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Printed Page:-3 **Subject Code:- BCS0301N**

Roll. No:

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

Time: 2 Hours **Max. Marks: 50**

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 15

1. Attempt all parts:-

1-a. Cloud Computing is : (CO1,K1) 1

(a) A local storage solution
(b) A distributed computing model
(c) A network of interconnected computers
(d) A scalable computing paradigm with on-demand services

1-b. Amazon S3 is mainly used for: (CO2,K1) 1

(a) Object storage
(b) Virtual machines
(c) Databases
(d) Monitoring resources

1-c. Open architecture challenge can impact: (CO3,K1) 1

(a) Only storage
(b) Interoperability and vendor lock-in
(c) Only virtualization
(d) None of the above

1-d. "A cloud security group is configured to allow only internal network IPs." The protection mechanism applied here is: (CO4,K1) 1

(a) CIA
(b) Security group rules
(c) Portability
(d) IAM

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1-e.	"Two cloud providers collaborate to let users authenticate once and access both platforms." The concept applied here is: (CO4,K1) (a) IAM (b) Portability (c) Federation (d) Provisioning	1

2. Attempt all parts:-

2.a.	Define parallel computing with suitable example. (CO1,K1)	2
2.b.	Mention one difference between managed and unmanaged services. (CO2,K2)	2
2.c.	Define cloud architecture with suitable example. (CO3,K4)	2
2.d.	Discuss REST API integration with suitable example. (CO3,K2)	2
2.e.	Describe global resource exchange with suitable example. (CO4,K3)	2

SECTION-B 15

3. Answer any three of the following:-

3-a.	Analyze in-depth five characteristics of Cloud Computing, discussing their implications for businesses and IT operations. (CO1,K4)	5
3-b.	Explain the role of Elastic Block Storage (EBS) in AWS cloud services. (CO2,K3)	5
3-c.	A healthcare provider needs to store patient records securely while ensuring compliance with regulations. Apply suitable cloud deployment and service models to address the requirement. (CO2,K3)	5
3.d.	Generate a solution integrating AWS EC2, S3, and CloudWatch for disaster recovery in a manufacturing company. (CO3,K4)	5
3.e.	A data center hosting a retail website is damaged by an earthquake. (CO4,K3) (a) State the role of disaster recovery in this situation. (b) Explain how backups ensure business continuity. (c) Mention one disaster recovery method commonly used in cloud.	5

SECTION-C 20

4. Answer any five of the following:-

4-a.	Explore the key characteristics of cloud computing, including resource pooling, broad network access, and measured service with suitable example. (CO1,K3)	4
4-b.	Explain the ways cloud computing enables cost savings through reduced capital and operational expenses. (CO1,K3)	4
4-c.	Explain how an organization can determine whether to adopt SaaS, PaaS, IaaS, or Storage-as-a-Service based on its operational needs and technical requirements (CO2, K3)	4
4-d.	Describe the concept of a Virtual Private Cloud (VPC) with suitable real time example. (CO2,K3)	4
4-e.	Explain layered cloud architecture in the context of a healthcare system storing patient records securely.(CO3,K3)	4
4-f.	Apply service-oriented architecture (SOA) to design a reusable cloud service	4

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	module.(CO3,K3)	
4-g.	Describe the major factors that support global resource sharing—such as brokerage systems, cloud marketplaces, and Service Level Agreements—and illustrate their roles with an appropriate example (CO4, K3)	4
4-h.	Analyze how static, dynamic, and hybrid resource provisioning approaches differ with respect to adaptability, cost implications, and overall performance efficiency (CO4, K4)	4