2. Fundamental Reasons Behind Cloud Success:

Scalability & Flexibility: Cloud services can scale resources up/down based on demand.

Cost Efficiency: Pay-as-you-go models reduce upfront infrastructure costs.

Accessibility: Enables remote access and global reach via internet connectivity.

Pros of Cloud:

On-demand resource allocation.

Reduced need for physical hardware maintenance.

Enhanced collaboration through shared resources.

Cons of Cloud:

Security and data privacy risks.

Dependency on internet connectivity.

Potential vendor lock-in.

3. Primary Function of a Hypervisor:

The hypervisor (virtual machine monitor) abstracts physical hardware and manages virtual machines (VMs), enabling multiple operating systems to run concurrently on a single physical machine. It allocates resources like CPU, memory, and storage to VMs.

4. Virtual Machine (VM):

A VM is a software-based emulation of a physical computer. It runs an operating system and applications as if it were a separate machine, using resources from the host system. Each VM is isolated and operates independently.

5. Benefits of Using Virtual Machines:

Resource Optimization: Efficiently utilize hardware by running multiple VMs on one physical server.

Isolation & Security: VMs are isolated, reducing the risk of system-wide failures or breaches.

Disaster Recovery: Easy to back up and restore VMs for business continuity.

Testing & Development: Safe environment to test software, configurations, or OS versions.

Portability: VMs can be moved between compatible hosts without hardware changes.

6. Five Use Cases of VMs:

Server Consolidation: Reduce physical servers by running multiple VMs on a single host.

Legacy Application Support: Run outdated software incompatible with modern systems.

Development & Testing Environments: Create isolated environments for coding and testing.

Cloud Computing: Provide scalable infrastructure as a service (IaaS).

Disaster Recovery: Replicate systems for backup and failover.

7. Guest Operating System (Answer: b)

8. Virtual Machine Isolation (Answer: c)

9. Benefit of VM Portability (Answer: c)

10. Purpose of Cloning a VM:

Cloning creates an exact copy of a VM, useful for:

Rapid Deployment: Quickly deploy identical VMs for testing or scaling.

Backup & Recovery: Restore systems to a known good state.

Consistency: Ensure uniform environments across teams or projects.