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Printed Page:-4 **Subject Code:- BMCA0301**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
MCA
SEM: III - 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. Distributed computing in cloud helps achieve _____.(C01,K1) 1

(a) Fault tolerance
(b) Manual management
(c) Low scalability
(d) Resource underutilization

1-b. Characteristic that ensures customers only pay for what they use in cloud is _____.(C01,K2) 1

(a) Service availability
(b) Redundancy
(c) Virtualization
(d) On-demand self-service

1-c. I/O virtualization allows:(CO2,K2) 1

(a) Multiple VMs to share devices
(b) Elimination of storage
(c) Faster CPU
(d) None

1-d. Type-1 hypervisor runs on:(CO2,K3) 1

(a) Bare metal
(b) Host OS
(c) Cloud
(d) VM only

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1-e. HTTP methods are commonly used in RESTful web services.(CO3,K2) 1

(a) GET, POST, PUT, DELETE
(b) READ, WRITE, UPDATE, DELETE
(c) FETCH, SEND, MODIFY, REMOVE
(d) SELECT, INSERT, UPDATE, DELETE

1-f. REST stands for ____.(CO3,K2) 1

(a) Reliable Execution Secure Taoken
(b) Representational State Transfer Application Programming Interface
(c) Random Endpoint Service Technology
(d) Remote Execution Secure Token

1-g. Select an OS that is not commonly used for virtual machine instances in the cloud.(CO4,K2) 1

(a) Windows
(b) Linux
(c) MacOS
(d) Ubuntu

1-h. The major challenges faced when using unmanaged resources in the cloud is (CO4,K3) 1

(a) Complexity and security risks
(b) Cost and flexibility
(c) Scalability and management overhead
(d) Customization and control

1-i. Determine the stage where raw data is analyzed to extract insights.(CO5,K2) 1

(a) Ingestion
(b) Storage
(c) Analysis
(d) Presentation

1-j. _____Identify an insider threat that may compromise cloud security. (CO5,K3) 1

(a) Virtual Machine Escape Attack
(b) Insider Threat
(c) Phishing Attack
(d) Brute Force Attack

2. Attempt all parts:-

2.a. Name any two deployment models of cloud computing.(CO1,K2) 2

2.b. Mention one example of I/O virtualization in cloud computing.(CO2,K3) 2

2.c. Show the significance of S3 in Cloud Computing using an example..(CO3,K3) 2

2.d. Discuss the AWS direct connect? button with example. (CO4,K3) 2

2.e. Discuss the main objectives of managing data in the cloud? (CO5,K3) 2

SECTION-B 30

3. Attempt all parts:-

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

3.a.(i)	Give two examples of utility computing services widely used today.(CO1,K3)	6
3.a.(ii)	Apply knowledge to suggest two real-world problems that can be solved using parallel processing..(CO1,K3)	6

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

3.b.(i)	List and briefly describe four different types of virtualization.(CO2,K2)	6
3.b.(ii)	Analyze the role of virtual machines in cloud computing with examples.(CO2,K3)	6

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

3.c.(i)	Compare the features of a traditional system with those of a System of Systems (SoS) to highlight their differences.(CO3,K4)	6
3.c.(ii)	Explain how IaaS stands for, and what does it provide.(CO3,K4)	6

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

3.d.(i)	Analyze the advantages and disadvantages of using unmanaged services over managed services in cloud computing.(CO4,K4)	6
3.d.(ii)	Analyze elastic file storage in the cloud and identify the primary use cases where it is most beneficial.(CO4,K4)	6

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

3.e.(i)	Design a disaster recovery strategy for a cloud-based application by applying suitable steps to handle a data breach or service outage(CO5,K4)	6
3.e.(ii)	Evaluate how security standards focusing on confidentiality, integrity, and availability (CIA) establish the foundation of cloud security frameworks.(CO5,K5)	6

SECTION-C 50

4. Answer any one of the following:-

4-a.	Analyze integration of parallel and distributed systems in enabling cloud services at scale.(CO1,K4)	10
4-b.	Evaluate contribution of cloud services in enabling digital transformation.(CO1,K5)	10

5. Answer any one of the following:-

5-a.	Compare and contrast Type-1 and Type-2 hypervisors with architecture diagrams and real-world use cases.(CO2,K3)	10
5-b.	Discuss the role of virtual machines in enterprise applications and cloud computing environments.(CO2,K3)	10

6. Answer any one of the following:-

6-a.	Explain Publish-Subscribe Model in distributed systems?(CO3,K4)	10
6-b.	Develop a decision-making model to balance the advantages and disadvantages of Public vs. Private Cloud in different organizational contexts.(CO3,K6)	10

7. Answer any one of the following:-

7-a.	Assess various DNS and routing strategies for global applications across multiple VPCs and justify the best approach.(CO4,K5)	10
7-b.	Explain the tools or services are provided for monitoring instance performance and health in each platform?(CO4,K4)	10

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8. Answer any <u>one</u> of the following:-

8-a.	Create protocols ensuring secure data transitions between lifecycle stages..(CO5,K6)	10
8-b.	Explain the key challenges faced in implementing secure cloud environments. (CO5,K4)	10