Lab 1:

1. Check if your processor supports Intel/AMD virtualization technology. Enable Intel virtualization technology in BIOS if possible.

2. The cloud is almost everywhere in our lives now. What do you think are the fundamental reasons behind its success? Name three pros and three cons of cloud.

Three Pros

Flexibility & Scalability – Easily adjust resources based on demand.
Reduced IT overhead – Less need to maintain physical servers and infrastructure.
Collaboration & Accessibility – Teams can access files and applications from anywhere.

Three Cons of Cloud

Security & Privacy Risks – Sensitive data is stored on third-party servers, increasing potential risks.
Downtime & Reliability – Service outages can disrupt business operations.
Vendor Lock-in – Switching providers or migrating data can be difficult and costly.

3. What is the primary function of a hypervisor in virtualization?

A hypervisor acts as a layer between hardware and virtual machines, enabling resource sharing and isolation.

4. What is a virtual machine (VM)?

A **Virtual Machine (VM)** is a **software-based emulation of a physical computer**

that runs an operating system and applications just like a real machine.

5. What are the benefits of using virtual machines?

VMs provide scalability, safety, and cost efficiency by letting multiple OSes and apps run securely on the same hardware.

6. List five use cases of virtual machines.

Server consolidation – Running multiple server applications (e.g., web server, database, mail server) on a single physical machine to save hardware costs.

Software testing & development – Developers can create isolated environments to test new applications or OS updates safely.

Running legacy applications – Old software that requires outdated operating systems can be kept running inside a VM.

Disaster recovery & backup – VMs can be snapshotted, cloned, and quickly restored if something goes wrong.

Cloud computing & virtualization services – Public clouds (like AWS, Azure, Google Cloud) provide VMs on-demand for scalable workloads.

7. In virtualization, what is the guest operating system?

a) The main operating system running on the physical machine

b) The operating system installed on a virtual machine

c) The operating system running on a remote server

d) The operating system running on a mobile device

B

8. What does virtual machine isolation mean?

a) Virtual machines can communicate directly with the physical hardware.

b) Virtual machines share the same resources and cannot be isolated.

c) Virtual machines run independently and are isolated from each other and the host system.

d) Virtual machines can only be accessed locally.

C

9. What is the benefit of virtual machine portability?

a) It allows virtual machines to communicate with each other easily.

b) It ensures faster boot times for virtual machines.

c) It allows virtual machines to be moved between different physical machines with compatible hypervisors.

d) It reduces the need for hardware virtualization.

C

10. What is the purpose of cloning a virtual machine?

Cloning saves time, supports safe testing, and ensures consistency across multiple virtual environments.