1️⃣ Managing BIOS / UEFI

Q1. What is BIOS?
Ans: BIOS (Basic Input Output System) is firmware stored on the motherboard that initializes hardware and loads the operating system during boot.

Q2. What is UEFI? How is it different from BIOS?
Ans: UEFI (Unified Extensible Firmware Interface) is the modern replacement for BIOS. It supports faster booting, larger disks (>2 TB), graphical interface, mouse support, and Secure Boot.

Q3. How do you enter BIOS/UEFI settings?
Ans: By pressing keys like **DEL, F2, F10, F12, or ESC** during system startup (varies by manufacturer).

Q4. What is Secure Boot?
Ans: Secure Boot ensures that only trusted, digitally signed operating systems can boot, preventing malware at startup.

Q5. What happens if BIOS settings are corrupted?
Ans: The system may not boot; resetting BIOS using **CMOS battery removal** or **Load Default Settings** can fix it.

Q6 (Tricky): Can Windows install on Legacy BIOS with GPT disk?
Ans: No. Legacy BIOS requires **MBR**, while UEFI supports **GPT**.

2️⃣ Creating a Virtual Machine in VMware & Installing Windows OS

Q1. What is virtualization?
Ans: Virtualization allows multiple operating systems to run on a single physical machine using virtual hardware.

Q2. What is VMware?
Ans: VMware is virtualization software used to create and manage virtual machines.

Q3. What are the minimum requirements to install Windows in VMware?
Ans:

- CPU with virtualization support
- Minimum 2 GB RAM
- 20 GB virtual disk
- Windows ISO file

Q4. What is a virtual machine (VM)?
Ans: A VM is a software-based computer that runs an operating system using virtualized hardware.

Q5. Difference between Host OS and Guest OS?
Ans:

- **Host OS:** OS installed on physical machine
- **Guest OS:** OS installed inside virtual machine

Q6 (Impress): What is VMware Tools?
Ans: VMware Tools improves VM performance, graphics, mouse integration, and enables features like copy-paste.

3️⃣ Managing Users Through Control Panel (Windows OS)

Q1. How many types of user accounts are there in Windows?
Ans:

1. Administrator
2. Standard User
3. Guest

Q2. What is the role of an Administrator account?
Ans: It has full control over system settings, software installation, and user management.

Q3. How do you create a new user from Control Panel?
Ans:
Control Panel → User Accounts → Manage another account → Add new user

Q4. What is User Account Control (UAC)?
Ans: UAC prevents unauthorized system changes by asking for administrator permission.

Q5 (Tricky): Can a standard user install software?
Ans: No, unless administrator credentials are provided.

4️⃣ Managing Disk Through Control Panel

Q1. What is Disk Management?
Ans: A Windows utility used to create, format, delete, and manage disk partitions.

Q2. What is partitioning?
Ans: Dividing a hard disk into logical sections for better management.

Q3. Difference between Primary and Logical partition?
Ans:

- **Primary:** Can install OS
- **Logical:** Used for data storage

Q4. What is formatting?
Ans: Preparing a disk to store data by creating a file system.

Q5. Difference between NTFS and FAT32?
Ans:

- NTFS: Secure, supports large files
- FAT32: Compatible but limited to 4 GB file size

5️⃣ Identifying Processor Specifications

Q1. What is a processor?
Ans: The CPU is the brain of the computer that performs calculations and executes instructions.

Q2. How do you check processor details in Windows?
Ans:

- Right-click This PC → Properties
- Task Manager → Performance → CPU

Q3. What is clock speed?
Ans: Speed at which CPU executes instructions, measured in GHz.

Q4. What are cores and threads?
Ans:

- Core: Physical processing unit
- Thread: Virtual processing path

Q5 (Impress): What is cache memory?
Ans: High-speed memory inside CPU used to store frequently accessed data.

6️⃣ Identifying Motherboard and Components

Q1. What is a motherboard?
Ans: Main circuit board that connects all components like CPU, RAM, storage, and expansion cards.

Q2. Name important motherboard components.
Ans:

- CPU socket
- RAM slots
- Chipset
- Expansion slots
- BIOS chip

Q3. What is a chipset?
Ans: Controls communication between CPU, memory, and peripherals.

Q4 (Tricky): Can any processor fit any motherboard?
Ans: No. Processor socket and chipset must be compatible.

7️⃣ Identifying Power Supply (SMPS) & Testing

Q1. What is SMPS?
Ans: Switched Mode Power Supply converts AC power to DC required by computer components.

Q2. What are common SMPS voltages?
Ans:

- +12V
- +5V
- +3.3V

Q3. How do you test SMPS?
Ans:

- Paper clip test
- Multimeter
- SMPS tester

Q4. What happens if SMPS fails?
Ans: PC may not start, restart randomly, or damage components.

8️⃣ Monitor Types, Printer Installation & Sharing

🔹 Monitor

Q1. Types of monitors?
Ans:

- CRT
- LCD
- LED
- OLED

Q2. Difference between LCD and LED?
Ans: LED uses LED backlight, consumes less power, and offers better brightness.

🔹 Printer

Q3. Types of printers?
Ans:

- Dot Matrix
- Inkjet
- Laser

Q4. Steps to install a printer?
Ans:
Control Panel → Devices and Printers → Add Printer

Q5. What is printer sharing?
Ans: Allowing multiple users to access one printer over a network.

Q6 (Impress): Difference between local and network printer?
Ans:

- Local: Directly connected
- Network: Shared over network

. Managing BIOS/UEFI

Q1. What is the difference between BIOS and UEFI?

Ans: BIOS (Basic Input Output System) is a legacy firmware that uses 16-bit mode, supports only up to 2.2 TB drives, uses MBR partitioning, slower boot time. UEFI (Unified Extensible Firmware Interface) is modern firmware, 32/64-bit, supports GPT partitioning, >2.2 TB drives, faster boot, supports Secure Boot, mouse support in interface, graphical UI.

Q2. How do you enter BIOS/UEFI setup?

Ans: During system startup, repeatedly press the designated key:

Dell → F2

HP → F10

Lenovo → F1 or F2

ASUS → Del or F2

Common keys → Del, F2, F10, F12, Esc

Q3. What is Secure Boot and why is it used?

Ans: Secure Boot is a UEFI feature that ensures only trusted, digitally signed operating system loaders and drivers can run during boot. It prevents malware/rootkits from loading before the OS.

Q4. What happens if you change boot order in BIOS?

Ans: Changing boot order decides from which device (HDD, SSD, USB, DVD, network) the computer will try to boot the operating system first.

Q5. How to reset BIOS settings to default?

Ans: Two common methods:

Load Default/Optimized Defaults from BIOS menu

Remove CMOS battery for 5–10 minutes or use CMOS jumper (CLR_CMOS)

2. Creating a Virtual Machine in VMware and Installing Windows OS

Q1. What is the difference between Bridged, NAT and Host-Only networking in VMware?

Ans:

Bridged → VM gets its own IP from the same network as host (acts like separate physical machine)

NAT → VM uses host's IP to access internet (most common, easy internet)

Host-Only → VM can communicate only with host and other host-only VMs (no internet)

Q2. Why do we install VMware Tools in a virtual machine?

Ans: VMware Tools improves graphics performance, mouse integration, shared folders, copy-paste between host & guest, better screen resolution, clock synchronization.

Q3. What file format is used to install OS in VMware?

Ans: ISO image file (optical disc image) of the operating system.

Q4. What is the minimum recommended RAM for Windows 10/11 VM?

Ans: Minimum 4 GB, recommended 8 GB or more for smooth performance.

3. Managing users through Control Panel of Windows OS

Q1. What is the difference between Standard and Administrator account?

Ans:

Administrator → Full rights to install software, change system settings, manage other users

Standard → Limited rights, cannot install most software or change important system settings

Q2. What is User Account Control (UAC)?

Ans: UAC is a security feature that asks for permission/confirmation when a program tries to make changes that require administrative privileges.

Q3. How can you change a user from Standard to Administrator?

Ans: Control Panel → User Accounts → Manage another account → Select user → Change the account type → Administrator

4. Managing disk through Control Panel

Q1. What is the difference between Basic and Dynamic disk?

Ans:

Basic disk → Supports primary & extended partitions, simple structure

Dynamic disk → Supports spanned, striped, mirrored, RAID-5 volumes (advanced features)

Q2. What is the difference between NTFS and FAT32?

Ans:

NTFS: Supports large files (>4GB), file permissions, encryption, compression, journaling

FAT32: Older, no security, max 4GB file size, better compatibility with old devices

Q3. What happens when you extend a volume?

Ans: You add unallocated space (contiguous) to an existing volume to increase its size.

5. Identifying processor specifications

Q1. Name two ways to check processor details in Windows.

Ans:

Right-click This PC → Properties

Task Manager → Performance tab → CPU

msinfo32 (System Information)

Q2. What is L3 cache and why is it important?

Ans: L3 cache is the largest & shared cache among all cores. Larger L3 cache → faster data access → better performance in multi-core tasks.

Q3. What does "6 Core 12 Thread" mean?

Ans: 6 physical cores and 12 logical processors (using Hyper-Threading/SMT technology).

6. Identifying motherboard and components

Q1. Name the major components present on a motherboard.

Ans: CPU socket, chipset, RAM slots, PCIe slots, SATA ports, power connectors (24-pin & 8-pin), BIOS chip, CMOS battery, capacitors, VRM, audio codec, LAN chip.

Q2. What is chipset and why is it important?

Ans: Chipset controls communication between CPU, RAM, storage, USB, PCIe devices. It determines supported CPU generations, RAM type/speed, number of ports.

Q3. What are different form factors of motherboards?

Ans: ATX (standard), Micro-ATX (smaller), Mini-ITX (very small), EATX (extended).

7. Identifying the power supply of a PC and testing SMPS

Q1. What does 80+ Bronze, Gold rating mean on PSU?

Ans: Efficiency rating – how much input power is converted to usable output.

Higher rating (Bronze → Silver → Gold → Platinum → Titanium) = less power wastage as heat.

Q2. What is the function of +12V rail in SMPS?

Ans: Mainly supplies power to CPU, GPU, and other high-power components.

Q3. How to test SMPS using paperclip method?

Ans: Connect green wire with any black wire on 24-pin connector → plug in power → fan should spin (only for basic check, not full testing).

Q4. What is the minimum wattage recommended for a gaming PC with RTX 3060?

Ans: 550–650W (good quality 80+ Bronze or better).

8. Identifying monitor types, installing and sharing printer

Q1. Name different types of monitors available today.

Ans: LED, LCD, OLED, QLED, IPS, TN, VA, Mini-LED.

Q2. Which monitor connection gives the best quality – HDMI or DisplayPort?

Ans: Both are good, but DisplayPort usually supports higher refresh rates & resolutions (especially 144Hz+ gaming monitors).

Q3. How do you share a printer in Windows network?

Ans:

Control Panel → Devices and Printers

Right-click printer → Printer properties → Sharing tab

Check “Share this printer” → give share name

Q4. What is the most common cause of “Printer offline” error?

Ans: Printer is switched off / disconnected / network issue / spooler service stopped.