BDP1 Quiz Questions and Answers

Quiz Questions and Answers

Question 1: HTC vs HPC

Question:
High-Performance Computing (HPC) focuses on solving complex computational problems that require significant processing power and are typically executed on supercomputers, while High-Throughput Computing (HTC) focuses on executing a large number of independent tasks over a longer period of time, often using distributed computing resources.
Answer: True
Explanation: HTC focuses on job throughput and independent tasks, while HPC targets tightly-coupled problems requiring high performance on supercomputers.

Question 2: Amdahl's Law

Question:
Which of the following statements are true regarding Amdahl's Law?

a) Amdahl's Law suggests that increasing the number of processors will linearly increase the system's efficiency.

b) Amdahl's Law is used to calculate the execution speed of a program on a single processor.

c) According to Amdahl's Law, the maximum speedup achievable is inversely proportional to the fraction of the program that can be parallelized.

d) Amdahl's Law states that the improvement in performance of a system is limited by the portion of the system that cannot be parallelized.

Answer: d
Explanation: Amdahl's Law shows that the serial portion of a program limits the maximum speedup achievable, even with infinite processors.

Question 3: Storage Area Network (SAN)

Question:
Which of the following statements are true regarding Storage Area Networks (SAN)?

a) SANs are typically used for file sharing and collaboration among users.

b) SANs provide block-level storage that can be accessed by servers over a network.

c) SANs offer high availability and redundancy features to ensure data integrity and uptime.

d) SANs are primarily designed for personal and small office use.

Answer: a, b, c
Explanation: SANs are enterprise-level block storage solutions that provide high performance, availability, and redundancy. They support shared storage across servers and are used in large-scale data centers.

Question 4: AWS

Question:
The AWS instances we created during the exercises...

a) Did not have IPs but just a DNS name.

b) Had a private IP and no public IP.

c) Had a public IP because private IP does not exist.

d) Had a public IP and no private IP.

e) Had a public IP and a private IP.

f) Had a public IP we used for reaching a web server, had a private IP we used for SSH to access them from our laptop.

Answer: e
Explanation: AWS EC2 instances can have both a private and public IP address. The public IP allows access from outside the VPC, while the private IP is used internally.

Question 5: Cloud Computing

Question:
What are the main characteristics of cloud-aware applications?

a) Stateful

b) Dependence on specific hardware

c) Monolithic

d) Stateless

e) There are no cloud aware applications; avoid using commercial clouds.

f) Horizontal scalability

g) Fail-over in the application

h) All applications are cloud-aware.

Answer: d, f, g
Explanation: Cloud-aware applications are stateless, support horizontal scalability, and have built-in failover mechanisms for resilience.

Question 6: IaaS

Question:
Which of the following statements are true regarding IaaS?

a) IaaS requires users to manage the underlying physical hardware.

b) IaaS typically provides the user with services such as virtual machines, storage, and networking.

c) IaaS provides virtualized computing resources over the internet.

d) The cloud provider installs the operating system.

e) IaaS eliminates the need for users to manage operating systems and middleware.

Answer: b, c, d
Explanation: IaaS provides on-demand infrastructure resources (compute, storage, networking). Although providers often install a base OS, users are responsible for configuring, securing, and maintaining it.