

Course Name : MSCIT

Subject Name : Cloud Infrastructure and Services

Subject Code : MSCIT-205

Date : 25-02-2026

Time : 11:30AM TO 01:45PM

Max Marks : 70

Section A

Q.-1. Answer the following (Attempt any three) (30)

- (1) Define Cloud Computing according to NIST and discuss its essential characteristics in detail.
- (2) Explain the Cloud Layered Architecture, focusing on IaaS, PaaS, and SaaS.
- (3) Analyze Security as a Service (SECaaS) categories as defined by the Cloud Security Alliance.
- (4) Explain Service Oriented Architecture (SOA) and its role in Cloud Applications.
- (5) Explain the Federated Cloud Model and its benefits for consumers.

Section B

Q.-2. Write short notes on any four of the following topics. (20)

- (1) Short note on Peer-to-Peer (P2P) Architecture.
- (2) Briefly explain Hardware-Assisted Virtualization.
- (3) Briefly explain Cloud Service Brokerages (CSB).
- (4) What are the benefits of PaaS?
- (5) Discuss horizontal vs. vertical scaling.
- (6) Briefly explain the role of a Hypervisor (VMM).

Section C

Q.-3. Tick (✓) the correct alternative (10)

(1) According to the NIST definition, cloud computing allows for the rapid provisioning of resources with minimal what?

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|-----------------------|---------------------------------|
| A) Human intelligence | B) Service provider interaction |
| C) Internet bandwidth | D) Financial investment |

(2) Which cloud delivery model provides a custom software stack on top of virtualized infrastructure for a given application?

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|---------|----------|
| A) SaaS | B) IaaS |
| C) PaaS | D) dSaaS |

(3) Which type of virtualization provides a different API and requires the guest OS to be modified before installation?

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|------------------------|------------------------|
| A) Full Virtualization | B) Para Virtualization |
| C) OS Virtualization | D) Hardware Assisted |

(4) What is the process of moving data and applications from on-premises desktops or servers to the cloud called?

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|--------------------|-------------------|
| A) Cloud Backup | B) Cloud Storage |
| C) Cloud Migration | D) Cloud Sharding |

(5) Which XML-based standard is used for the communication of authentication and authorization among online partners?

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|----------|------------|
| A) OAuth | B) OpenID |
| C) SAML | D) SSL/TLS |

(6) Which specialized cloud service helps companies recover their servers, including OS and data, in case of human-generated disasters?

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|-----------------|---------|
| A) IDaaS | B) MaaS |
| C) RaaS (DRaaS) | D) CaaS |

(7) Which security tool allows the writing of rules to accept or drop packets based on port, protocol, and address for web applications?

- A) HIDS
- B) HIPS
- C) dWAF
- D) Firewall

(8) What is the cost calculation that includes direct and indirect expenditures over a period of time?

- A) ROI
- B) TCO
- C) Chargeback
- D) Billing Rate

(9) In a chargeback model, what is the term for the smallest unit available as a service that drives billing?

- A) Billable Item
- B) Atomic Unit
- C) Pricing Strategy
- D) Cloud Resource

(10) Which cost category refers to components shared by multiple services, such as a physical server in a private cloud?

- A) Direct Cost
- B) Indirect Cost
- C) Variable Cost
- D) Operational Cost

Section D

Q.-4. State whether the following statements are true or false (10)

- (1) Cloud computing allows for the rapid provisioning of resources with minimal service provider interaction.
- (2) Distributed systems appear to users as a collection of independent computers rather than a single system.
- (3) In Para Virtualization, the guest operating system must be modified and recompiled before installation.
- (4) Software as a Service (SaaS) removes the need for upfront investment in servers or software licensing for the customer.
- (5) Cloud migration is the process of moving data and applications from on-premises servers to cloud infrastructure.
- (6) Community clouds are shared exclusively by organizations with similar concerns or tasks, such as scientific research.
- (7) Hybrid cloud environments are considered more complex to manage than single-model clouds due to heterogeneity.
- (8) Identity as a Service (IDaaS) uses single-factor authentication as the only method for establishing digital identity.
- (9) Traditional software applications are typically designed for stable, predictable demand levels.
- (10) Horizontal scaling reconfigures a single VM by adding resources like RAM and CPU.
