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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: II - THEORY EXAMINATION (2025- 2026)

Subject: Introduction to 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:-

- (1.1) Cloud computing is a _____ system and it is necessarily unidirectional in nature. 1
 (CO1, K1)
- (a) stateless
 - (b) stateful
 - (c) reliable
 - (d) all of the mentioned
- (1.2) IaaS provides: (CO2, K1) 1
- (a) Virtual machines and storage
 - (b) Complete software solutions
 - (c) Only network services
 - (d) Only databases
- (1.3) A Web Service allows: (CO3, K2) 1
- (a) Machine-to-machine communication over network
 - (b) Manual configuration of servers
 - (c) Direct hardware access
 - (d) Local applications only
- (1.4) "A company ensures only employees with valid credentials can log in to the portal." 1
 The process applied here is: (CO4, K2)
- (a) Authorization
 - (b) Authentication
 - (c) Federation
 - (d) Portability

- (1.5) "A cloud security group is configured to allow only internal network IPs." The protection mechanism applied here is: (CO4, K2) 1
- (a) CIA
 - (b) Security group rules
 - (c) Portability
 - (d) IAM

2. Attempt all parts:-

- (2.1) Name two technologies that contributed to the development of cloud computing. (CO1, K2) 2
- (2.2) A bank requires highly secure infrastructure with full control. Confer the deployment model for it. (CO2, K2) 2
- (2.3) Interpret SLA terms and relate them to service reliability. (CO3, K2) 2
- (2.4) Compare cloud deployment models (Public, Private, Hybrid, Community). (CO3, K2) 2
- (2.5) List two types of resource provisioning methods with example. (CO4, K2) 2

SECTION-B

15

3. Answer any three of the following:-

- (3.1) Interpret the role of emerging technologies like containers and serverless computing in advancing cloud capabilities. (CO1, K2) 5
- (3.2) Discuss the role of Elastic Block Storage (EBS) in AWS cloud services. (CO2, K2) 5
- (3.3) A financial organization needs strict control over data security. Infer the most appropriate deployment model and explain your choice. (CO2, K2) 5
- (3.4) Enumerate design challenges during the migration of a legacy healthcare system to cloud infrastructure. (CO3, K2) 5
- (3.5) A cloud provider runs multiple virtual machines for different clients on the same hardware. (CO4, K2) 5
- (a) Identify the main risk of such an environment.
 - (b) Explain how proper isolation prevents security issues.
 - (c) State one method to strengthen VM security.

SECTION-C

20

4. Answer any five of the following:-

- (4.1) Explain the purpose of EC2 instances in cloud environment and describe at least three types of instances and their use cases. (CO1, K2) 4
- (4.2) Compare the economic benefits of cloud computing for startups versus established enterprises. (CO1, K2) 4
- (4.3) Describe the concept of Virtual Private Cloud (VPC) and its importance in cloud security. (CO2, K2) 4
- (4.4) Enlist the difference between Elastic File Storage (EFS) and Elastic Block Storage (EBS) in AWS. (CO2, K2) 4
- (4.5) Compare SOAP and REST architectures in terms of performance and usability. (CO3, K2) 4

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| (4.6) | Classify cloud services used in a social media application into compute, storage, and networking categories. (CO3, K2) | 4 |
| (4.7) | Brief Identity and Access Management in cloud computing and role-based access control (RBAC). Mention two benefits of implementing IAM in cloud systems. (CO4, K2) | 4 |
| (4.8) | Compare static, dynamic, and hybrid resource provisioning methods in terms of flexibility, cost, and efficiency. (CO4, K2) | 4 |

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