM play in AWS security? How does it differ from AMI in AWS? b. How data protection is achieved in Amazon S3? c. Explain the importance of Virtual Private Cloud (VPC) in AWS and how it contributes to network security and isolation. d. Discuss the potential consequences of misconfiguring bucket policies in Amazon S3, including unintended data exposure or access restrictions.	
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CO1: Define Cloud Computing and assess different Cloud service and deployment models.

CO2: Examine and assess importance of different types of virtualization along with their technologies.

CO3: Use and Examine different cloud computing services.

CO4: Analyze algorithms for management of cloud resources including scheduling, placement and assess their performances.

CO5: Understand and explain various security solutions for Web and Cloud infrastructure.