Cloud computing practice exams

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Exam 1

1. **What is virtualization?**
   A. Creating virtual versions of physical resources
   B. Increasing physical hardware capacity
   C. Enhancing user interfaces only
   D. Improving network wiring

2. **Which hypervisor type runs directly on the host hardware for improved performance and security?**
   A. Hosted hypervisor
   B. Bare-metal hypervisor
   C. Application hypervisor
   D. Container hypervisor

3. **A company wants to maximize resource utilization while ensuring isolation between workloads. Which technique best addresses this need?**
   A. Running applications on physical servers only
   B. Virtualization using hypervisors
   C. Installing software on local desktops
   D. Using static partitioning without virtualization

4. **What does a VM escape refer to?**
   A. A successful migration of a VM
   B. A virtual machine breaking out of its isolated environment
   C. A method to back up virtual machines
   D. A tool to monitor resource usage

5. **Which cloud characteristic allows users to provision resources without human interaction?**
   A. Broad network access
   B. On-demand self-service
   C. Resource pooling
   D. Fixed allocation

6. **Scenario:** A startup with fluctuating workloads and a need for rapid scaling is evaluating deployment models. Which option is most suitable?
   A. Private cloud
   B. Public cloud
   C. Community cloud
   D. Dedicated on-premises infrastructure

7. **Scenario:** A financial institution with strict regulatory and security requirements is choosing a deployment model. Which is the best option?
   A. Public cloud
   B. Hybrid cloud
   C. Private cloud
   D. Community cloud

8. **How does virtualization contribute to improved resource management?**
   A. By requiring additional physical servers
   B. By isolating resources and allowing multiple virtual instances on one physical machine
   C. By eliminating the need for resource monitoring
   D. By merging network and storage into one unit

9. **Which of the following best describes resource pooling in cloud computing?**
   A. Assigning fixed resources to one user
   B. Sharing a set of resources across multiple users in a secure way
   C. Isolating all users from one another
   D. Allocating resources on a per-application basis only

10. **Which option is not a key characteristic of cloud computing?**
    A. Rapid elasticity
    B. On-demand self-service
    C. High physical maintenance
    D. Measured service

11. **Scenario:** A company wants to reduce capital expenditure by paying only for what it uses. Which pricing model is most beneficial?
    A. Fixed subscription pricing
    B. Pay-as-you-go billing
    C. Annual licensing fee
    D. Pre-purchased capacity

12. **Which cloud service model abstracts the underlying hardware so that users can focus only on applications?**

A. Infrastructure as a Service (IaaS)

B. Platform as a Service (PaaS)

C. Software as a Service (SaaS)

D. Function as a Service (FaaS)

13. **Scenario:** A developer wants to concentrate solely on writing application code without managing servers or storage. Which service model should be used?
    A. IaaS
    B. PaaS
    C. SaaS
    D. On-premises hosting

14. **Which type of virtualization abstracts physical network resources to create multiple isolated virtual networks?**
    A. Server virtualization
    B. Storage virtualization
    C. Network virtualization
    D. Desktop virtualization

15. **What is the primary role of a hypervisor in a virtualized environment?**
    A. To monitor network traffic exclusively
    B. To manage resource allocation and isolate virtual machines
    C. To store backup data
    D. To provide a user interface for applications

16. **Scenario:** In a virtualized environment, attackers exploit shared hardware resources to infer sensitive data. Which type of attack is this?
    A. VM escape
    B. Side-channel attack
    C. Denial of Service
    D. Code injection

17. **Which of the following is an effective measure to mitigate security risks in virtualization?**
    A. Increasing the number of VMs on a host
    B. Regular patching and applying security updates
    C. Disabling resource monitoring
    D. Avoiding encryption for performance

18. **Which component of cloud architecture is primarily responsible for managing physical hardware and data centers?**

A. Virtualization layer

B. Infrastructure layer

C. Application layer

D. Middleware layer

19. **What is the purpose of load balancing in cloud environments?**

A. To consolidate all services on one server

B. To distribute network traffic evenly across multiple servers

C. To reduce the number of available resources

D. To disable auto-scaling

20. **Scenario:** When a web application experiences a sudden surge in user traffic, which cloud feature is critical to maintaining performance?

A. Manual resource allocation

B. Auto-scaling

C. Fixed resource provisioning

D. Increased physical hardware deployment

Exam 1 Answers:

1. A

2. B

3. B

4. B

5. B

6. B

7. C

8. B

9. B

10. C

11. B

12. B

13. B

14. C

15. B

16. B

17. B

18. B

19. B

20. B

Exam 2

1. **What is cloud computing?**
   A. The delivery of computing services over the internet
   B. Running software exclusively on local devices
   C. A method to increase physical hardware inventory
   D. A technology limited to storage solutions

2. **Which cloud service model provides users with the highest control over the operating system and hardware?**
   A. Software as a Service (SaaS)
   B. Platform as a Service (PaaS)
   C. Infrastructure as a Service (IaaS)
   D. Managed Services

3. **Scenario:** A business needs to build an application quickly using existing frameworks while offloading hardware management. Which cloud model should they choose?
   A. IaaS
   B. PaaS
   C. SaaS
   D. On-premises development

4. **Which option best defines resource pooling in cloud computing?**
   A. Reserving resources for a single user
   B. Sharing a pool of resources among multiple users securely
   C. Allocating fixed resources to each application
   D. Physically separating hardware for each tenant

5. **Which deployment model is typically characterized by shared infrastructure and high scalability?**

A. Private cloud

B. Public cloud

C. Hybrid cloud

D. Community cloud

6. **Scenario:** An enterprise with mission-critical applications and strict compliance requirements is evaluating deployment models. Which is most appropriate?

   A. Public cloud

   B. Hybrid cloud

   C. Private cloud

   D. Community cloud

7. **What is the main advantage of a hybrid cloud model?**

   A. It provides a single, unified resource pool

   B. It allows integration of on-premises resources with cloud services

   C. It eliminates the need for security measures

   D. It requires no management effort

8. **Which cloud characteristic allows resources to be added or removed quickly based on demand?**

   A. Measured service

   B. Broad network access

   C. Rapid elasticity

   D. Fixed provisioning

9. **Which option best describes broad network access?**

   A. Cloud services available only on desktop computers

   B. Cloud services accessible via a variety of devices and locations

   C. Restricted access to specific operating systems

   D. A feature limited to mobile apps

10. **What is a common challenge in managing cloud environments?**

    A. Lack of connectivity

    B. Complex resource management and cost control

    C. Fixed resource allocation

    D. Over-reliance on manual hardware upgrades

11. **Scenario:** A global e-commerce company requires low latency for users worldwide. Which cloud architecture component is essential to meet this requirement?

    A. A single centralized data center

    B. Multiple data centers across different regions

C. Increased CPU power on one server

D. A dedicated on-premises solution

12. **Which component of cloud architecture is responsible for the organization of physical hardware resources?**

    A. Virtualization layer

    B. Infrastructure layer

    C. Application layer

    D. Network layer

13. **Scenario:** To optimize resource usage and reduce costs, a company wants an automated feature that adjusts compute capacity based on real-time demand. Which feature is this?

    A. Manual scaling

    B. Auto-scaling

    C. Fixed provisioning

    D. Scheduled maintenance

14. **What is the role of middleware in cloud architecture?**

    A. Direct management of physical hardware

    B. Enabling communication and data management between applications

    C. Replacing the need for virtualization

    D. Hosting end-user interfaces exclusively

15. **Which best practice is critical for effective management of cloud resource usage?**

    A. Ignoring usage logs

    B. Continuous monitoring and implementing resource quotas

    C. Over-provisioning all resources

    D. Disabling auto-scaling features

16. **Scenario:** A company's application experiences uneven traffic distribution, leading to performance bottlenecks. What cloud service can help resolve this?

    A. Load balancing

    B. Increased hardware purchases

    C. Static resource allocation

    D. Disabling auto-scaling

17. **Which layer of cloud architecture is directly responsible for abstracting and virtualizing physical hardware?**

    A. Infrastructure layer

    B. Virtualization layer

C. Application layer

D. Network layer

18. **In cloud networking, what is the primary function of a Virtual Private Cloud (VPC)?**
    A. To provide a public interface for all cloud services
    B. To logically isolate a portion of the cloud for secure resource deployment
    C. To increase physical hardware capacity
    D. To automatically scale storage resources

19. **Which cloud service ensures that customers are billed according to their actual resource consumption?**
    A. Fixed subscription service
    B. Measured service
    C. Annual licensing
    D. Pre-purchased resource packages

20. **Scenario:** An organization with unpredictable workload demands needs to adjust compute resources quickly to maintain performance. Which feature addresses this need?
    A. Manual scaling
    B. Elasticity
    C. Fixed resource allocation
    D. Static partitioning

Exam 2 Answers:

1. A
2. C
3. B
4. B
5. B
6. C
7. B
8. C
9. B
10. B
11. B

12. B

13. B

14. B

15. B

16. A

17. B

18. B

19. B

20. B

Exam 3

1. **What is one of the main advantages of using virtualization in cloud environments?**
   A. Increased hardware expenditure
   B. Improved resource utilization and flexibility
   C. Mandatory physical maintenance
   D. Limited scalability

2. **Which hypervisor type typically offers better security by running directly on the hardware?**
   A. Hosted hypervisor
   B. Bare-metal hypervisor
   C. Container-based hypervisor
   D. Application-level hypervisor

3. **Scenario:** A small business wants to cut physical hardware costs while ensuring secure multi-tenancy. Which approach is most beneficial?
   A. Running separate physical servers for each application
   B. Virtualization using a bare-metal hypervisor
   C. Relying solely on desktop computers
   D. Using a hosted hypervisor on a personal computer

4. **What is storage virtualization?**
   A. Dividing a single physical storage device among multiple users
   B. Aggregating multiple physical storage devices into one logical storage pool

C. Physically relocating storage devices

D. Encrypting storage data exclusively

5. **Which statement best defines cloud computing?**

A. Delivering computing services over the internet on a pay-per-use basis

B. Installing software on individual desktops

C. Maintaining isolated physical servers

D. A process that requires manual hardware upgrades

6. **Scenario:** A development team wants to focus on writing and deploying code without managing the underlying infrastructure. Which service model should they adopt?

A. IaaS

B. PaaS

C. SaaS

D. On-premises hosting

7. **How does virtualization improve disaster recovery strategies?**

A. By requiring more physical hardware for backups

B. By enabling quick replication and migration of virtual machines

C. By eliminating the need for data backups

D. By reducing the number of available virtual machines

8. **Which cloud characteristic allows users to access services from any device with an internet connection?**

A. On-demand self-service

B. Broad network access

C. Resource pooling

D. Measured service

9. **Scenario:** A company with unpredictable usage patterns wants to ensure that they only pay for the resources they actually consume. Which billing model should they choose?

A. Fixed subscription pricing

B. Pay-as-you-go billing

C. Annual licensing fee

D. Pre-purchased capacity

10. **Which feature of cloud computing allows resources to be scaled up during high demand periods?**

A. Static allocation

B. Rapid elasticity

C. Fixed provisioning

D. Manual scaling

11. **Which deployment model is generally the most cost-effective for startups with limited budgets and no strict compliance needs?**

A. Private cloud

B. Public cloud

C. Hybrid cloud

D. Community cloud

12. **Scenario:** An organization wants to integrate its existing on-premises infrastructure with cloud resources for flexibility. Which deployment model should it consider?

A. Public cloud only

B. Private cloud only

C. Hybrid cloud

D. Community cloud

13. **What is the primary function of load balancing in cloud environments?**

A. To consolidate all traffic to a single server

B. To distribute incoming network traffic evenly across multiple servers

C. To disable auto-scaling

D. To isolate network segments permanently

14. **Which component in cloud architecture is primarily responsible for monitoring resource usage and performance?**

A. The physical hardware only

B. Management and monitoring tools integrated with the cloud platform

C. End-user devices

D. Local network switches

15. **Scenario:** A company finds that its virtual machines are experiencing CPU contention due to over-allocation. What resource management practice should be implemented?

A. Increasing the number of VMs without monitoring

B. Implementing resource quotas and proper allocation policies

C. Removing virtualization entirely

D. Ignoring the contention until performance degrades further

16. **Which cloud service model delivers complete applications directly to end users via the internet?**

A. IaaS

B. PaaS

C. SaaS

D. Managed Infrastructure

17. **How does network virtualization benefit cloud environments?**

    A. By requiring additional physical cables

    B. By abstracting physical network components into virtual networks for improved flexibility and security

    C. By eliminating the need for firewalls

    D. By merging storage and compute into one resource

18. **Scenario:** A service provider needs to segment its network traffic securely without purchasing extra hardware. Which virtualization technique should be used?

    A. Network Function Virtualization (NFV)

    B. Virtual LANs (VLANs)

    C. Physical cabling separation

    D. Dedicated hardware firewalls

19. **What is one of the primary security challenges in a multi-tenant cloud environment?**

    A. Inability to share resources

    B. Risks related to isolation failures between different tenants

    C. Excessive physical hardware cost

    D. Too many dedicated servers

20. **Scenario:** When a web service faces sudden surges in traffic, which automated feature is critical to maintain consistent performance?

    A. Manual server provisioning

    B. Auto-scaling

    C. Fixed resource allocation

    D. Static load distribution

Exam 3 Answers:

1. B

2. B

3. B

4. B

5. A

6. B

7. B

8. B

9. B

10. B

11. B

12. C

13. B

14. B

15. B

16. C

17. B

18. B

19. B

20. B