NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
MCA
SEM: III - THEORY EXAMINATION (2024 - 2025)
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.   Which characteristic of cloud computing refers to the ability to scale resources up   1
         or down based on demand?[CO1] [K1]

         (a)   On-demand self-service

         (b)   Rapid elasticity

         (c)   Resource pooling

         (d)   Broad network access

1-b.   Which term refers to the ability of a system to continue operating in the event of   1
         component failures?[CO1] [K1]

         (a)   Load balancing

         (b)   Fault tolerance

         (c)   Decomposition

         (d)   Scalability

1-c.   Which of the following is NOT a benefit of server virtualization?[CO2]   [K2]   1

         (a)   Improved resource utilization

         (b)   Reduced hardware costs

         (c)   Increased energy consumption

         (d)   Enhanced flexibility and scalability

1-d.   What is a common technique used in storage virtualization to abstract physical   1
         storage devices into logical storage units?[CO2]   [K2]

(a) Thin provisioning

(b) RAID

(c) LUN masking

(d) Storage pooling

1-e.   Which protocol is commonly used for communication between services in SOA?[CO3]   [K4]   1

(a) HTTP

(b) FTP

(c) SMTP

(d) SSH

1-f.   REST is ....?[CO3]   [K1]   1

(a) A programming language

(b) A software development methodology

(c) An architectural style for designing networked applications

(d) A hardware component of a computer system

1-g.   What is the primary billing model for virtual machine instances in cloud computing?[CO4]   [K4]   1

(a) Pay-per-usage

(b) Fixed monthly subscription

(c) Free tier

(d) All-you-can-eat

1-h.   In which cloud service can you find instance types like "t2.micro" and "m5.large"?[CO4]   [K5]   1

(a) AWS

(b) Azure

(c) GCP

(d) IBM

1-i.   Which stage of the cloud data lifecycle involves gathering data from various sources?[CO5]   [K4]   1

(a) Ingestion

(b) Storage

(c) Analysis

(d) Presentation

1-j.   In which one of the following phases, IT Architecture Development came? [CO5]   1
[K4]

(a) Strategy Phase

(b) Deployment Phase

(c) Planning Phase

(d) Development Phase

2. Attempt all parts:-

2.a.	Write the name of cloud which was launched first? [CO1] [K1]	2
2.b.	Discuss the purpose of virtualization?[CO2] [K2]	2
2.c.	Give an example of a Systems of Systems (SoS) in real-world applications.[CO3] [K2]	2
2.d.	Name two key resources managed in cloud environments.[CO4] [K2]	2
2.e.	How does multi-factor authentication enhance security in the cloud?[CO5] [K4]	2

SECTION-B   30

3. Answer any <u>five</u> of the following:-

3-a.	What are the economic impact of cloud computing?[CO1] [K1]	6
3-b.	Discuss the Elasticity and scalability in cloud computing?[CO1] [K1]	6
3-c.	Can you explain why virtualization is crucial in modern IT infrastructure?[CO2] [K1]	6
3-d.	Compare and contrast hardware-based and software-based virtualization solutions.[CO2] [K4]	6
3.e.	Describe the roles of publishers and subscribers in the Publish-Subscribe Model.[CO3] [K1]	6
3.f.	Explain the concept of availability sets in Azure Virtual Machine.[CO4] [K1]	6
3.g.	Explain how attacks exploit vulnerabilities in cloud infrastructure and services.[CO5] [K1]	6

SECTION-C   50

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

4-a.	Explain the types of clouds and their characteristics in cloud computing. [CO1] [K1]	10
4-b.	How do emerging technologies like edge computing and serverless architecture shape the future of cloud computing?[CO1] [K2]	10

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

5-a.	Can you provide an example of how network virtualization and server virtualization can work together in a cloud computing environment?[CO2] [K2]	10
5-b.	What role does virtualization play in enabling cloud computing architectures, such as Infrastructure as a Service (IaaS) and Platform as a Service (PaaS)?[CO2] [K4]	10

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

6-a.	What is Service-Oriented Architecture (SOA), and how does it differ from traditional monolithic architectures?[CO3] [K2]	10
6-b.	Discuss the benefits of leveraging CCRA-compliant cloud services for scalability and flexibility.[CO3] [K1]	10

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

7-a.	Explain how you configure networking for instances in EC2, Azure Virtual	10

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Machine, and Google Compute Engine.[CO4]   [K4]

| 7-b. | Discuss the security considerations and best practices for configuring VPCs, including access controls, encryption, and monitoring.[CO4] [K1] | 10 |

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

| 8-a. | Suppose you are tasked with designing a security policy for a cloud-based application. How would you ensure it addresses confidentiality, integrity, and availability concerns effectively?[CO5]   [K4] | 10 |

| 8-b. | Describe some of the most prevalent cyber attacks targeting cloud environments, such as data breaches, DDoS attacks, insider threats, and misconfigurations.[CO5] [K1] | 10 |

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