Name: Enrolment No:	UPES UNIVERSITY OF TOMORROW

UPES
End Semester Examination, May 2024

Course: Cloud Architecture and Deployment Models   Semester: VI
Program: B. TECH(CSE+IOTSC-H/NH)   Time   : 03 hrs.
Course Code: CSVT3017   Max. Marks: 100

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Explain the concept of virtualization and analyse its significance in the context of cloud computing.	4	CO1
Q 2	Explore the advantages associated with implementing Cloud Computing across diverse industries.	4	CO1
Q 3	How does Platform as a Service (PaaS) facilitate application development, deployment, and management.	4	CO2
Q 4	Analyze the function of the Access Control List (ACL) within the S3 service and evaluate its contribution to the management of access permissions for stored objects.	4	CO2
Q 5	Examine the factors influencing an organization's decision to adopt cloud computing.	4	CO3

SECTION B
(4Qx10M= 40 Marks)

Q 6	Design a cloud computing architecture for a small e-commerce business.	10	CO1
Q 7	Evaluate the merits and demerits of enabling objects within Amazon S3 to be allocated across multiple buckets, considering considerations such as data organization, access control mechanisms, and cost management strategies.	10	CO2
Q 8	How does the integration of Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) functionalities contribute to the comprehensive provision of cloud computing services.	10	CO3

Q 9	Compare and contrast the NIST (National Institute of Standards and Technology) Cloud Computing Reference Architecture (CCRA) with IBM's Cloud Computing Reference Architecture (CCRA), highlighting the distinctive features, principles, and architectural elements of each framework.	**10**	**CO3**

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SECTION-C
(2Qx20M=40 Marks)

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Q 10	**Scenario**: Your company, ABC Inc., is a rapidly growing e-commerce firm struggling to manage peak season traffic demands on its on-premises IT infrastructure. Upgrading hardware is costly and inflexible, while downtime during peak seasons leads to significant revenue loss. You've been tasked with researching cloud solutions to improve scalability and cost-efficiency. a) Analyze the specific needs of ABC Inc. (scalability, cost-efficiency, downtime mitigation) in relation to cloud solutions. b) Compare the advantages and limitations of private clouds (security, control) vs. public clouds (scalability, cost) for ABC Inc.'s needs. c) Based on your analysis, recommend the most suitable cloud solution (private or public) for ABC Inc., and justify your recommendation. d) Discuss potential risks and mitigation strategies associated with your recommended cloud solution for ABC Inc.	**20**	**CO4**
Q 11	Explain the concept of OpenStack, explain its primary objectives aimed at addressing modern cloud computing challenges, and provide a comprehensive overview of the hardware prerequisites crucial for establishing an OpenStack environment. Additionally, enumerate and elaborate on three imperative software requirements essential for the successful deployment and operation of OpenStack infrastructure. OR Using a basic diagram, depict the architecture of OpenStack and label each component while simultaneously explaining the specific role and function of each component within the OpenStack architecture.	**20**	**CO5**