NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
MCA (Integrated)
SEM: IV - 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.   Broad network access supports_____ [CO1, K1]   1

   (a)   Only enterprise users
   (b)   Only server admins
   (c)   Access from multiple devices
   (d)   Disk-based backups only

1-b.   SaaS provides access to____ [CO1, K1]   1

   (a)   Full hardware stacks
   (b)   Application software
   (c)   Network drivers
   (d)   Physical storage

1-c.   Select the open-source virtualization platform designed for containerization and   1
           orchestration of applications.[CO2, K1]

   (a)   VMware vSphere
   (b)   Docker
   (c)   Microsoft Hyper-V
   (d)   Oracle VirtualBox

1-d.   _____type of VMM runs directly on the physical hardware and controls   1
           the execution of virtual machines [CO2, K1]

   (a)   Type 1 VMM

(b) Type 2 VMM

(c) Type 3 VMM

(d) Type 4 VMM

1-e.   _____is the advantages of implementing the NIST CCRA in enterprise environments.[CO3, K1]   1

(a) Improved security and compliance

(b) Increased vendor lock-in

(c) Reduced scalability

(d) Limited interoperability

1-f.   _____is the responsibilities of a Cloud Consumer within the cloud computing environment.[CO3, K1]   1

(a) Providing network connectivity between cloud services

(b) Managing and maintaining physical infrastructure resources

(c) Consuming and utilizing cloud services offered by cloud providers

(d) Auditing and ensuring compliance with security and regulatory requirements

1-g.   Process of linking VPCs across regions using private IP is called as .[CO4, K1]   1

(a) VPC Peering

(b) Subnetting

(c) Routing

(d) Interconnectivity

1-h.   _____ AWS service provides a fully managed DNS web service. [CO4, K1]   1

(a) Amazon VPC

(b) Amazon Route 53

(c) Amazon Direct Connect

(d) Amazon VPC Endpoint

1-i.   Identify the authentication method using multiple credential types. [CO5, K1]   1

(a) Increased network speed

(b) Reduced administrative overhead

(c) Enhanced data encryption

(d) Improved hardware performance

1-j.   Identify the IAM component responsible for enforcing access policies. [CO5, K1]   1

(a) To restrict access based on user location

(b) To assign permissions based on user roles

(c) To monitor network traffic

(d) To encrypt data during transmission

2. Attempt all parts:-

2.a.   Discuss the benefits of Cloud computing.[CO1, K2]   2

2.b.   List any three popular virtualization tools.[CO2, K1]   2

2.c.	Discuss the role of the "Cloud Auditor" in the NIST CCRA. [CO3, K2]	2
2.d.	Discuss the role of DNS in cloud networking. [CO4, K2]	2
2.e.	Write the primary function of role-based access controls (RBAC) in cloud security. [CO5, K2]	2

SECTION-B 30

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

3-a.	Discuss the Elasticity and scalability in cloud computing. [CO1, K2]	6
3-b.	Describe evolution of Cloud Computing. [CO1, K2]	6
3-c.	Explain the difference between static and dynamic resource provisioning.[CO2, K2]	6
3-d.	Explain how does automated resource scaling help in optimizing resource provisioning. [CO2, K2]	6
3.e.	Describe how does NIST CCRA define the relationship between cloud consumers and cloud providers. [CO3, K2]	6
3.f.	Explain the concept of availability sets in Azure Virtual Machine.[CO4, K2]	6
3.g.	Discuss the concepts of authentication and authorization in cloud security. [CO5, K2]	6

SECTION-C 50

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

| 4-a. | Describe in detail the security considerations that organizations should take into account when migrating to the cloud. [CO1, K2] | 10 |
| 4-b. | Explain the ways in which 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. | Explain the concept of storage virtualization and its advantages in simplifying storage management and enhancing data availability. [CO2, K2] | 10 |
| 5-b. | Discuss how emerging technologies such as containerization and serverless computing complement or compete with traditional virtualization approaches. [CO2, K2] | 10 |

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

| 6-a. | Write some common challenges associated with implementing and managing a hybrid cloud infrastructure, and how can organizations address these challenges effectively.[CO3, K1] | 10 |
| 6-b. | Explain some ways through which cloud service providers offer flexibility and scalability to meet the diverse needs of organizations across SaaS, PaaS, and IaaS offerings, while also ensuring reliability, performance, and cost-effectiveness. [CO3, K2] | 10 |

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

| 7-a. | Describe the main features and benefits of AWS Storage Gateway, and how does | 10 |

it enable hybrid cloud storage solutions. [CO4, K2]

7-b. Write the security features that DynamoDB offers to protect data at rest and in 10
     transit, and how can you control access to DynamoDB tables and resources. [CO4,
     K2]

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

8-a. Explain the common types of attacks in cloud computing with examples.[CO5, 10
     K2]

8-b. Discuss the security implications of relying solely on password-based 10
     authentication.[CO5, K2]