**Question 1** (1 point)

What is the primary role of a file system in a computer?

○ 1) To enhance the graphics of the computer.

○ 2) To cool down the storage drives by regulating the temperature based on data load and usage.

● 3) To organize data into files and directories for easy access and management.

○ 4) To increase the speed of file download over the internet.

○ 5) To supply power to the computer components.

○ 6) To process audio signals.

**Question 2** (1 point)

Which of these is NOT a type of file system?

- 1) FAT (File Allocation Table).

- 2) NTFS (New Technology File System).

- 3) ext4 (Fourth Extended Filesystem).

- 4) HFS+ (Hierarchical File System Plus).

- 5) ATP (Advanced Technology Partition).

- 6) VHD (Virtual Hard Disk).

**Question 3** (1 point)

What is the purpose of file permissions in a file system?

○ 1) To determine the speed at which a file can be accessed and processed within the system.

◑ 2) To control who can read, write, or execute a file.

○ 3) To control the graphical quality and resolution of image and video files stored on the computer.

○ 4) To dictate the rate of data transfer over the network for specific files, enhancing or limiting their upload and download speeds.

○ 5) To  manage the allocation of storage space on a hard drive, determining how much space a file can occupy.

○ 6) To boost the processing speed of the file system.

**Question 4** (1 point)

**Scenario:**
Alex, a student, has recently installed VirtualBox and set up a new Ubuntu virtual machine for a class project. However, upon starting the virtual machine, Alex notices that the VM is running extremely slowly and lagging, making it difficult to work on the project. The VM's performance issue is hindering Alex's ability to use software applications efficiently.

Alex thinks that the virtual machine's poor performance and lag are likely due to insufficient resources allocated to the VM.

Select the statements that describe some options Alex could try to resolve the issue.

**Options:**

☐ 1) Reinstall the Ubuntu operating system in the VM to reset its settings.

☐ 2) Increase the RAM allocated to the VM.

☐ 3) Defragment the hard drive of the host machine to speed up the VM.

☑ 4) Allocate more CPU cores to the VM if the host system has enough processing power.

☐ 5) Switch the VM's display settings to a lower resolution.

☐ 6) Delete and recreate the VM with a different operating system.

## Question 5 (1 point)

Which software is used to create and manage Virtual Machines?

☐ 1) Adobe Photoshop.

☐ 2) VirtualDJ.

🔘 3) VirtualBox.

☐ 4) Windows Media Player.

☐ 5) VMWare.

☐ 6) Virtual Hard Disk.

## Question 6 (1 point)

**Scenario:**
Alex, a university student, is using VirtualBox for a computer science project. She needs to frequently transfer project files between her Windows laptop (host OS) and a Linux virtual machine. Alex finds it cumbersome to use external drives or email for this purpose and is looking for a more efficient method to share files directly between the host OS and the VM.

Question:
What can Alex do to streamline the file-sharing process between her Windows host OS and the Linux VM in VirtualBox? Select correct options from below:

**☑ 1)** Alex can configure a shared folder in VirtualBox's settings, enabling direct file access between the host OS and the VM without external tools.

**☑ 2)** Utilize the drag-and-drop feature in VirtualBox (after installing Guest Additions) to easily transfer files between the host and the VM.

**☐ 3)** Install a separate file conversion software on the VM to convert and transfer files to the host OS.

**☐ 4)** Use a dedicated graphics card in the VM to enhance file transfer speeds between the host and VM.

**☑ 5)** Set up network file sharing within the VM, allowing it to access specific folders on the host OS over the network.

**☐ 6)** Establish a VPN connection between the host and VM, as it will directly enable file sharing.

## Question 7 (1 point)

What is the primary advantage of using Virtual Machines?

**○ 1)** They increase the physical storage capacity of the host computer by creating additional virtual hard drives.

**● 2)** They allow running multiple operating systems simultaneously on one physical machine.

**○ 3)** They enhance the graphics processing capabilities.

**○ 4)** They improve the computer's sound quality.

**○ 5)** They speed up the internet connection.

**○ 6)** They act as an advanced firewall, significantly enhancing the host computer's security against cyber threats and malware.

**Question 8** (1 point)

Which of the following statements regarding ISO images are true in the context of VMs?

- ☐ 1) They are used for increasing the speed of the VM.

- ☐ 2) They function as a backup system within VMs, automatically saving copies of all files and settings at regular intervals.

- ☑ 3) They are used for optical disk images like CDs and DVDs.

- ☑ 4) They are used as the source media for installing operating systems or software within the VM

- ☐ 5) ISO images are used to increase the virtual memory capacity of VMs, providing additional space for data storage and processing.

- ☐ 6) ISO images are used for physical hardware modifications.

**Question 9** (1 point)

What are the main differences between a physical machine (PM) and a virtual machine (VM)?

- ☐ 1) PMs can run several operating systems at once, unlike VMs.

- ☐ 2) PMs share host machine resources, while VMs use all resources exclusively.

- ☑ 3) PMs deliver higher performance for demanding tasks due to direct access to hardware, whereas VMs might have reduced performance due to virtualization.

- ☐ 4) VMs incur higher hardware and maintenance costs, unlike PMs which are more cost-effective.

- ☐ 5) Scaling VMs usually needs more physical hardware, but PMs are easily scalable without extra hardware.

- ☐ 6) PMs directly use all available resources for improved task performance, while VMs share resources and may perform less efficiently due to shared resources.

**Question 10** (1 point)

Why is VirtualBox popular for creating Virtual Machines?

☐ 1) It can increase the physical memory of the computer.

🔘 2) It is a powerful virtualization product available for free.

☐ 3) It automatically speeds up the internet connection.

☐ 4) It can physically alter the computer hardware.

☐ 5) It enhances the graphics of games.

☐ 6) It runs on Windows, Linux, Macintosh, and Solaris hosts and supports a large number of guest operating systems.

**Question 11** (1 point)

In VirtualBox, what is the purpose of the 'Guest Additions' feature?

⚪ 1) To increase the storage capacity of the VM.

🔘 2) To improve performance and add functionality like seamless mouse integration.

⚪ 3) To enhance the internet speed in the VM.

⚪ 4) To act as a firewall for the VM.

⚪ 5) To improve the sound quality in the VM.

⚪ 6) To add guest logins in the VM.

**Question 12** (1 point)

Which of the following is true about disk images in VMs?

○ 1) They are mainly used for graphic design.

◓ 2) Disk images act as a virtual hard drive for the VM.

○ 3) They are used to cool down the VM.

○ 4) Disk images are used to boost the VM's internet speed.

○ 5) They enhance the audio processing of the VM.

○ 6) They are used to physically modify the VM.

**Question 13** (1 point)

What is the main purpose of using snapshots in VirtualBox?

○ 1) To increase the storage space of the VM.

◉ 2) To capture the current state of a VM for restoration purposes.

○ 3) To enhance the graphical capabilities of the VM.

○ 4) To enable taking screenshots in the VM.

○ 5) To upgrade the operating system of the VM automatically.

○ 6) To act as a power management tool for the VM.

**Question 14** (1 point)

How does virtualization benefit data centres?

☐ 1) It allows for playing high-end games in the data centre

◑ 2) It facilitates server consolidation and improves resource utilization.

☐ 3) It is used for creating physical connections between servers.

⬤ 4) Virtualization provides improved disaster recovery and business continuity solutions, as virtual machines can be easily backed up, replicated, and restored on different hardware in case of failures or maintenance.

◒ 5) It enables better scalability and flexibility, as virtual servers can be quickly created, deployed, or reconfigured to meet changing demands without the need for physical hardware changes.

☐ 6) It increases the physical storage capacity of each server.


**Question 15** (1 point)

Which of the following statements are true regarding 'sectors' in a hard drive?

⬤ 1) Sectors are the smallest unit that can be read from or written to on a hard drive.

⬤ 2) They are fixed-size segments on the hard drive's platters where data is stored.

☐ 3) Sectors are organized into larger groups called tracks on the surface of the hard disk platters.

☐ 4) The size of a sector in modern hard drives is typically 512 bytes or 4K bytes.

◒ 5) Sectors are crucial for the hard drive's ability to locate and retrieve data efficiently.

◒ 6) Over time, sectors can become 'bad' or unusable, requiring the hard drive to remap the data to spare sectors.