**CM-1**

**Q1. How do you safely disassemble a PC and identify the key components such as the motherboard, RAM, and power supply?**

**Ans.**

1. **Prepare Your Workstation**

* Power off, unplug the PC, ground yourself, and gather tools.

1. **Open the PC Case**

* Remove screws and slide off the side panel to expose internal components.

1. **Identify Key Components**

* Locate the motherboard, RAM, and power supply unit (PSU).

1. **Remove Key Components**

* Motherboard: Unplug cables, unscrew, and lift it out.
* RAM: Press tabs and pull the RAM sticks out.
* PSU: Unplug connections, unscrew, and remove.

1. **Optional: Remove Additional Components**

* CPU: Remove the cooler, unlock, and lift the CPU.
* Storage (HDD/SSD): Unplug, unscrew, and remove.
* Graphics Card: Unscrew, release the tab, and pull it out.

1. **Reassembly**

* Reverse the steps, ensuring all components are securely connected, and double-check cables.

**Q2. What are the steps to correctly reassemble a PC and ensure all components are properly connected?**

**Ans.**

1. **Install the Power Supply (PSU)**

* Secure the PSU in its compartment (usually at the top or bottom of the case) and screw it in place.
* Connect the main power cables to the motherboard and any necessary components (CPU, GPU, drives).

1. **Mount the Motherboard**

* Place the motherboard onto the standoffs in the case and secure it with screws.
* Reconnect power cables (24-pin ATX, 8-pin CPU) and front panel connectors (USB, audio, power/reset buttons).

1. **Install the CPU and CPU Cooler**

* Insert the CPU into the motherboard socket and lock it in place.
* Attach the CPU cooler on top of the CPU and connect the fan to the CPU fan header on the motherboard.

1. **Insert the RAM (Memory)**

* Align the RAM sticks with the motherboard slots and push down until the tabs on each end click into place.

1. **Install the Storage (HDD/SSD)**

* Secure the hard drive or SSD in the appropriate drive bay using screws.
* Connect the SATA power and SATA data cables from the PSU and motherboard to the drive.

1. **Install the Graphics Card (GPU)**

* Insert the GPU into the PCIe slot on the motherboard, secure it with screws, and connect the power cable from the PSU (if required).

1. **Reconnect All Cables**

* Double-check all connections: power to the motherboard, CPU, GPU, drives, and front panel connectors (power/reset buttons, USB, audio).

1. **Close the Case and Connect External Peripherals**

* Slide the side panel back onto the case and secure it with screws.
* Plug in external peripherals like the monitor, keyboard, and mouse.

1. **Power On and Test**

* Plug in the power cable, switch on the PSU, and power on the PC to ensure everything is functioning properly.

**Q3. How do you install a CPU into the motherboard and attach a cooling fan using thermal paste?**

**Ans.**

1. **Prepare the Workstation**

* Power off the PC, ground yourself, and gather tools (CPU, cooling fan, thermal paste). Open the PC case and locate the CPU socket on the motherboard.

1. **Unlock the CPU Socket**

* Lift the metal retention arm or bracket on the CPU socket to open it. Ensure the socket is clear and ready for the CPU.

1. **Align and Insert the CPU**

* Carefully align the CPU with the socket using the notches or triangle marking on both the CPU and socket. Gently place the CPU into the socket without applying pressure.

1. **Lock the CPU in Place**

* Lower the retention arm or bracket to secure the CPU in the socket. Ensure the CPU is properly seated before locking it.

1. **Apply Thermal Paste**

* Apply a small, pea-sized drop of thermal paste directly in the center of the CPU. This helps ensure good thermal conductivity between the CPU and cooler.

1. **Install the Cooling Fan**

* Place the CPU cooler or fan on top of the CPU, aligning it with the mounting points. Tighten the cooler or clip it into place, following the cooler’s specific instructions.

1. **Connect the Fan to the Motherboard**

* Plug the CPU cooler's fan cable into the CPU fan header on the motherboard, typically labeled “CPU\_FAN” or similar.

1. **Test the Installation**

* Double-check connections, close the case, and power on the PC to ensure the CPU and cooler are working properly. Check fan functionality and monitor CPU temperatures.

**Q4. What is the correct procedure for installing and removing RAM from a motherboard?**

**Ans.**

**Installing RAM**

1. **Power Off and Ground Yourself**
   * Shut down the PC, unplug the power supply, and ground yourself to prevent static discharge that could damage components.
2. **Open the PC Case**
   * Remove the screws from the back of the case and slide off the side panel to access the motherboard.
3. **Locate the RAM Slots**
   * Identify the RAM slots on the motherboard, usually near the CPU. Check the motherboard manual for specific slot configurations, especially if installing multiple sticks.
4. **Align the RAM Stick**
   * Hold the RAM by the edges and align the notch on the RAM stick with the notch in the slot. Make sure the RAM is oriented correctly so it fits smoothly into the slot.
5. **Insert the RAM**
   * Gently but firmly press down on the RAM until the plastic retention clips on both ends of the slot snap into place, securing the stick.
6. **Double-check the Installation**
   * Ensure that the RAM is fully seated and the clips are securely locked. Repeat for additional RAM sticks if necessary.

**Removing RAM**

1. **Power Off and Ground Yourself**
   * Power off the PC and unplug it from the power source. Ground yourself to avoid static electricity damage.
2. **Open the PC Case**
   * Unscrew the side panel of the case and remove it to access the motherboard.
3. **Release the Retention Clips**
   * Press down on the plastic tabs at both ends of the RAM slot to release the RAM stick. The RAM will pop up slightly once it is released.
4. **Remove the RAM Stick**
   * Carefully pull the RAM stick straight up and out of the slot, holding it by the edges to avoid contact with the gold connectors.
5. **Store or Replace RAM**
   * If replacing or upgrading RAM, insert the new RAM following the installation steps. If storing, place the RAM in an anti-static bag to protect it.

**Q5. How do you install a SATA hard drive into a desktop computer, and what precautions should you take with power and data connections?**

**Ans.**

1. **Power Off and Ground Yourself**
   * Shut down the computer, unplug the power cord, and ground yourself to prevent static discharge from damaging the components.
2. **Open the PC Case**
   * Unscrew the screws on the back of the case and slide off the side panel to access the internal components.
3. **Locate the Drive Bay**
   * Find an empty 3.5" or 2.5" drive bay (depending on the size of your SATA hard drive). Ensure the bay is easily accessible for mounting the drive.
4. **Mount the SATA Hard Drive**
   * Slide the hard drive into the drive bay and align the screw holes. Use screws to secure the drive to the bay, ensuring it is stable and does not move.
5. **Connect the SATA Data Cable**
   * Attach one end of the SATA data cable to the hard drive and the other end to an available SATA port on the motherboard. Ensure the cable is fully inserted and snug.
6. **Connect the SATA Power Cable**
   * Plug the SATA power connector from the power supply unit (PSU) into the hard drive. Make sure it is securely attached to provide sufficient power to the drive.
7. **Check Cable Management**
   * Ensure that both the power and data cables are properly routed to avoid interference with fans or other components. This helps maintain airflow and prevents damage.
8. **Close the Case and Power On**
   * Replace the side panel, screw it back in place, and plug the power cord back into the computer. Power on the system to verify the hard drive is recognized in the BIOS or operating system.

**Precautions for Power and Data Connections**

* Secure Connections: Ensure both the power and data cables are fully inserted to avoid connection issues or data loss.
* Avoid Bending Cables: Do not bend SATA cables sharply as this could damage the connectors or reduce performance.
* Use the Correct Ports: Ensure the SATA data cable is connected to a working SATA port on the motherboard, and that the power cable is from the PSU.

**Q6. What are the steps for installing a PCIe expansion card, such as a graphics card or network card, in a desktop PC?**

**Ans.**

1. **Power Off and Ground Yourself**
   * Shut down the PC, unplug the power cord, and ground yourself by touching a grounded metal object to avoid static damage to sensitive components.
2. **Open the PC Case**
   * Remove the screws on the back panel and slide off the side panel to access the motherboard and expansion slots.
3. **Locate the PCIe Slot**
   * Identify the appropriate PCIe slot on the motherboard for your expansion card. Graphics cards usually go in the larger PCIe x16 slot, while smaller cards (e.g., network cards) fit in smaller PCIe x1 slots.
4. **Remove the Slot Cover**
   * Unscrew or unclip the metal slot cover at the back of the case, directly in line with the PCIe slot where the card will be installed. This allows the card’s ports to be accessible from outside the case.
5. **Insert the PCIe Card**
   * Align the card’s connector with the PCIe slot, then gently but firmly press the card into the slot until it is fully seated. The bracket should line up with the opening at the back of the case.
6. **Secure the Card**
   * Once the card is seated, use a screw to secure it to the case, keeping the card stable and in place during operation.
7. **Connect Power (If Required)**
   * For high-power cards like graphics cards, connect any required power cables from the PSU to the card (usually 6-pin or 8-pin connectors). Check the card's manual for specific power requirements.
8. **Close the Case and Power On**
   * Reattach the side panel and screw it into place. Plug in the power cord, power on the PC, and verify that the expansion card is recognized in the BIOS or operating system.

**Precautions for PCIe Installation**

* Firm Insertion: Ensure the card is properly seated in the slot, but avoid excessive force.
* Power Cables: For power-hungry cards, like GPUs, ensure the correct power connectors are attached to avoid power issues.
* Avoid Touching Connectors: When handling the card, hold it by the edges to avoid touching the gold connectors or sensitive circuitry.

**Q7. How do you connect and test USB peripherals such as a keyboard, mouse, and USB drive on a PC?**

**Ans.**

* 1. **Power On the PC**
* Ensure your PC is powered on and ready for use before connecting any peripherals.
  1. **Locate USB Ports**
* Find available USB ports on the front or back of the PC. Most desktops have multiple USB ports for easy access.
  1. **Connect the USB Devices**
* Insert the USB connectors of your keyboard, mouse, and USB drive into the available USB ports. Ensure they fit securely.
  1. **Wait for Device Detection**
* Your PC will automatically detect the connected devices. Wait a few seconds for the operating system to install the necessary drivers (if required).
  1. **Test the Keyboard and Mouse**
* Move the mouse to check if the cursor responds. Type on the keyboard to ensure the keys are functioning properly.
  1. **Access the USB Drive**
* Open "File Explorer" or "My Computer" and look for the USB drive under "Devices and Drives." Click to access the files and test the drive.
  1. **Check for Errors**
* If any device isn't working, try reconnecting it to a different USB port or check the device settings in the Control Panel or Device Manager.

**Q8. What tools and steps are required to clean the internal components of a PC, especially the motherboard and fans?**

**Ans.**

**Tools Needed**

* Soft Brush: To gently remove dust without scratching surfaces.
* Compressed Air Can: For blowing dust out of hard-to-reach areas.
* Microfiber Cloth: To wipe down surfaces.
* Screwdriver: For removing the case panels (usually a Phillips screwdriver).
* Anti-static Wrist Strap: To prevent static discharge when touching components.

**Cleaning Steps**

1. **Power Off and Unplug the PC**
   * Shut down the computer and disconnect the power cord to ensure safety while cleaning.
2. **Ground Yourself**
   * Wear an anti-static wrist strap or touch a grounded metal object to prevent static electricity from damaging components.
3. **Open the PC Case**
   * Use a screwdriver to remove the screws and slide off the side panel of the case to access the internal components.
4. **Remove Dust with Compressed Air**
   * Hold the can of compressed air upright and use short bursts to blow dust off the motherboard, fans, and other components. Keep a safe distance to avoid moisture from the can.
5. **Clean the Fans**
   * Use a soft brush to gently remove dust from the fan blades and surrounding areas. Be careful not to spin the fans while cleaning, as this can damage them.
6. **Wipe Down Surfaces**
   * Use a microfiber cloth to gently wipe down the surfaces of the motherboard and any other components. This helps remove any remaining dust.
7. **Reassemble the Case**
   * Once everything is clean, replace the side panel of the case and screw it back into place.
8. **Power On the PC**
   * Reconnect the power cord and turn on the PC to ensure everything is working properly after cleaning.

**Q9. What steps do you follow to troubleshoot and resolve hardware-related issues, such as a PC not powering on or failing to boot?**

**Ans.**

**1. Check Power Supply**

* Ensure the power cable is securely plugged into both the wall outlet and the PC. Look for any signs of damage on the cable or power supply unit (PSU).

**2. Verify Power Button Functionality**

* Press the power button and listen for any sounds (like fans spinning or lights turning on). If nothing happens, try a different outlet or check if the power strip is switched on.

**3. Inspect Internal Connections**

* Open the case and check that all internal cables (power cables, data cables) are properly connected to the motherboard and other components like the hard drive and GPU.

**4. Look for Signs of Damage**

* Check for any burnt or damaged components, such as blown capacitors on the motherboard or signs of short circuits. If you see any physical damage, further inspection may be needed.

**5. Remove Non-Essential Hardware**

* Disconnect all peripherals and non-essential hardware (like extra RAM sticks or additional drives). Try to boot the PC with just the motherboard, CPU, one stick of RAM, and the power supply connected.

**6. Test RAM Modules**

* If the PC still doesn’t boot, try reseating the RAM modules by removing and reinserting them. You can also test each RAM stick individually in different slots to rule out faulty RAM.

**7. Reset BIOS/UEFI Settings**

* Clear the CMOS by either removing the motherboard battery for a few minutes or using the clear CMOS jumper. This resets BIOS settings, which might resolve boot issues.

**8. Check for Overheating**

* Ensure that all fans are working correctly and that there’s no dust buildup blocking airflow. Overheating can cause the system to shut down or fail to boot.

**9. Listen for Beep Codes**

* If the PC emits beep codes when trying to boot, consult the motherboard manual for the meaning of the codes, which can indicate specific hardware failures.

**10. Seek Professional Help**

* If none of these steps resolve the issue, consider consulting a professional technician for further diagnosis and repair, as it may involve more complex hardware problems.

**Q10. How do you create a bootable USB drive and use it to install Windows 10 on a desktop or laptop?**

**Ans.**

1. **Get a USB Drive**
   * Use a USB flash drive with at least 8 GB of storage. Make sure to back up any important data on it, as the drive will be formatted.
2. **Download the Windows 10 Media Creation Tool**
   * Go to the [Microsoft website](https://www.microsoft.com/en-us/software-download/windows10) and download the Windows 10 Media Creation Tool.
3. **Run the Media Creation Tool**
   * Open the downloaded tool. Accept the license terms to proceed.
4. **Choose ‘Create Installation Media’**
   * Select "Create installation media (USB flash drive, DVD, or ISO file) for another PC" and click “Next.”
5. **Select Language, Edition, and Architecture**
   * Choose your preferred language, Windows edition, and whether you want 32-bit or 64-bit (most PCs use 64-bit). Click “Next.”
6. **Select USB Flash Drive**
   * Choose “USB flash drive” as the media to use. Click “Next” and select your USB drive from the list, then click “Next” again.
7. **Create the Bootable Drive**
   * The tool will download Windows 10 and create the bootable USB drive. This may take some time. Once finished, click “Finish.”

**Installing Windows 10 from the Bootable USB Drive**

1. **Insert the Bootable USB Drive**
   * Plug the USB drive into the desktop or laptop where you want to install Windows 10.
2. **Access the BIOS/UEFI Settings**
   * Power on the computer and immediately press the key to enter BIOS/UEFI settings (usually F2, F12, ESC, or DEL). Check your computer’s documentation for the exact key.
3. **Change Boot Order**

* In BIOS/UEFI, find the boot order settings and set the USB drive as the first boot device. Save the changes and exit the BIOS.

1. **Start the Windows 10 Installation**

* The computer will restart and boot from the USB drive. Follow the on-screen instructions to begin the Windows 10 installation.

1. **Choose Installation Type**

* You can select "Upgrade" to keep your files or "Custom" for a clean installation. If you choose custom, select the partition where you want to install Windows 10 and click “Next.”

1. **Complete the Installation**

* Follow the prompts to set up Windows 10, including language, time zone, and user account. Once completed, your computer will restart, and you’ll be ready to use Windows 10.

**Q11. What is the process for installing Ubuntu Linux from a bootable USB drive, and how do you partition the hard drive during installation?**

**Ans.**

**Creating a Bootable USB Drive with Ubuntu**

1. **Get a USB Drive**
   * Use a USB flash drive with at least 4 GB of storage. Ensure to back up any important data on it, as the drive will be formatted.
2. **Download Ubuntu ISO**
   * Visit the [Ubuntu website](https://ubuntu.com/download) and download the latest version of the Ubuntu ISO file.
3. **Use a USB Creation Tool**
   * Use a tool like Rufus (for Windows) or Etcher (for macOS and Linux) to create a bootable USB drive. Open the tool and select the downloaded Ubuntu ISO.
4. **Select USB Drive**
   * Choose your USB flash drive from the list of devices in the tool. Be cautious to select the correct drive to avoid data loss.
5. **Create the Bootable Drive**
   * Start the process and wait for the tool to create the bootable USB drive. This may take a few minutes. Once done, safely eject the USB drive.

**Installing Ubuntu from the Bootable USB Drive**

1. **Insert the Bootable USB Drive**
   * Plug the USB drive into the computer where you want to install Ubuntu.
2. **Access the BIOS/UEFI Settings**
   * Power on the computer and immediately press the key to enter BIOS/UEFI settings (usually F2, F12, ESC, or DEL). Check your computer’s documentation for the exact key.
3. **Change Boot Order**
   * In the BIOS/UEFI menu, find the boot order settings and set the USB drive as the first boot device. Save the changes and exit the BIOS.
4. **Start the Ubuntu Installation**
   * The computer will restart and boot from the USB drive. When the Ubuntu menu appears, select "Try Ubuntu" or "Install Ubuntu."

**Partitioning the Hard Drive During Installation**

1. **Choose Installation Type**
   * When prompted, select "Something else" for custom partitioning, which allows you to create and manage partitions manually.
2. **Create Partitions**
   * You’ll see a list of your existing partitions. To create a new partition for Ubuntu, select free space or unallocated space and click the "+" button:
   * Root Partition: Create a primary partition with at least 20 GB. Set the file system to ext4 and mount point as "/" (root).
   * Swap Partition: Create a swap partition equal to your RAM size (or double if you have less than 4 GB of RAM) for memory management.
   * Home Partition (Optional): If desired, create a separate partition for your home directory by allocating more space and setting the mount point as "/home."
3. **Proceed with Installation**
   * After setting up the partitions, select the root partition ("/") for the installation location. Click “Install Now” to start the installation.
4. **Follow On-Screen Prompts**
   * Continue through the installation wizard, setting your location, keyboard layout, and user details. The installation process will take a few minutes.
5. **Complete the Installation**
   * Once the installation is finished, remove the USB drive when prompted and restart the computer. Your system will now boot into Ubuntu.

**Q12. How do you set up a dual-boot system with both Windows and Linux on the same hard drive?**

**Ans.**

**1. Prepare Your System**

* Backup Important Data: Before making any changes, back up your important files to avoid data loss during the installation process.
* Check Disk Space: Ensure you have enough unallocated space on your hard drive for the Linux installation (at least 20 GB is recommended).

**2. Create a Bootable USB Drive for Linux**

* Download Linux ISO: Visit the website of the Linux distribution you want to install (like Ubuntu) and download the ISO file.
* Use a USB Creation Tool: Use tools like Rufus (Windows) or Etcher (Linux/macOS) to create a bootable USB drive with the downloaded ISO.

**3. Shrink Windows Partition**

* Access Disk Management: In Windows, right-click on the Start menu and select "Disk Management."
* Shrink Volume: Right-click on the Windows partition (usually C:) and select "Shrink Volume." Enter the amount of space to shrink (at least 20 GB) and click "Shrink." This will create unallocated space for Linux.

**4. Boot from the USB Drive**

* Insert the Bootable USB Drive: Plug the USB drive into the computer.
* Access BIOS/UEFI Settings: Restart the computer and press the key (usually F2, F12, ESC, or DEL) to enter BIOS/UEFI. Set the USB drive as the first boot device.

**5. Start Linux Installation**

* Boot from USB: Select "Try Linux" or "Install Linux" when the boot menu appears.
* Choose Installation Type: When prompted, select “Install alongside Windows” if available. If not, choose “Something else” for manual partitioning.

**6. Create Partitions for Linux**

* **Set Up Partitions: In the partition manager:**
  + Root Partition: Create a primary partition in the unallocated space with at least 20 GB, set the file system to ext4, and mount point as "/."
  + Swap Partition: Create a swap partition equal to your RAM size (or double if you have less than 4 GB of RAM).

**7. Complete the Installation**

* Install Bootloader: Ensure the bootloader (GRUB) is set to install on the correct drive (usually the same drive as Windows).
* Follow On-Screen Prompts: Complete the installation by following the prompts to set your location, keyboard layout, and user details.

**8. Restart the Computer**

* Remove the USB Drive: When the installation finishes, remove the USB drive.
* Boot Menu: Restart the computer. You should see a boot menu (GRUB) allowing you to choose between Windows and Linux.

**9. Test the Dual-Boot Setup**

* Select an Operating System: Use the boot menu to select Windows or Linux to ensure both operating systems boot properly.

**Q13. What steps are involved in downloading and installing device drivers after a fresh OS installation?**

**Ans.**

**1. Connect to the Internet**

* Use a Wired or Wireless Connection: Ensure your computer is connected to the internet. This is essential for downloading drivers.

**2. Identify Your Hardware**

* **Check Device Manager:** Right-click on the Start menu and select "Device Manager." Look for devices with a yellow triangle, indicating missing drivers.
* **Make a List:** Note the names and models of the hardware components that need drivers, such as graphics cards, network adapters, and audio devices.

**3. Visit Manufacturer Websites**

* Go to the Manufacturer’s Website: Search for the official websites of your hardware manufacturers (e.g., NVIDIA, AMD, Intel, Dell, HP).
* Find the Support or Drivers Section: Look for a "Support," "Drivers," or "Downloads" section on their websites.

**4. Download the Correct Drivers**

* Search by Model: Use the model number of your device to find the correct driver. Ensure you select the right version compatible with your operating system (Windows, Linux, etc.).
* Download the Drivers: Click the download link for the latest driver version. Save the file to your computer.

**5. Install the Drivers**

* **Locate the Downloaded File:** Navigate to the folder where you saved the downloaded driver files.
* **Run the Installer:** Double-click the installer file and follow the on-screen instructions to complete the installation. Restart your computer if prompted.

**6. Update Drivers Automatically**

* **Use Windows Update:** For Windows users, you can also go to "Settings" > "Update & Security" > "Windows Update" and check for updates. This can automatically find and install some drivers.
* **Use Device Manager:** In Device Manager, right-click on a device and select "Update driver." Choose "Search automatically for updated driver software."

**7. Verify Driver Installation**

* **Check Device Manager Again:** After installation, go back to Device Manager to ensure that there are no more devices with yellow triangles.
* **Test the Hardware:** Make sure that the devices (like audio, video, or peripherals) are functioning correctly after installing the drivers.

**8. Regularly Check for Updates**

* **Periodic Checks:** Occasionally revisit manufacturer websites or use device management tools to check for driver updates to ensure optimal performance.

**Q14. How do you access and configure BIOS settings to prepare a PC for an operating system installation, such as changing the boot order?**

**Ans.**

**1. Restart the PC**

* Power On or Restart: If your computer is already on, restart it. If it’s off, turn it on.

**2. Access BIOS/UEFI**

* Press the BIOS Key: Immediately after powering on, press the specific key to enter BIOS/UEFI settings. Common keys include F2, F10, DEL, or ESC. You may see a message on the screen indicating which key to press.

**3. Navigate the BIOS Menu**

* Use Arrow Keys: Once in the BIOS menu, use the arrow keys on your keyboard to navigate through the options. The mouse may not work in this interface.

**4. Change Boot Order**

* Find Boot Options: Look for a tab or section labeled "Boot," "Boot Order," or "Boot Options."
* Adjust the Boot Sequence: Select the device (like a USB drive or DVD) you want to boot from first. Use the instructions on the screen (usually + or - keys) to move your selected device to the top of the list.

**5. Enable UEFI or Legacy Mode (if necessary)**

* Select Boot Mode: If your OS requires it, look for settings to enable UEFI or Legacy mode. This setting depends on the operating system you plan to install.

**6. Save Changes and Exit**

* Save Settings: Look for an option like "Save & Exit" or press the designated key (usually F10) to save your changes.
* Confirm Changes: If prompted, confirm that you want to save the changes and exit.

**7. Boot from Installation Media**

* Insert Installation Media: Make sure your USB drive or DVD with the operating system installation files is connected.
* Restart: The PC will restart, and if set correctly, it will boot from the installation media to start the OS installation process.

**8. Troubleshooting (if necessary)**

* Re-enter BIOS: If the PC doesn’t boot from the intended device, you may need to re-enter BIOS to double-check your settings.
* Check Connections: Ensure the installation media is properly connected and functioning.

**Q15. Create a pay slip using functions and formulae in a spreadsheet.**

**Ans. Formulas :**

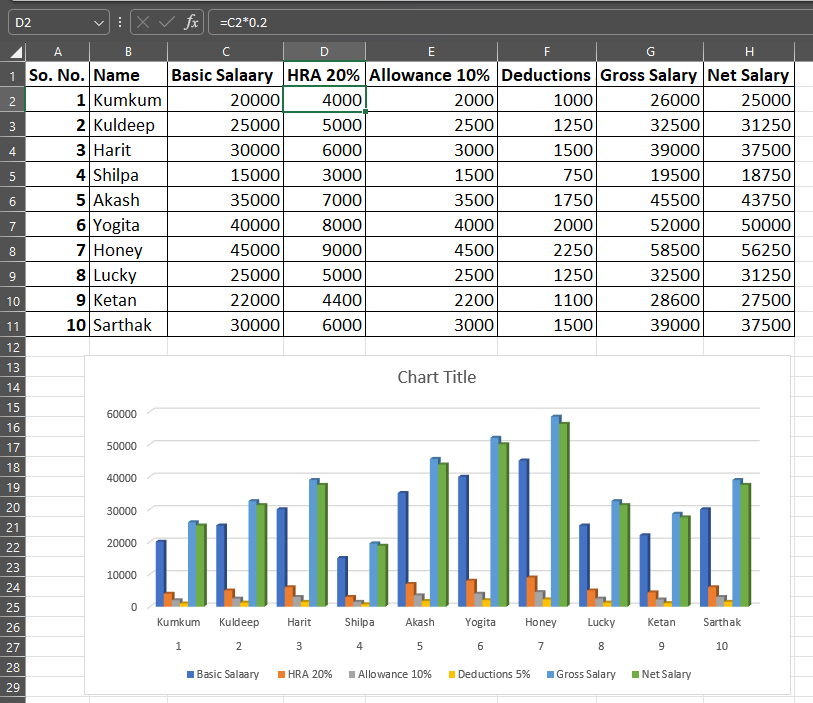
**For HRA 20% :** Basic salary \* 0.2

**For Allowance 10%:** Basic salary \*0.1

**For Deduction 5% :** Basic salary \* 0.5

**For Gross Salary:** Basic salary+HRA+Allowance

**For Net Salary:** Gross salary-deduction

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**Q16. Create a script that asks the user for a number and determines if the number is odd or even in Linux.**

**Ans.**

**1. Open the Terminal**

* Access the Terminal: On your Linux system, open the terminal by searching for "Terminal" in your applications menu or pressing Ctrl + Alt + T.

**2. Create a New Script File**

* Use a Text Editor: Create a new file using a text editor like nano or vim. For example, run:

**nano check\_odd\_even.sh**

**3. Add the Shebang Line**

* Specify the Shell: At the top of the file, add the shebang line to specify that the script should be run using the Bash shell:

**#!/bin/bash**

**4. Prompt the User for Input**

* Ask for a Number: Use the read command to prompt the user to enter a number. Add the following lines to your script:

**echo "Please enter a number:"**

**read number**

**5. Check if the Number is Odd or Even**

* Use an if Statement: Implement a conditional statement to check if the number is divisible by 2. Add this to your script:

if [ $((number % 2)) -eq 0 ]; then

echo "$number is even."

else

echo "$number is odd."

fi

**6. Save and Exit the Text Editor**

* Save Your Changes: If you’re using nano, press CTRL + X, then Y to confirm saving, and hit Enter to exit. For vim, press Esc, type :wq, and hit Enter**.**

**7. Make the Script Executable**

* Change Permissions: Make your script executable by running the following command in the terminal:

**chmod +x check\_odd\_even.sh**

**8. Run the Script**

* **Execute the Script: Run your script by typing:**

**Command:**

./check\_odd\_even.sh

**9. Test the Script**

* Input Different Numbers: Enter various numbers when prompted to verify that the script correctly identifies them as odd or even.

**Example Script**

**Here's what your complete script should look like:**

#!/bin/bash

echo "Please enter a number:"

read number

if [ $((number % 2)) -eq 0 ]; then

echo "$number is even."

else

echo "$number is odd."

fi

**Q17. Create a script that prompts the user for their age and prints a message based on the input:**

**A. If the age is less than 18, print "You are a minor."**

**B. If the age is between 18 and 60, print "You are an adult."**

**C. If the age is over 60, print "You are a senior citizen."**

**Ans.**

**1. Open the Terminal**

* Access the Terminal: Launch the terminal on your Linux system by searching for "Terminal" or using the shortcut Ctrl + Alt + T.

**2. Create a New Script File**

* Use a Text Editor: Create a new script file using a text editor like nano. For example, type:

**nano age\_message.sh**

**3. Add the Shebang Line**

* Specify the Shell: At the top of your script, add the shebang line to indicate that the script should run using Bash:

**#!/bin/bash**

**4. Prompt the User for Their Age**

* Ask for Age: Use the read command to prompt the user to enter their age. Add the following lines to your script:

**echo "Please enter your age:"**

**read age**

**5. Check the Age and Print the Appropriate Message**

* Use if Statements: Implement conditional statements to check the age and print the corresponding message. Add this code to your script:

if [ $age -lt 18 ]; then

echo "You are a minor."

elif [ $age -ge 18 ] && [ $age -le 60 ]; then

echo "You are an adult."

else

echo "You are a senior citizen."

fi

**6. Save and Exit the Text Editor**

* Save Your Changes: If using nano, press CTRL + X, then Y to save, and hit Enter to exit. For vim, press Esc, type :wq, and hit Enter.

**7. Make the Script Executable**

* Change Permissions: Run the following command in the terminal to make your script executable:

**chmod +x age\_message.sh**

**8. Run the Script**

* **E**xecute the Script: Type the following command to run your script:

**./age\_message.sh**

**9. Test the Script**

* Input Different Ages: When prompted, enter various ages to check that the script correctly identifies the age category and prints the appropriate message.

**Q18. Write a script that performs the following tasks:**

**A. Creates a directory named 'ProjectFiles'.**

**B. Navigates into this directory.**

**C. Creates 5 empty text files named file1.txt to file5.txt.**

**D. Lists all files in the directory with their sizes.**

**Ans.**

mkdir ProjectFiles

cd ProjectFiles

touch file{1..5}.txt

ls -lh

**Q19. Prepare a hard disk for OS installation by creating disk partitions. Explain the steps required to create at least 3 partitions**

**Ans.**

**1. Open Disk Management Tool**

* Windows: Right-click on the Start menu and select "Disk Management."
* Linux: Open a terminal and use a partitioning tool like GParted or fdisk.

**2. Select the Hard Disk**

* Identify the Disk: In Disk Management, locate the hard disk you want to partition. Ensure it has unallocated space or enough free space to create new partitions.

**3. Shrink an Existing Volume (if needed)**

* Create Unallocated Space: If the disk is full, right-click on an existing partition (like C:) and select "Shrink Volume." Enter the amount of space to shrink and click "Shrink."

**4. Create New Partitions**

* Right-click on Unallocated Space: After shrinking, right-click on the unallocated space and select "New Simple Volume" (Windows) or "New Partition" (Linux).
* Follow the Wizard: In Windows, the New Simple Volume Wizard will open. Specify the size for the partition, assign a drive letter, and format it (NTFS is common for Windows). For Linux, you can select the filesystem type (like ext4).

**5. Repeat for Additional Partitions**

* Create Additional Partitions: Repeat the process to create at least two more partitions. You might want to create:
  + Partition 1: For the OS (like Windows or Linux).
  + Partition 2: For data storage (like documents, photos).
  + Partition 3: For backups or additional software.

**6. Apply Changes**

* Finish the Wizard: In Windows, click "Finish" to create the partitions. In Linux, click "Apply" in GParted to finalize your changes.

**7. Verify the Partitions**

* Check Partition Layout: Ensure all created partitions appear in the Disk Management tool or GParted, showing the correct sizes and file systems.

**Q20. How do you perform disk defragmentation on Windows? Describe the steps involved.**

**Ans.**

**1. Open the Start Menu**

* Access Search: Click the Start menu and type "Defragment" in the search bar.

**2. Open 'Defragment and Optimize Drives'**

* Select the Tool: From the search results, click on "Defragment and Optimize Drives" to open the disk defragmentation tool.

**3. Select the Drive to Defragment**

* Choose a Drive: In the window, you will see a list of all your disk drives. Select the drive you want to defragment (usually the C: drive).

**4. Analyze the Drive**

* Check Fragmentation: Click the "Analyze" button to check how fragmented the drive is. This step is optional but useful to know if defragmentation is needed.

**5. Defragment the Drive**

* Start Defragmentation: After analyzing, click "Optimize" to begin the defragmentation process. This will reorganize the fragmented data on the disk.

**6. Wait for the Process to Finish**

* Let it Complete: The process might take some time depending on the size and fragmentation of the drive. Wait for the tool to complete the optimization.

**7. Repeat for Other Drives (if needed)**

* Defragment Other Drives: If you have additional drives that need optimization, repeat the process for each one.

**Q21. Solder electronic components onto a PCB. Describe the steps and precautions to ensure a proper solder joint.**

**Ans.**

**1. Get Your Workspace Ready**

* Gather tools: Make sure you have a soldering iron, solder, components, and a clean, well-lit space.
* Stay safe: Wear safety glasses, and make sure you have good ventilation to avoid breathing in fumes.

**2. Insert the Components into the Board**

* Place the parts: Put the legs of the electronic components through the holes in the PCB. Make sure they are placed correctly and sit flat.

**3. Heat the Soldering Iron**

* Turn it on: Heat the soldering iron to about 350°C (662°F) and wipe the tip on a damp sponge to clean it.

**4. Heat the Joint**

* Touch the iron to the metal: Hold the iron where the component leg and the board’s metal pad meet. Heat it for 1–2 seconds.

**5. Add Solder**

* Melt the solder: Touch the solder wire to the joint (not the iron). Let it melt and cover the joint, forming a small, shiny cone.

**6. Let It Cool**

* Remove the iron: Once the solder melts, take away the iron and let the solder cool. Don’t move the component until the joint hardens.

**7. Trim the Extra Wires**

* Cut the legs: Use wire cutters to snip off the extra part of the component legs sticking out of the solder joint.

**8. Check Your Work**

* Look at the joint: Make sure the solder is smooth, shiny, and well-formed. If it looks dull or cracked, it might not be a good connection.

**Safety Tips:**

* Be careful: Don’t touch the hot soldering iron tip, and don’t overheat the components.
* Avoid cold joints: Make sure the solder melts properly, or the connection might not work.

**Q22. Install Windows and Linux operating systems on two different partitions of the same hard drive. Describe the process.**

**Ans.**

**1. Back Up Important Data**

* Save your files: Before starting, make sure to back up any important files to avoid losing them during installation.

**2. Create Windows Installation Media**

* Prepare a USB drive: Use the Windows Media Creation Tool to create a bootable USB drive with Windows.

**3. Install Windows**

* Boot from the USB: Insert the USB, restart your computer, and boot from the USB by changing the boot order in BIOS.
* Choose a partition: During the installation, select a partition or create a new one for Windows. Let it finish installing.

**4. Create Linux Installation Media**

* Make a Linux USB drive: Use a tool like Rufus to create a bootable USB for your Linux distribution (like Ubuntu).

**5. Install Linux on a Different Partition**

* Boot from the Linux USB: Restart the computer and boot from the Linux USB.
* Choose a different partition: During installation, choose a separate partition (not the Windows one) to install Linux. You can create or resize partitions if needed.

**6. Set Up Dual Boot**

* Install the GRUB bootloader: Linux will automatically install a bootloader called GRUB, which lets you choose between Windows and Linux when starting the computer.

**7. Test the Dual Boot**

* Restart your computer: After installation, restart the PC and check if you can select between Windows and Linux at the startup screen.

**Q23. Install and uninstall application software, such as Office, Multimedia players, or Antivirus programs.**

**Ans.**

**1. Download the Software**

* Go to the website: Find the official website for the software you want (like Office or a media player) and download the installation file.

**2. Open the Installer**

* Run the installer: Double-click the downloaded file to open the installer. Follow the on-screen instructions.

**3. Follow the Installation Steps**

* Click "Next": Keep clicking "Next" in the setup window. Choose where to install the program or stick with the default settings.

**4. Finish the Installation**

* Complete setup: After the installation, click "Finish" and open the software to make sure it's working.

**Steps to Uninstall Application Software**

**1. Open Control Panel**

* Go to Control Panel: Open the Control Panel on your computer (you can search for it in the Start menu).

**2. Find the Program**

* Click "Uninstall a Program": Look for the program you want to remove (like Office, a media player, or antivirus) in the list of installed software.

**3. Uninstall the Program**

* Click "Uninstall": Select the program and click "Uninstall." Follow the steps that pop up to remove the software from your computer.

**Q24. Execute the following Linux commands: touch, echo, clear, ls, dir, mkdir, cat, rmdir, rm, cp, mv. Provide examples of each. give the steps for this and give the 1,2 lines for each steps.**

**Ans.**

**1. touch**

* Purpose: Create an empty file.
* Example:

**touch file1.txt**

**2. echo**

* Purpose: Display text or write to a file.

**echo "Hello World"**

This prints "Hello World" on the terminal.

**3. clear**

* Purpose: Clear the terminal screen.

**clear**

This command clears everything displayed on the terminal, making the screen clean.

**4. ls**

* Purpose: List files and directories in the current directory.

**ls**

It will display all files and folders in the current directory.

**5. dir**

* Purpose: Another way to list directory contents, similar to ls.

**dir**

This also lists the files and directories in your current location.

**6. mkdir**

* Purpose: Create a new directory (folder).

**mkdir ProjectFiles**

This creates a new folder named ProjectFiles.

**7. cat**

* Purpose: Display the content of a file.

**cat file1.txt**

This shows the contents of file1.txt.

**8. rmdir**

* Purpose: Remove an empty directory.

**rmdir ProjectFiles**

This removes the ProjectFiles folder if it's empty.

**9. rm**

* Purpose: Delete a file or directory.

**rm file1.txt**

This deletes file1.txt. Use rm -r folderName to remove non-empty directories.

**10. cp**

* Purpose: Copy files or directories.

**cp file1.txt file2.txt**

This copies file1.txt to file2.txt.

**11. mv**

* Purpose: Move or rename files or directories.

**mv file1.txt newname.txt**

This renames file1.txt to newname.txt. You can also move files between directories using mv.

**Q25. . Create a magazine using columns, page borders, header, and footer in OpenOffice. Describe the formatting options available.**

**Ans.**

**1. Open a New Document**

* Step: Open OpenOffice Writer and start a new document.
* Description: This is where you'll create your magazine content.

**2. Set Up Page Layout**

* Step: Go to Format > Page Style > Page tab.
* Description: Choose your page size (A4 or Letter) and set margins as needed.

**3. Add Columns**

* Step: Select Format > Columns, then choose the number of columns (e.g., 2 or 3).
* Description: This divides your page into sections, like a magazine layout. You can also adjust the spacing between columns.

**4. Apply Page Borders**

* Step: Go to Format > Page Style > Borders tab.
* Description: You can add borders around your pages by choosing line style, width, and color. This adds a professional frame to your magazine.

**5. Insert Headers**

* Step: Go to Insert > Header > Default Style.
* Description: This will insert a header area at the top of each page, where you can add the magazine title, page title, or date.

**6. Insert Footers**

* Step: Go to Insert > Footer > Default Style.
* Description: Footers appear at the bottom of each page. Add information like page numbers, issue number, or website links.

**7. Format Text and Images**

* Step: Use Format > Character or Paragraph for text, and Insert > Picture for images.
* Description: Change font styles, sizes, alignment, and wrap text around images for a visually appealing layout.

**8. Insert Page Numbers**

* Step: Go to Insert > Field > Page Number.
* Description: Automatically add page numbers to your footer to keep the document organized.

**9. Save Your Magazine**

* Step: Go to File > Save As, choose your file name, and select the format (e.g., .odt or .pdf).
* Description: This ensures your magazine is saved properly and can be shared or printed.

**Formatting Options Overview**

* Columns: Adjust the number of columns, column spacing, and separator lines.
* Borders: Choose from different border styles, thicknesses, and colors.
* Headers/Footers: Customize with text, images, and fields like page numbers or dates.
* Text Formatting: Change fonts, styles (bold, italic), sizes, alignment, and spacing to suit your design.
* Images: Resize, align, and wrap text around images for a professional look.

**Q26. Create a marksheet in a spreadsheet with data validation, and create a chart to visualize the marks:**

**Ans.**

**1. Open a New Spreadsheet**

* Step: Open Excel, Google Sheets, or OpenOffice Calc.
* Description: Start a new spreadsheet where you'll create your marksheet.

**2. Create the Marksheet Table**

* Step: Label the columns: Name, Subject 1, Subject 2, Subject 3, etc., and Total Marks.
* Description: Enter the names of students and their subject marks in these columns.

**3. Apply Data Validation (to Ensure Valid Marks Entry)**

* Step: Select the cells for marks, then go to Data > Data Validation.
* Description: Set a rule to allow only numbers between 0 and 100, so no invalid marks are entered.

**4. Calculate Total Marks**

* Step: In the Total Marks column, enter the formula like:

**=SUM(B2:D2)**

where B2:D2 refers to the marks for each subject.

* Description: This calculates the total marks for each student automatically.

**5. Create a Chart to Visualize Marks**

* Step: Select the names and total marks, then go to Insert > Chart and choose a chart type (e.g., Bar Chart or Pie Chart).
* Description: This creates a visual representation of student marks, making it easy to compare results.

**6. Customize the Chart**

* Step: Add titles, labels, and change colors using the chart editing options.
* Description: This helps make the chart clear and easy to understand.

**7. Save the Marksheet**

* Step: Go to File > Save As, and save your spreadsheet.
* Description: Give your marksheet a name and save it in a format you can easily access later (e.g., .xls, .xlsx, .ods).

**Q27. Execute the following Linux commands: find, head, tail, tar, gzip, bzip2, alias, sed, wc, sort. Provide a brief explanation of each command.**

**Ans.**

**1. find (Search for files and directories)**

* Command: find /path -name filename
* Example: find /home -name file.txt
* Description: This command searches for files or directories within a specified path.

**2. head (Display the first few lines of a file)**

* Command: head -n 5 filename
* Example: head -n 5 myfile.txt
* Description: Shows the first 5 lines of a file. You can adjust the number by changing 5.

**3. tail (Display the last few lines of a file)**

* Command: tail -n 5 filename
* Example: tail -n 5 myfile.txt
* Description: Shows the last 5 lines of a file. Adjust the number by changing 5.

**4. tar (Archive multiple files into one)**

* Command: tar -cvf archive.tar file1 file2
* Example: tar -cvf myfiles.tar file1.txt file2.txt
* Description: Combines multiple files into a single archive (tarball).

**5. gzip (Compress files)**

* Command: gzip filename
* Example: gzip myfile.txt
* Description: Compresses a file and appends .gz to the filename.

**6. bzip2 (Compress files with better compression than gzip)**

* Command: bzip2 filename
* Example: bzip2 myfile.txt
* Description: Compresses a file using bzip2, which offers better compression than gzip.

**7. alias (Create shortcuts for commands)**

* Command: alias shortcut='command'
* Example: alias ll='ls -l'
* Description: Creates a shortcut (alias) for a long command. In this case, ll will run ls -l.

**8. sed (Stream editor for searching and replacing text)**

* Command: sed 's/old/new/' filename
* Example: sed 's/hello/world/' myfile.txt
* Description: Replaces the word "hello" with "world" in the file.

**9. wc (Word, line, and character count)**

* Command: wc filename
* Example: wc myfile.txt
* Description: Counts the number of lines, words, and characters in a file.

**10. sort (Sort lines in a file)**

* Command: sort filename
* Example: sort myfile.txt
* Description: Sorts the lines in a file alphabetically or numerically.

**Q26. Create a file using the vim editor, write a paragraph in it, and copy the content to another file.**

**Ans.**

**1. Open Vim to Create a New File**

* Command: vim filename.txt
* Description: This command opens the Vim editor to create a new file named filename.txt. You can replace filename.txt with your desired file name.

**2. Enter Insert Mode**

* Action: Press i
* Description: Pressing i allows you to enter insert mode, where you can start typing your paragraph.

**3. Write Your Paragraph**

* Action: Type your paragraph
* Description: Write whatever you want in the file. For example, "This is my first paragraph written in Vim."

**4. Save and Exit Vim**

* Action: Press Esc, then type :wq, and press Enter
* Description: Pressing Esc takes you out of insert mode. Then, :wq saves the file and exits Vim.

**5. Copy the Content to Another File**

* Command: cp filename.txt newfile.txt
* Description: This command copies the content of filename.txt to a new file named newfile.txt. You can replace newfile.txt with your desired name.

**Q29. Remove the cabinet from a PC, identify the motherboard components, slots, sockets, and connectors, and remount them**

**Ans.**

**1. Turn Off the PC**

* Action: Shut down the computer and unplug it.
* Description: Make sure the PC is completely off and not connected to any power source to avoid electrical shock.

**2. Remove the Side Panel of the Cabinet**

* Action: Unscrew or unclip the side panel.
* Description: Use a screwdriver to remove the screws on the back of the cabinet. Slide or pull off the panel to expose the inside.

**3. Identify the Motherboard**

* Action: Look for the large flat board inside the cabinet.
* Description: The motherboard is the main circuit board that connects all the components together.

**4. Locate Key Components on the Motherboard**

* Action: Find the CPU socket, RAM slots, and expansion slots.
* Description: The CPU socket is where the processor sits, RAM slots are for memory sticks, and expansion slots (like PCIe) are for graphics cards and other cards.

**5. Identify Connectors on the Motherboard**

* Action: Look for connectors for power cables, SATA cables, and other connections.
* Description: These connectors allow you to connect the power supply, storage drives, and other peripherals to the motherboard.

**6. Remove Components if Needed**

* Action: Carefully unscrew and unplug components like RAM or graphics cards if you need to.
* Description: Always handle components gently and remember where each one goes for reassembly.

**7. Reinstall or Remount Components**

* Action: Put the components back in their original places.
* Description: Align them properly in their slots and secure them with screws if necessary.

**8. Close the Cabinet**

* Action: Put the side panel back on and secure it with screws.
* Description: Make sure everything is back in place before securing the panel to keep the components safe.

**9. Plug in and Turn On the PC**

* Action: Connect the power supply and turn on the computer.
* Description: Ensure everything is working properly and check if the PC boots up without issues.

**Q30. Prepare a hard disk for OS installation by creating disk partitions. Create at least 3 disk partitions and assign drive letters.**

**Ans.**

**1. Open Disk Management**

* Action: Right-click on the Start menu and select “Disk Management.”
* Description: This tool helps you manage your disks and create partitions.

**2. Locate the Hard Disk**

* Action: Find the hard disk you want to partition.
* Description: Look for the disk that has unallocated space or the one you want to partition.

**3. Create a New Partition**

* Action: Right-click on the unallocated space and select “New Simple Volume.”
* Description: This starts the wizard to create a new partition.

**4. Set the Size of the Partition**

* Action: Enter the size you want for the new partition and click “Next.”
* Description: This size determines how much space will be allocated to this partition.

**5. Assign a Drive Letter**

* Action: Choose a drive letter from the list and click “Next.”
* Description: The drive letter (like C:, D:, E:) helps you identify the partition easily.

**6. Format the Partition**

* Action: Select the option to format the partition and choose the file system (NTFS is common).
* Description: Formatting prepares the partition to store files and makes it usable.

**7. Repeat for Additional Partitions**

* Action: Repeat steps 3 to 6 to create at least two more partitions.
* Description: You can create different partitions for organizing files, like one for the OS, one for programs, and one for personal files.

**8. Verify the Partitions**

* Action: Check the Disk Management window to see all the partitions listed with their assigned drive letters.
* Description: Ensure that all partitions are correctly created and formatted.

**Q31. Install or uninstall application software (Office, multimedia, or antivirus) on a computer. Explain the steps.**

**Ans.**

**Steps to Install Application Software**

**1. Download the Software**

* Multimedia Software (like VLC or iTunes): Go to the official website (e.g., videolan.org for VLC) and download the installer.
* Antivirus Software (like Avast or Norton): Visit the official site (e.g., avast.com) to download the antivirus software.
* Office Software (like Microsoft Office): Go to office.com, sign in with your Microsoft account, and download the Office installer.

**2. Locate the Installation File**

* Action: Check the Downloads folder or the USB drive where you saved the file.
* Description: Look for a file that ends in .exe (for Windows) or .dmg (for Mac).

**3. Run the Installer**

* Action: Double-click the installation file to start the setup process.
* Description: This will open the installation wizard that will guide you through the installation.

**4. Follow the Installation Steps**

* Action: Click “Next” and read the terms of service, then click “I Agree.”
* Description: Choose the installation location or stick with the default settings recommended by the software.

**5. Complete the Installation**

* Action: Click “Install” and wait for the software to finish installing.
* Description: Once the installation is complete, you may see a success message.

**6. Launch the Software**

* Action: Find the software in the Start menu (for Windows) or Applications folder (for Mac) and open it.
* Description: You can now start using your multimedia player, antivirus, or Office applications.

**Steps to Uninstall Application Software**

**1. Open Control Panel or Settings**

* Action: Click on the Start menu, then select “Control Panel” or “Settings.”
* Description: This is where you can see all the programs installed on your computer.

**2. Go to Programs**

* Action: Click on “Programs” and then “Programs and Features” (or “Apps” in Settings).
* Description: You will see a list of all the software currently installed.

**3. Find the Software to Uninstall**

* Action: Scroll through the list to locate the multimedia, antivirus, or Office software you want to remove.
* Description: Make sure you select the correct program you want to uninstall.

**4. Click Uninstall**

* Action: Right-click on the program name and select “Uninstall” or click the “Uninstall” button at the top.
* Description: This will begin the uninstallation process.

**5. Follow the Uninstallation Steps**

* Action: Follow any prompts to confirm you want to uninstall the software.
* Description: The wizard may ask for confirmation to proceed with the uninstallation.

**6. Verify Uninstallation**

* Action: Check the list again in Control Panel or Settings to confirm that the software is no longer there.
* Description: This confirms that the application has been successfully removed from your computer.

**Q32. Use the TTY command to find the terminal ID in Linux. Explain how to know which terminal you are working in.**

**Ans.**

To find out which terminal you are working in on a Linux system, you can use the tty command. Here are the steps explained simply for school students:

**Steps to Find Terminal ID Using the tty Command**

**1. Open the Terminal**

* Action: Click on the terminal icon on your Linux desktop or search for "Terminal" in the applications menu.
* Description: This opens a command line window where you can type commands.

**2. Type the Command**

* Action: In the terminal window, type tty and press Enter.
* Description: The tty command stands for "teletypewriter," and it will display the terminal identifier.

**3. View the Terminal ID**

* Action: After you press Enter, you will see a line that looks something like /dev/pts/0 or /dev/tty1.
* Description: This string tells you the terminal you are currently using. For example, /dev/pts/0 means you are in a pseudo-terminal session**.**

**Understanding Your Terminal**

* What It Means: The output from the tty command shows the path to the terminal device you are using. Each terminal session has a unique ID.
* Why It Matters: Knowing your terminal ID can help you manage multiple terminal sessions, especially when working with different tasks or applications.

**Example Output**

* If you see /dev/pts/1, it means you are using the first pseudo-terminal in a graphical environment. If you see /dev/tty1, it indicates you are on a physical terminal.

**Q33. Draw a house sketch using Microsoft Paint or a similar drawing tool.**

**Ans.**

**Q34. Draw a house sketch using Microsoft Paint or a similar drawing tool.**

**Ans.**

**1. Open a Word Processor**

* Launch a document editing program like Microsoft Word or Google Docs on your computer.

**2. Create a New Document**

* Click on “File” and then “New” to start a blank document for your resume.

**3. Add Your Name**

* Type your full name at the top of the document and make it bold and larger by selecting it and choosing a bigger font size.

**4. Write Your Contact Information**

* Below your name, add your phone number, email address, and address. You can center this information on the page for better appearance.

**5. Create Sections**

* Add section titles like "Objective," "Education," "Experience," and "Skills." Make these titles bold and slightly larger to stand out.

**6. Fill in Your Information**

* Under each section title, list your information clearly. For example, under "Education," write your school name, degree, and graduation date.

**7. Use Bullet Points**

* Use bullet points to list your responsibilities and achievements under the "Experience" section to make it easy to read.

**8. Adjust Margins**

* Click on “Layout” and adjust the margins to give your resume a balanced look. Standard margins are usually 1 inch on all sides.

**9. Choose a Simple Font**

* Select a clean and professional font like Arial or Times New Roman. Keep the font size between 10 and 12 for readability.

**10. Save Your Resume**

* Click on “File” and then “Save As” to name your resume and choose a location to save it on your computer.

**Q35. Create a purchase order using tables and images in Microsoft Word. Explain how to format the document.**

**Ans.**

**1. Create a New Document**

* No specific formatting needed.

**2. Insert a Title**

* Font Size: 24-36 pt (larger font for visibility)
* Font Style: Bold
* Alignment: Centered
* Font Color: Choose a color that matches your branding, like dark blue or black.

**3. Insert a Table**

* Table Style: Use the “Table Design” options to select a style that suits your document (e.g., “Grid” or “List”).
* Borders: Set all borders for clarity or use shading for headers.

**4. Fill in Table Headers**

* Font Size: 12-14 pt (slightly larger than body text)
* Font Style: Bold
* Background Color: Light gray or a color that stands out (use the “Shading” tool under “Table Design”).
* Alignment: Center the text in header cells.

**5. Add Item Details**

* Font Size: 11-12 pt (standard body text size)
* Alignment: Left-align text in the table cells.
* Row Height: Adjust row height for readability.

**6. Insert a Logo**

* Size: Adjust the size of the logo so it fits well within the document without overpowering the title (typically around 1-2 inches wide).
* Alignment: Center or align it to the left depending on your design preference.

**7. Format the Table**

* Borders: Use “No Border” for internal lines if you want a cleaner look.
* Shading: Apply light shading to alternate rows for easy reading (e.g., light gray).
* Text Alignment: Center the text in header cells and left-align in detail rows.

**8. Add Total Amount**

* Font Style: Bold the total amount for emphasis.
* Font Size: Use 12-14 pt.
* Alignment: Right-align the total amount for clarity.
* Add a Border: Consider putting a box around the total amount for emphasis.

**9. Save Your Document**

* No specific formatting needed.

**Q37. Create an invitation letter using mail merge for multiple invitees in Microsoft Word or OpenOffice.**

**Ans.**

**1. Open Microsoft Word or OpenOffice**

* Start by opening Microsoft Word or OpenOffice Writer on your computer.

**2. Create a New Document**

* Click on “File” and then “New” to open a blank document for your invitation letter.

**3. Write Your Invitation Letter**

* Type the content of your invitation letter, including the greeting, event details, and closing. Leave space for the name of each invitee.

**4. Prepare Your Data Source**

* Create a list of invitees in a separate file, like an Excel spreadsheet. Include columns for names, addresses, and any other details you need.

**5. Go to Mail Merge**

* In Word, click on the “Mailings” tab, or in OpenOffice, click on “Tools” and then “Mail Merge Wizard” to start the mail merge process.

**6. Select Recipients**

* Choose “Use an existing list” to select the Excel file with your invitee list. Make sure to locate and open the correct file.

**7. Insert Merge Fields**

* Click on “Insert Merge Field” to add placeholders for each invitee’s name and other information into your letter where you left spaces.

**8. Preview Your Invitations**

* Click on “Preview Results” to see how your invitations will look with actual names filled in. Check if everything appears correctly.

**9. Complete the Merge**

* Click on “Finish & Merge” and choose “Print Documents” or “Edit Individual Documents” to create a final version of your invitation letters.

**10. Save Your Document**

* Save your mail merge document with a name you’ll remember, so you can access it later.

**Additional Tips:**

* Check for Errors: Before printing, double-check your invitation letter for any spelling or grammatical errors.
* Use Good Quality Paper: If you plan to print the invitations, use nice paper to make them look more appealing.
* Customize: Feel free to customize the design of your invitation with colors or images to make it more attractive.

**Q40. Create a Pivot Table and chart in a spreadsheet for inventory management, and explain how to organize and visualize the data.**

**Ans.**

**1. Open Your Spreadsheet Program**

* Start by opening Microsoft Excel or Google Sheets on your computer.

**2. Enter Your Inventory Data**

* Create a table with columns for item names, categories, quantities, and prices. Fill in the data for your inventory items.

**3. Select Your Data**

* Click and drag to highlight all the data you entered, including the headers (like item names and quantities).

**4. Insert a Pivot Table**

* In Excel, go to the “Insert” tab and click on “PivotTable.” In Google Sheets, click on “Data” and then “Pivot table.” This will open a new dialog box.

**5. Choose Pivot Table Location**

* Decide if you want the Pivot Table in a new sheet or in the current sheet. Click “OK” to create it.

**6. Organize Your Pivot Table**

* In the Pivot Table Field List, drag the item names to the “Rows” area, and drag the quantities to the “Values” area. This will summarize your inventory by item.

**7. Add Filters or Columns (Optional)**

* If you want to analyze data by categories, drag the categories to the “Columns” area or use filters to narrow down your data.

**8. Create a Chart from the Pivot Table**

* Click anywhere in the Pivot Table, then go to the “Insert” tab and select the type of chart you want (like a bar or pie chart). In Google Sheets, click on “Insert” and then “Chart.”

**9. Customize Your Chart**

* Modify the chart title, colors, and styles to make it easy to read and visually appealing. Ensure it represents the data accurately.

**10. Save Your Work**

* Don’t forget to save your spreadsheet with a name that makes it easy to find later.

**How to Organize and Visualize the Data:**

* Group Similar Items: Use categories to group similar items together in your Pivot Table for better organization.
* Use Clear Labels: Make sure your table and chart have clear labels so anyone can understand what the data means.
* Choose the Right Chart Type: Use bar charts for comparisons and pie charts for showing proportions of the total inventory. This helps visualize your data effectively.
* Regular Updates: Keep your inventory data updated to ensure that your Pivot Table and charts always reflect the current stock levels.

**Q41. Create a presentation by inserting charts, tables, and images to illustrate the organizational structure of a company.**

**Ans.**

**1. Open Presentation Software**

* Start by opening Microsoft PowerPoint, Google Slides, or any other presentation software.

**2. Create a New Presentation**

* Click on “New Presentation” to start a blank slide show.

**3. Choose a Title Slide**

* Select the first slide as the title slide to write the name of the company and the presentation title.

**4. Add New Slides**

* Click on “New Slide” to add more slides for different sections of your organizational structure.

**5. Insert a Chart**

* On a new slide, click on “Insert” and select “Chart” to choose a chart type that shows relationships or data.

**6. Fill in Chart Data**

* Enter the data that represents the different roles or departments in your company within the chart.

**7. Insert a Table**

* Click on “Insert” and select “Table” to create a table showing the names and positions of employees.

**8. Add an Image**

* To make your presentation more visual, click on “Insert” and select “Image” to add a company logo or relevant pictures.

**9. Organize Slide Layout**

* Arrange the elements on each slide (charts, tables, images) neatly to make it easy to read.

**10. Add Descriptions**

* Include brief descriptions or labels for each chart and table to explain what they show.

**11. Preview Your Presentation**

* Click on “Present” or “Slideshow” to see how your presentation looks before finalizing it.

**12. Save Your Work**

* Save the presentation with a name that is easy to recognize so you can find it later.