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Printed Page:-4 **Subject Code:- AOE0764**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
B.Tech
SEM: VII - THEORY EXAMINATION (2025 - 2026)
Subject: Cloud Computing

Time: 3 Hours **Max. Marks: 100**

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*
1. *This Question paper comprises of* ***three Sections -A, B, & C.*** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*
2. *Maximum marks for each question are indicated on right -hand side of each question.*
3. *Illustrate your answers with neat sketches wherever necessary.*
4. *Assume suitable data if necessary.*
5. *Preferably, write the answers in sequential order.*
6. *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

SECTION-A 20

1. Attempt all parts:-

1-a. On-demand provisioning allows users to: (CO1, K2) 1

(a) Access the cloud only during specific hours
(b) Obtain resources and services when needed
(c) Pre-schedule resource allocation
(d) Utilize unlimited resources at all times

1-b. Elasticity in the context of cloud computing refers to: (CO1, K2) 1

(a) The cloud's ability to stretch data limits
(b) Adapting to varying workloads by provisioning and de-provisioning resources
(c) The inflexibility of the cloud system
(d) Fixed capacity with no changes possible

1-c. One of the following is a crucial reason for implementing virtualization. (CO2, K2) 1

(a) Cost reduction
(b) Data encryption
(c) Physical server enhancement
(d) Cyber-physical system integration

1-d. The level of virtualization that occurs within the operating system is known as: (CO2, K1) 1

(a) Application-level virtualization
(b) System-level virtualization
(c) Kernel-level virtualization
(d) Hardware-level virtualization

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1-e. In the publish-subscribe model, the role that publisher play is.(CO3, K2) 1

(a) Receives messages
(b) Sends messages
(c) Processes messages
(d) Stores messages

1-f. In a cloud architecture, the end-user or client utilizing cloud services is called_____ .(CO3, K2) 1

(a) Cloud Consumer
(b) Cloud Provider
(c) Cloud Auditor
(d) Cloud Carrier

1-g. Amazon S3 is an example of _____ of storage service. (CO4, K1) 1

(a) Block Storage
(b) File Storage
(c) Object Storage
(d) NoSQL Database

1-h. The primary purpose of an instance in cloud computing is _____ .(CO4, K2) 1

(a) To store data
(b) To create virtual networks
(c) To run applications
(d) To manage security protocols

1-i. The phase of the data life cycle involves the analysis and interpretation of data: (CO5, K2) 1

(a) Data collection
(b) Data processing
(c) Data storage
(d) Data disposal

1-j. The purpose of security governance is: (CO5, K2) 1

(a) Implementing security policies
(b) Monitoring network performance
(c) Improving user experience
(d) Regulating financial investments

2. Attempt all parts:-

2.a. Define the term "cloud service models." (CO1, K2) 2

2.b. Enlist the primary need for implementing virtualization in modern computing environments. (CO2, K2) 2

2.c. Inscribe the core principles of Service-Oriented Architecture (SOA). (CO3, K2) 2

2.d. Discuss the differences between managed and unmanaged services in cloud computing. (CO4, K2) 2

2.e. Brief the RBAC contribution to limit unauthorized access in cloud systems. (CO5, K2) 2

SECTION-B 30

3. Attempt all parts:-

3.a. Answer any one of the following:-

3.a.(i)	Enumerate the benefits of on-demand access to cloud resources. (CO1, K2)	6
3.a.(ii)	Concise the concept of cost transparency in cloud computing.(CO1, K2)	6

3.b. Answer any one of the following:-

3.b.(i)	Discuss storage virtualization and its significance in data management. (CO2, K2)	6
3.b.(ii)	Discuss the benefits of using a distributed virtualization structure in cloud environments. (CO2, K2)	6

3.c. Answer any one of the following:-

3.c.(i)	Illustrate the fundamental principles of web services and their role in enhancing interoperability. (CO3, K4)	6
3.c.(ii)	Inspect the NIST Cloud Computing Reference Architecture (CCRA) and its role in standardizing cloud services. (CO3, K4)	6

3.d. Answer any one of the following:-

3.d.(i)	Infer the key situations where DynamoDB is the preferred choice. (CO4, K2)	6
3.d.(ii)	Extract some strategies that cloud storage offer for data backup. (CO4, K2)	6

3.e. Answer any one of the following:-

3.e.(i)	Discuss the primary challenges faced in implementing cloud security measures. Also correlate some solution to robust security in a cloud environment. (CO5, K4)	6
3.e.(ii)	Outline some situations where the compromise of any element of the CIA triad significantly affected cloud security. (CO5, K4)	6

SECTION-C 50

4. Answer any one of the following:-

4-a.	Explain the concept of rapid elasticity and its role in meeting varying demands in cloud environments.(CO1, K2)	10
4-b.	Explain the role of service-level agreements (SLAs) in on-demand provisioning in the cloud. (CO1, K2)	10

5. Answer any one of the following:-

5-a.	Classify bare-metal hypervisors and hosted hypervisors, highlighting their respective advantages. (CO2, K2)	10
5-b.	Detail the steps involved in implementing hardware-level virtualization in a computing environment. (CO2, K2)	10

6. Answer any one of the following:-

6-a.	Point out the benefits and challenges of implementing the NIST Cloud Computing Reference Architecture. Infer industry-standard practices, security, and service portability to facilitate it.(CO3, K4)	10
6-b.	Examine the considerations and decision-making process involved in selecting the appropriate Deployment Model among Public, Private, and Hybrid Clouds. Infer the way these choices affect security, scalability, and regulatory compliance. (CO3, K4)	10

7. Answer any one of the following:-

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7-a.	Detail the importance of well-structured networking and its effects on managing instances and resources in a cloud-based application. (CO4, K2)	10
7-b.	Summarize the benefits and limitations of using RDS and DynamoDB for managing databases in a cloud infrastructure, especially in terms of scalability and ease of maintenance. (CO4, K2)	10

8. Answer any one of the following:-

8-a.	Analyze the way multi-factor authentication enhance the security posture of cloud systems. Provide examples of its application in different cloud service models. (CO5, K4)	10
8-b.	Infer the role of security policy management in cloud security. Enumerate the key elements that should be included in an organization's security policy. (CO5, K4)	10