

Student Learning Outcomes

By the end of this chapter, you will be able to:

- Define post-troubleshooting maintenance and explain its role in preventing recurring system issues.
- Use Task Manager, Resource Monitor, and Event Viewer to monitor CPU, memory, and disk usage, and terminate unresponsive applications by reviewing system logs.
- Start Windows in Safe Mode and explain when this mode is useful.
- Create and use a restore point to return the system to a previous working state.
- Distinguish between System Restore and System Reset, and identify when to use each.
- Explain the purpose of bootable recovery media and when it is required.
- Create a bootable USB using Rufus or built-in Windows tools, choosing the correct partition style (GPT or MBR).
- Identify the differences between GPT and MBR and check a disk's partition style.
- Explain the role of BIOS and UEFI in system startup.
- Describe the Power-On Self-Test (POST) process and its importance.
- Access BIOS/UEFI settings to change boot order or reset defaults.
- Recover deleted files using built-in tools as well as third-party recovery tools such as Tensorhare.
- Perform Disk Cleanup to remove temporary and unnecessary files.
- Apply software updates (patch management) to improve security and stability.
- Run virus scans using Windows Defender and enable real-time protection.
- Create a maintenance calendar to schedule regular updates, cleanups, and scans.
- Maintain repair and update logs using a standard template.
- Explain the importance of keeping accurate system maintenance records.

Subjective Type Questions

Long Questions prepared in the light of new Examination Techniques
(Knowledge, Understanding, Application, Analytical & Conceptual)

Introduction

Q. What do you know about troubleshooting?

Ans. In this chapter, we will explain how to maintain and recover a computer system after troubleshooting. You will learn to monitor system health using tools like Task

Manager, Resource Monitor, and Event Viewer, and explore recovery options such as Safe Mode, System Restore, and bootable drives. The chapter also introduces the role of Basic Input/Output System (BIOS) and Unified Extensible Firmware Interface (UEFI) in system startup, simple data recovery techniques, and important preventive maintenance tasks like disk cleanup, updates, and virus scans. By the end of this chapter, you will understand how to keep system logs and maintenance records to run a computer system smoothly and handle common recovery tasks effectively.

2.1

Introduction to Post-Troubleshooting

Q.1. Define troubleshooting and post-troubleshooting? Also describe the importance of continuous maintenance.

Ans: Troubleshooting:

Troubleshooting is a process which including restarting the computer system, checking physical connections if they are not respond properly, and addressing simple issues related to software or hardware. Troubleshooting can fix common computer problems.

Post Troubleshooting: Post-troubleshooting maintenance is a process which includes additional steps that help the computer continue to work properly and avoid the same problems in the future.

Importance of continuous maintenance: In troubleshooting process, the system is currently being solved but if you want system work for a long period of time the system still needs regular care to continue working properly. Without maintenance, the same issue can happen again and again, or new problems may appear. Regular maintenance keeps the system stable and prevents future problems. It ensures better performance, longer life, and fewer disruptions in computer usage.

Example: If the computer becomes slow due to full storage, deleting a few files may improve its speed for a short time.

Q.2. Describe the impact of poor maintenance? Also explain some common problem occur due to lack of regular maintenance.

Ans:

If a computer is not maintained regularly, it may face several problems that affect its performance and reliability. The following issues commonly occur due to a lack of proper maintenance. There are some common problems that result from a lack of regular maintenance:

- **Slow Performance:**

Temporary files, unused programs, and background processes can build up over time. If these are not managed, the computer may become slow and unresponsive.

- **System Failures:**

If important system updates are not installed, the computer may stop working properly. It can freeze, crash, or fail to start.

- **Security Risks:**

When the system or apps are not updated, harmful software like viruses can enter the computer more easily.

- **Data Loss:**

Without backups, important files can be lost during crashes or hardware failure.

- **Hardware Damage:**

Dust and overheating can damage the hardware components if the system is not cleaned or properly ventilated.

Q.3. What is system health monitoring? Describe activities follow by different tools for health check? Also describe advantage of system health monitoring?

Ans:

For the smooth running of a system, it is important to check its performance regularly. This process is known as system health monitoring.

Health check activities by different tools:

Modern operating systems, such as Microsoft Windows, include built-in tools that help monitor system activity. These tools allow you to:

- **Memory Check:**

Check how much memory and processing power are being used currently.

- **Background applications:**

It checks the monitor background applications and services

- **Warning & Error messages:**

It thoroughly view system warnings and error messages.

- **Slow:**

It Identify programs that may slow down the computer

Advantages:

- **Regular Monitoring:**

Regular monitoring helps detect small issues before they become serious.

- **Improve performance:**

users can take timely actions to improve performance and avoid future problems.

2.2

Using Built-in Diagnostic Tools

Q.4. Define build-in diagnostic tools? Also describe the purpose to set these tools in troubleshooting

Ans:

When we talk about to resolve issues of computer system in addition to basic

troubleshooting steps, modern operating systems provide built-in tools to help users monitor system performance in more detail.

These tools are known as diagnostics tools. These tools are built-in means that operating system specially windows have predefine set of these kind of tools.

Purpose:

These tools give useful information about the computer's current state, working components status and help identify problems related to memory (RAM or Registers), storage (HDD or SSD), processing power (CPU and GPU), and system errors.

Tools available in MS Windows:

Three important diagnostic tools available in Microsoft Windows. Each of these tools plays a different role in resolving system health and performance-related issues. These tools are:

- Task Manager
- Resource Monitor
- Event viewer

Q.5. What is a Task manager? Describe its responsibilities? What do you know about processing tab and performance tab?

Ans: Define:

Task Manager is a built-in tool in all Microsoft Window versions. It helps users to monitor the performance of their computer screen.

Responsibilities:

It shows real-time information about the Computer system's processor (CPU), memory (RAM), and storage disk (HDD or SSD) are being used.

Processes tab:

The Processes tab of the task manager shows all active programs and how much system resources they are using.

Performance tab:

The Performance tab displays detailed graphs for CPU, memory, disk, and network usage.

Procedure to open Task Manager:

There are two simple ways to open Task Manager:

- Press the **Ctrl + Shift + Esc** shortcut key from the keyboard
- OR
- right-click on the taskbar and select Task Manager from the menu

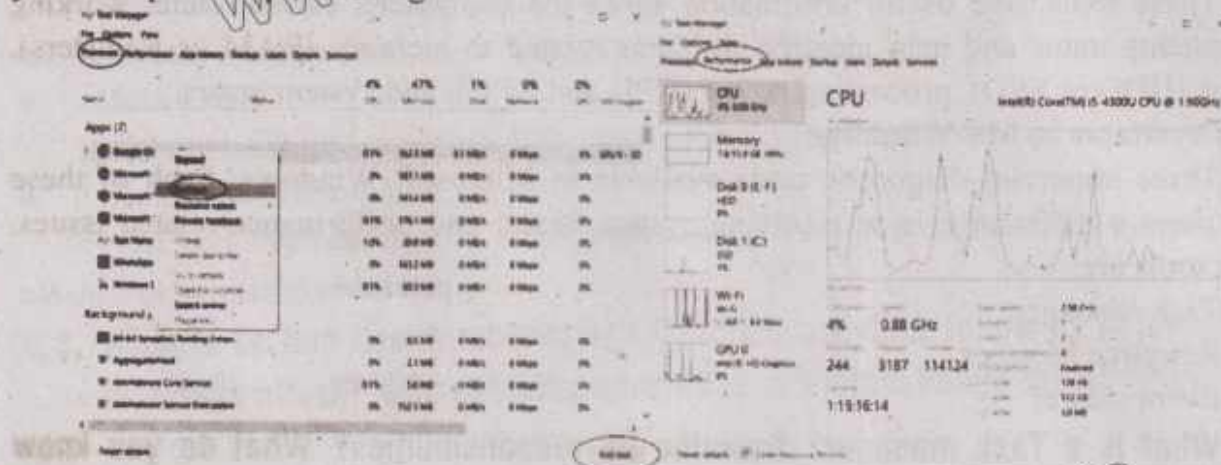
Q.6. What can you do with task manager?

Ans:

Task Manager is helpful when your computer is slow, or an application stops responding. It allows you to:

Resource details: See how much processing power and memory are being used by each program.

Performance tab: The Performance tab displays real time graphs and data showing how your computer is performing.



Q.7. What is a resource monitor? Describe its responsibilities? Describe its advantages over task manager.

Define: Resource Monitor is an advanced system tool in Microsoft Windows that gives a deeper view of how your computer's resources (memory, CPU, and disk) are being used.

Responsibilities: While Task Manager gives a quick overview, Resource Monitor provides more detailed information about which programs and background services are using system resources.

Advantage: It is especially helpful when the system is running slowly, overheating, or using a lot of memory without any clear reason.

Q.8. Write down the steps to open resource monitor. Also describe key features of resource monitor?

There are two common ways to open Resource Monitor:

- Open Task Manager, go to the Performance tab, and click on Open Resource Monitor at the bottom.

OR

- press the shortcut key **Windows + R**, type the command **resmon** in the dialog box that appears, and press **Enter**.

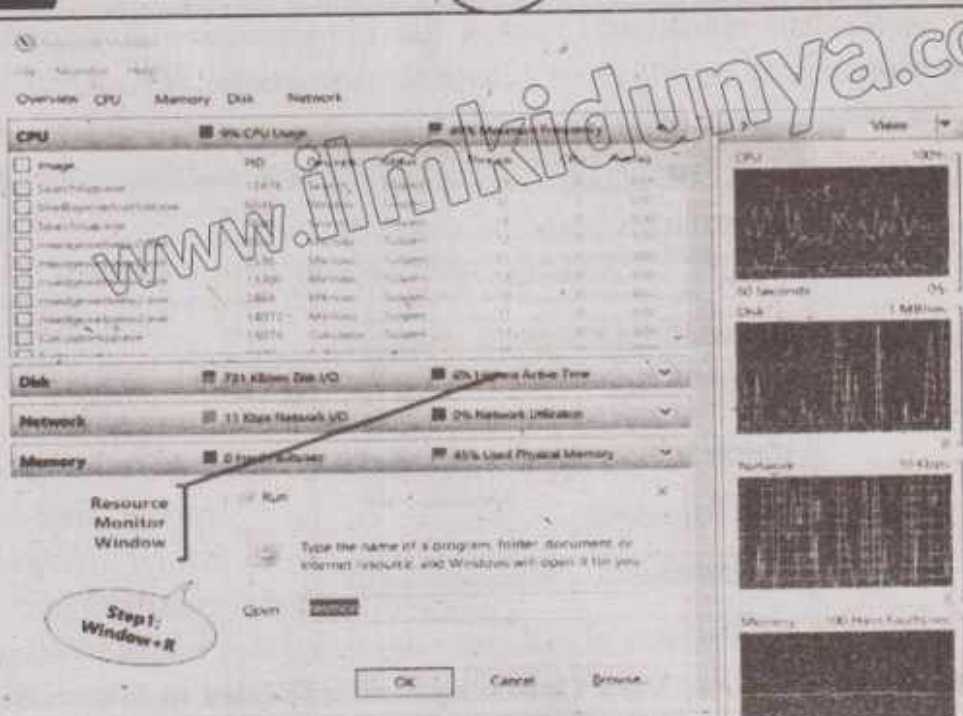


Figure 2.2: Resource Monitor to Monitor the Usage of System Resources

Key Features of Resource Monitor:

Some key features of the resource monitor are listed below:

- **CPU Tab:**
Shows which processes and services are using the processor.
- **Memory Tab:**
Displays how much memory is used, free, or reserved.
- **Disk Tab:**
Monitors which programs are reading from or writing to the hard drive.
- **Network Tab:**
Shows which applications are sending or receiving data over the internet or network.

Q.9. What is event viewer? Describe its responsibilities? Write down the steps to open event viewer in MS Windows.

Ans: Define:

Event Viewer is also a built-in Windows tool that records detailed logs of system activities.

Responsibilities: It helps users check for errors, warnings, and important events related to software, hardware, and security.

How to Open Event Viewer

Press the shortcut key Windows + R, type the command eventvwr in the dialog box that appears, and press Enter.

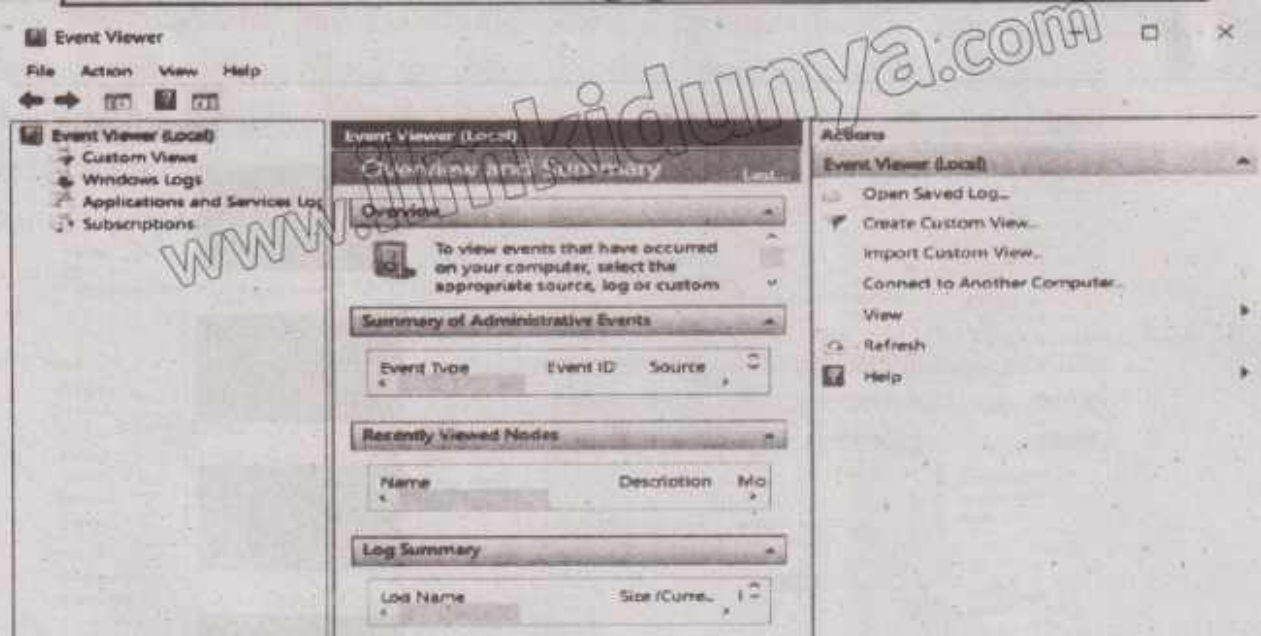


Figure 2.3: The Event Viewer to View Upcoming Events Related to System Maintenance

ACTIVITY

Objective: Use Task Manager to identify and end an unnecessary background program.

Steps:

1. Open Task Manager using **Ctrl + Shift + Esc**.
2. Go to the **Processes** tab.
3. Find a program running in the background that you are not using (e.g., Music app, update service).
4. Select it and click **End Task** (only if you're sure it is safe to close).
5. Observe if your computer's speed improves.

Answer the questions:

- Did ending the task improve system performance?
- Why do you think that happened?

Solution:

Answer # 1:

Yes, by ending the task VLC media player software which is being stocked system performance become smooth and efficient.

Answer # 2:

When a user End task using task manager, the memory consumed by the task or processing power used by the task becomes free and these two resources now being used by other tasks currently running. That why system performance becomes more efficient.

2.3

System Recovery Options

Q.10. When a system recovery option is helpful for a user and they are compulsory now a days?

Ans:

Need of recovery option:

In some cases, basic troubleshooting is not enough to fix a problem. The computer

may crash, become unresponsive, or fail to start. To handle such situations, operating systems like Microsoft Windows provide special tools known as system recovery options. **Importance:** These recovery options help restore the computer to a working state without losing important data in most cases. In this section, we learn about the three commonly used recovery tools.

Q.11. What is window's safe mode? when to use it? Write down the procedure to open safe mode?

Ans: Safe Mode starts Windows with only the most important and mostly used drivers and services. It disables unnecessary background programs and startup software. It is helpful to fix problems caused by faulty apps or windows settings.

When to Use Safe Mode:

Safe Mode is useful when:

- The system keeps crashing or restarting
- A program or driver is causing the computer to freeze
- You need to scan for malware or uninstall a recent app

Procedure to open Safe Mode:

On most MS windows setting:

- Go to Settings > Update & Security > Recovery > Advanced Startup > Restart Now.
- Then choose Troubleshoot > Advanced Options > Startup Settings > Restart > Press F4.
- On some older systems: Restart and press F8 repeatedly before the Windows logo appears. Select Safe Mode.
- Press Enter.

Safe Mode with Networking

This version of Safe Mode includes network drivers, so you can access the internet. It is helpful when:

- You need to download updates or drivers
- You want to use online help tools
- You want to run a cloud-based antivirus scan

To enter it, follow the same steps as above and press **F5** instead of **F4**.

SMART TIPS

While using Safe Mode, follow these precautions:

- Do not change settings unless you understand their purpose.
 - Avoid deleting system files; they may be important for Windows to work properly.
 - Use only built-in or trusted tools to fix issues.
 - Restart your computer normally after finishing the task.
 - Ask for help from your teacher or IT expert if unsure.
- Safe Mode is powerful, but it should be used carefully.

Q.12. What is meant by system restore? What is restore point? Write down the steps to create and use restore point?

Ans:

System Restore allows a user to take his/her computer back to an earlier state when crashing or window corrupting issue arise. The big advantage is that it will not deleting personal files. It works by using restore points, which are saved versions of your system created before major changes.

Restore point:

A restore point is a saved setting of your system's programs and files. It helps you to return your computer to an earlier, working state, if something goes wrong, such as after installing a faulty program or driver. Restore points are made automatically before system updates or driver installations, or manually by the user when it is needed.

Steps to Create a Restore Point:

Follow these steps to create a restore point manually:

- Click the start button and open the control panel.
- Go to system and security option, then click system.
- On the left, click system protection.
- In the new window, under the system protection tab, click the create button.
- Type a name for your restore point
- click create.

Wait a few seconds for confirmation. Your restore point is now saved with your typed name.

Steps to Use a Restore Point:

If your computer is not working properly, follow these steps to go back to a previous state:

- Open the Control Panel.
- Go to Recovery and click Open System Restore.
- A window will appear showing available restore points.
- Select the most recent restore point when your system was working fine.
- Click Next, then finish.
- Your system will restart and restore the selected settings.

Q.13. What is bootable recover media? How and why, we use it in safe and restore point?

Ans:

In some cases, when a computer internal hard drive (e.g., HDD or SSD) stop working completely and fail to start the window. In this situation, normal recovery options like Safe Mode and Restore Points create in internal drives may not work. So, in this case, we use and external bootable recovery media to recover the system.

Why bootable storage media is important:

Bootable recovery media in modern technology is USB flash drive or SSD and in old technology DVD or CD that contains important system files. It helps start the computer from an external device when the built-in storage stops working completely.

Built - in recover tools:

After starting the system, you can use built-in recovery tools such as:

Startup Repair: It is used to fix problems that prevent Windows from loading.

System Restore: To go back to a working state using a restore point

Command Prompt: For advanced troubleshooting

System Reset or Reinstallation: To reinstall the operating system if needed

When We Use Bootable Media

We use this media in such cases where the system:

- Safe Mode is not accessible
- You need to repair or reinstall the operating system

Q.14. Write down the steps to create an bootable USB drive? Also write down the procedure to check the partitioned styles?

Ans: To create a bootable USB:

- Download the system image or installer from the official website of your operating system provider (e.g., Windows ISO, Linux ISO, or macOS installer).
- Download Rufus from its official site for Windows only. For macOS, you can use its built-in tools like Terminal or Disk Utility.
- Plug in a USB drive (16 GB or more).
- Open Rufus, select the USB and the ISO file.

Note: For Windows or Linux systems, choose **GUID Partition Table (GPT)** for modern PCs and **Master Boot Record (MBR)** for older systems. Then click **Start** to create the bootable USB.

Procedure to check the partitioned style:

To check the Partition Style, you need to:

- Press **Win + X** and select **Disk Management**.
- Find the drive where Windows is installed (usually Disk 0).
- Right-click on the disk label (e.g., Disk 0), then choose **Properties**.
- Go to the **Volumes** tab.

Look at Partition Style:

It will show either:

- GUID Partition Table (GPT)
- Master Boot Record (MBR)

DO YOU KNOW

GPT and **MBR** are two different ways of organizing data on a storage drive (Hard drive or SSD).

- **MBR** is the older system. It supports up to 2 TB of disk size and a maximum of 4 primary partitions.
- **GPT** is the modern standard. It supports disks larger than 2 TB, allows over 100 partitions, and is required for UEFI-based systems.

That's why new computers and operating systems now prefer GPT over MBR!

SMART TIPS

If your computer uses GPT, but you create the USB in MBR format, it might not boot at all. The same happens if your system uses MBR and you use a GPT USB.

ACTIVITY

Objective:

Learn how to create a bootable recovery drive using built-in Windows tools.

Requirements:

- A Windows 10 or 11 PC
- An empty USB drive (at least 16 GB)

Steps:

- I. Insert the USB into the computer.
- II. Press the Windows key, type Recovery Drive, and open it.
- III. Check "Backup system files to the recovery drive" and click Next.
- IV. Select your USB drive and click Next (Do not click "Create" in class unless permitted).

Answer the question: What does Windows say this recovery drive will help you with?

Solution:

Answer the question:

Windows says that a recovery drive can help you troubleshoot and fix problems with your PC, even if it won't start. It allows you to access advanced startup options, system restore, and other recovery tools to restore your computer to a working state.

2.4

BIOS / UEFI and Boot Process Awareness

Q.15. Define boot process and firmware? Also describe common types of firmware

Ans: Boot Process:

When a user press the power button of his/her computer, several hidden steps take place before the desktop of operating system appears on the screen. This process is known as boot process. By default in every operating system boot process is gone through internal storage drive either it is HDD or SSD.

Firmware: All computers have special software built into the motherboard called firmware. It is not stored on the hard drive and does not get deleted when the computer is turned off. Firmware gives the computer basic instructions on how to start.

Types of Firmware: Two common types of firmware are:

BIOS: Older firmware software shows a basic, text-only menu and works with the keyboard only.

UEFI: Newer type of firmware software, supports a graphical menu that uses both mouse and keyboard and larger hard drives.

Role of BIOS/UEFI in Starting the Computer:

Hardware: Checks if the hardware is working correctly (like RAM, keyboard, and hard drive).

Boot Devices: Finds the boot device (USB, hard disk, etc.) and starts the operating system.

System setting: Allows users to change system settings like date, time, and boot order.

DO YOU KNOW

BIOS was first developed in the 1980s, while UEFI is now used in most modern computers because it is faster and more secure.

Q.16. What is POST test? Why it is important? Also give an example.

Ans:

POST stands for Power-On Self-Test. It is the first thing the firmware does after the computer is turned on.

Importance:

POST checks the most important hardware to make sure everything is working properly. If all parts are fine, the computer continues to load the operating system. If something is wrong, it may beep or show an error message on the screen.

Example:

If the RAM is missing, the computer will beep continuously.

Accessing BIOS and resetting to defaults:

Sometimes you need to enter BIOS/UEFI to change settings or fix problems.

How to Open BIOS/UEFI Settings:

To open this setting, you need to shut down your computer.

- Turn it on and immediately press a key like Del, F2, F10, or Esc (the correct key depends on the brand, like HP, DELL, and MSI).
- The BIOS or UEFI screen will appear.

Resetting to Default Settings

If the wrong settings are saved, you can restore the system to its original state by selecting "Load Setup Defaults" or "Reset to Default" inside BIOS/UEFI settings.

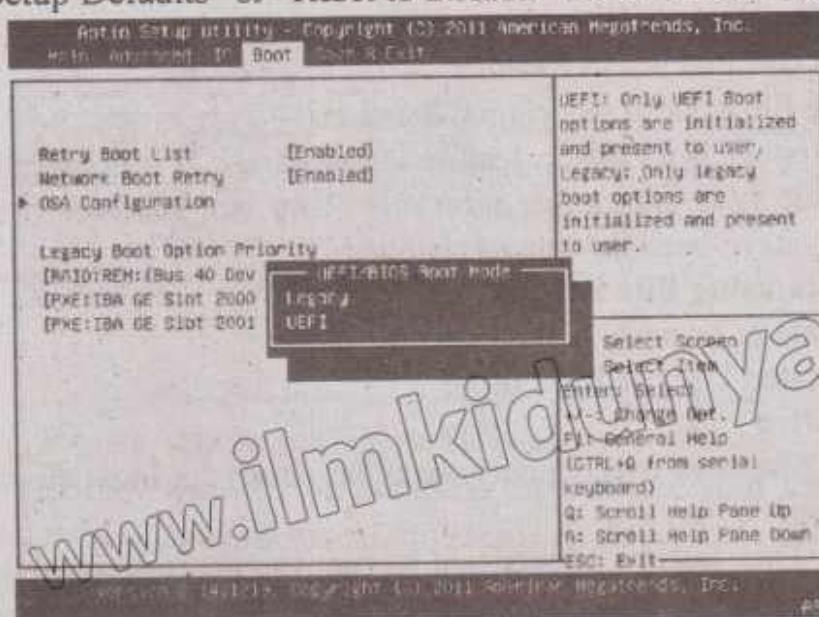


Figure 2.4: BIOS / UEFI

Q.17. What is boot order and boot repair? Describe the steps to change boot order?

Ans:

Boot order: Boot order means the sequence in which the computer looks for a device to load the operating system. For example, it may try the USB drive first, then the hard drive.

Boot repair: Sometimes the computer cannot start due to missing files or errors. This can be fixed by using Startup Repair from Windows recovery USB or DVD

Steps to change boot order:

- Enter BIOS/UEFI settings.
- Go to the Boot tab or menu.
- Move your desired device (e.g., USB) to the top of the list.
- Save changes and exit.

2.5

Data Recovery Techniques

Q.18. Describe data recovery tools and techniques used in MS Windows?

Ans: Sometimes, we delete files by mistake or lose them due to system problems. In many cases, it is possible to recover lost files using built-in tools or with the help of special third-party software. There are two main ways to recover deleted files:

- Using built-in tools.
- Using third-party software.

Built-in tools: These tools are already part of the windows operating system, which is why we call them built-in tools. In window, three built-in tools are available for data recovery.

Recycle Bin: When a file is deleted in Windows, it usually goes to the Recycle Bin. It stays there until the bin is empty.

Steps to recover data from Recycle Bin:

- You can open the Recycle Bin
- Right-click the file, and select Restore.
- It will bring the file back to its original location.

File History: File History is a backup feature in Windows. If it is turned on, the system keeps copies of your files at regular intervals. You can recover files from earlier versions, even if they have been deleted or changed.

Steps to recover data using File History:

- Settings > Update & Security > Backup
- Connect an external USB or Hard drive
- select "Add a drive"

Once enabled, Windows will regularly back up your files like Documents, Pictures, and Desktop on that drive.

Previous Versions: This feature allows you to recover an earlier version of a file or folder. Right-click the file or folder, choose Properties, then go to the Previous Versions tab. If available, you can select and restore an older copy.

Third-party tools: Sometimes, deleted files are not found in the Recycle Bin or Previous Versions. In such cases, you can try using third-party recovery software. Tenor share is a free and easy-to-use file recovery program. It can scan your hard drive, USB, or memory card to find files that were recently deleted. You can then choose which files to recover.

Q.19. Explain the procedure to use Tenor Share? Also describe limitations of recovery?

Ans: Steps to Use Tenor Share:

1. Open Tenor Share, select the location from which you want to recover a file, such as a specific drive or folder.
2. Choose the type of file to recover (e.g., pictures, documents).
3. Click "Scan" to start searching for lost files.
4. Select the files you want to recover and click "Recover" to restore them.

Recovery success depends on how recently the file was deleted and whether new data has overwritten it.

Limitations of recovery and best practices

While data recovery tools can be helpful, they have the following limitations:

1. If a file is deleted a long time ago, it may no longer be recoverable.
2. Recovery is not always possible if the hard drive is damaged or formatted.
3. Files may be permanently lost if the Recycle Bin is emptied, and no backups were made.

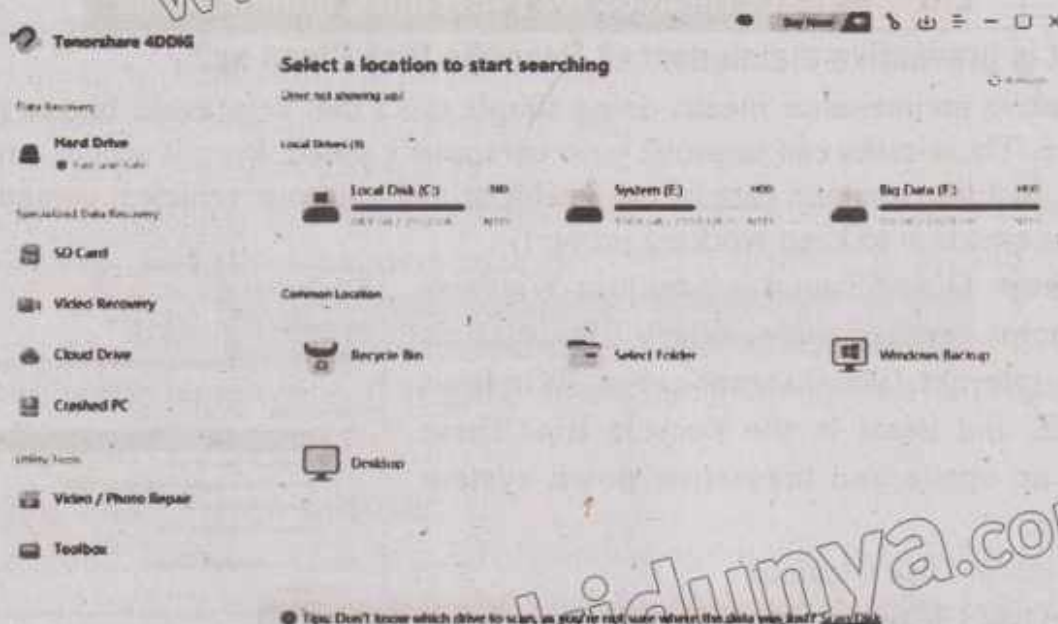


Figure 2.5: Tenor Share Data Recovery Tool

1. Never install recovery software on the same drive where your lost file was stored. This may reduce the chance of successful recovery.
2. Always check the Recycle Bin first before trying advanced recovery tools. It is the easiest and safest way to restore deleted files.

ACTIVITY

Objective:

To help students understand how file recovery works by using Tenor Share on a test file.

Steps:

1. Create a text file named "TestFile.txt" on the Desktop.
2. Delete it and empty the Recycle Bin.
3. Open Tenor Share → Select All Files → Choose Desktop as location.
4. Click Scan ? When the file appears, select and click Recover.
5. Save it to another folder (e.g., Documents).

Answer the questions:

1. Were you able to recover the file?
2. Why should you avoid saving new files to the same drive after deletion?

Solution:

Answer # 1:

Yes, the file was successfully recovered in new location C:\This PC\Documents because it was deleted from desktop using Tenor Share and had not been overwritten by new data at new location.

Answer # 2:

Saving new files to the same drive can overwrite the space where the deleted file was stored, making recovery impossible. This reduces the chance of successfully restoring lost data.

2.6

Best Practices for Preventive Maintenance

Q.20. What is preventive maintenance? Describe Disk Clean up?

Ans. Preventive maintenance means doing simple tasks that help avoid bigger problems in the future. These tasks can improve your computer's speed, keep it secure, and help it last longer. Just like we take care of our health or maintain our vehicles, computers also need regular attention to keep working properly

Disk Cleanup: Disk Cleanup is a built-in Windows tool that helps remove unnecessary files such as temporary internet files, system cache, Windows update files, and items in the Recycle Bin. These files take up space and may slow down system performance.

Steps to Perform Disk Cleanup

- Type Disk Cleanup in the Windows search bar and open the tool from the list. This opens a small window asking you to choose a drive to clean
- Select the drive you want to clean (usually C:)
- click OK.



- Check the boxes from the dialog box that appears after OK for the types of files you want to delete.
- Click OK to remove the selected files.

Q.21. What is system update? Describe type of system updates? Also write down the method to check windows update?

Ans:

Software updates, also known as patches, are released regularly by developers to fix bugs, add features, and improve security. Keeping your system updated helps to protect it from viruses and security threats. There are two types of updates:

- Operating system updates (for Windows, macOS, etc.)
- Application updates (for programs like browsers, media players, etc.)

Method to check for updates in Windows:

- Open Settings > Update & Security.
- Click Check for updates.
- Install the updates if available.

Q.22. What is windows defender? Describe type of scans done by defender?

Ans:

Windows Defender is the built-in security tool in Windows that protects your computer from viruses, malware, and other threats.

Types of Scans:

- It offers two types of scans.
- Quick Scan to check common problem areas.
- Full Scan to check the entire system thoroughly.

Responsibilities of Windows Defender:

Windows Defender also provides real-time protection, which means it keeps watching your system in the background and alerts you if anything suspicious happens.

2.7

System Documentations and Logs

Q.23. Describe the importance of keeping maintenance calendar and proper records and log info?

Ans: Keeping maintenance calendar:

It's a good idea to set a regular schedule for basic maintenance tasks. A maintenance calendar helps you remember when to clean your system, scan for viruses, or check for updates. You can write it down or set reminders on your phone or computer.

Keeping proper records:

Keeping proper records is an important part of a computer system's maintenance. When we document what we do, such as installing software, fixing issues, or performing updates, it becomes easier to manage and troubleshoot systems in the future. This section explains the basics of system documentation in a simple and practical way.

Objective Type Questions

Additional MCQ's

Multiple Choice Questions prepared in the light of new Examination Techniques
(Knowledge, Understanding, Application, Analytical & Conceptual)

Introduction

1. How can you define maintenance?
(A) Safe Mode Setting (B) Troubleshooting
(C) Security Checking (D) All above
2. What is the full form of UEFI?
(A) Unified External File Interaction (B) Unified Extensible Firmware Interface
(C) Unified Extensible File Interface (D) Unified External Firmware Interface
3. Which of the following is not included in System Maintenance?
(A) Disk Cleanup (B) Virus Scan (C) Windows Installation (D) Updates
4. System Recovery is done using ____ device?
(A) CD (B) USB Flash Drive (C) SSD (D) All above

2.1

Introduction to Post Troubleshooting

5. Post troubleshooting means:
(A) Identify Problem (B) Check Connectivity
(C) Learn what action is taken (D) Complete the troubleshoot
6. Why troubleshooting is important?
(A) Avoid same problem in future (B) Check physical connections regularly
(C) Scanning virus or spywares (D) None of them
7. System need ____ to work properly:
(A) Regular Backups (B) Regular Cleaning
(C) Regular installations (D) Regular updates
8. Computer become slow due to:
(A) Maximize usage of RAM
(B) Heavy data traffic between different components
(C) Virtual memory existence (D) All above
9. What is the advantage to remove unnecessary files?
(A) Computer become slow in working
(B) Computer performance become smooth
(C) Easy to troubleshoot problems (D) Regular update becomes easy
10. If No updates regularly, it can cause computer's?
(A) Security (B) Cleaning (C) Reliability (D) Speed
11. Temporary files can ____ the system:
(A) Crash (B) Unsecure (C) Unreliable (D) Slow down

12. When app or system are not properly update it can cause?
(A) Efficiency (B) Data loss (C) Security Risk (D) Hardware Damage
13. When a system freeze, the main cause?
(A) App not installed properly (B) App not update properly
(C) Compatibility issue (D) None of them
14. Process to check system's performance regularly is called:
(A) Troubleshooting (B) Diagnostic Techniques
(C) Health Monitoring (D) Updating
15. Built-in tools can help?
(A) Check system activities in background
(B) Resolve issues manually
(C) Drive security (D) None of them

2.2

Using Built-in Diagnostic Tools

16. Which tools can give current state of computer components?
(A) Health Tools (B) Diagnostic Tools
(C) Security Tools (D) All above
17. Types of Tools available in Microsoft Windows:
(A) 1 (B) 2 (C) 3 (D) 4
18. Which tool use to help user to monitor performance?
(A) Startup (B) Task Manager
(C) Virus & threats protection (D) Settings
19. Which tab allow user to show all active programs?
(A) Processes Tab (B) Activities Tab (C) Fewer Details (D) Performance Tab
20. What is the short key to open Task Manager?
(A) Ctrl + S (B) Ctrl + Shift + Esc
(C) Ctrl + Shift + F4 (D) Alt + F4
21. Task Manager is a:
(A) Utility Program (B) System Software
(C) Application Software (D) Device Driver
22. Task Manager is helpful when:
(A) Computer perform efficiently (B) Internet speed goes down
(C) Application stop responding (D) Uninstall application
23. Which program provide a detailed information about background services?
(A) Task Manager (B) Control Panel (C) Start Menu (D) Resource Monitor
24. Resource Monitor is helpful when:
(A) Apps stop responding (B) Memory needs to clear
(C) System is overheating (D) RAM responds slowly
25. Which keyword is used to open Resource Monitor?
(A) temp (B) resmon (C) %resmon% (D) Window + R

26. Which key feature display free or reserved memory?
 (A) CPU Tab (B) Memory Tab (C) Disk Tab (D) Network Tab
27. Which Tab responsible for reading or writing from hard drive in R.M [Resource Monitor]?
 (A) CPU Tab (B) Network Tab (C) Disk Tab (D) Memory Tab
28. Detailed logs of system is monitored by:
 (A) Event Viewer (B) Resource Monitor
 (C) Control Panel (D) Task Manager
29. Which short key is used to open Run command in Windows?
 (A) Alt + R (B) Ctrl + R (C) Shift + R (D) Window + R
30. Important activities related to security monitored by:
 (A) Resource Monitor (B) Control Panel
 (C) Event Viewer (D) Task Manager
31. Which keyword is used to open Event Viewer?
 (A) resmon (B) %temp% (C) recent (D) eventvwr

2.3

System Recovery Options

32. When it is necessary to open fewer programs & files, window used?
 (A) Task Manager (B) Resource Monitor
 (C) Event Viewer (D) Safe Mode
33. Which option in Windows use to open & set safe mode?
 (A) Updates & Security (B) Start Menu
 (C) App unwanted (D) Control Panel
34. What is the short key to restart computer?
 (A) F4 (B) Ctrl + F4 (C) Alt + F4 (D) F1
35. Which key used to open logs?
 (A) F4 (B) F8 (C) F1 (D) F12
36. When you want to use online tools open safe mode as?
 (A) Backup (B) Recovering (C) Networking (D) Restore
37. System Restore option is also called:
 (A) Reset (B) Recover (C) Protection (D) Both a, b
38. Restore point is saved in:
 (A) System's Hard Drive (B) System's Setting
 (C) System's RAM (D) System's ROM
39. Which option is used to set restore point?
 (A) System Setting (B) System Updates
 (C) System Protection (D) Task Manager
40. Which bootable media is most preferred to save system restore point?
 (A) USB (B) CD (C) DVD (D) SSD

41. When we use bootable media we need to run ____ option?
 (A) Safe mode (B) System Restore
 (C) Repair or reinstall (D) System Backups
42. Which option is select for modern technology when used Rufus?
 (A) GPT (B) MBR (C) BIOS (D) None of them
43. MBR supports upto:
 (A) 2TB of size and 2 partitions (B) 2TB of size and 3 partitions
 (C) 2TB of size and 4 partitions (D) 2TB of size and 6 partitions
44. Which of the following is UEFI based?
 (A) GPT (B) MBR (C) BIOS (D) SSD
45. Which short key is used to open Disk Management?
 (A) Windows + R (B) Window + X (C) Windows + P (D) Windows + F4
46. GUID is referred to:
 (A) MBR (B) SSD (C) BIOS (D) GPT

2.4

BIOS/UEFI and Process Awareness

47. Special built-in software to control hidden steps:
 (A) Firmware (B) System Software (C) Utility Program (D) Freeware
48. Which of the following is used to start the computer?
 (A) GPT (B) BIOS (C) MBR (D) UFT
49. BIOS was first develop in:
 (A) 1980 (B) 1981 (C) 1982 (D) 1983
50. Which is the process firmware does after computer is turned on?
 (A) FCFS (B) LIFO (C) POST (D) UEFI
51. What is the full form of POST?
 (A) Power On Service Test (B) Power On Special Test
 (C) Power On Self Test (D) Power On Surface Test
52. Computer will beep continuously when:
 (A) SSD is not plugged (B) Power cable loss
 (C) Graphic Card is missing (D) RAM is missing
53. Which key is used to open BIOS setting in HP Models?
 (A) F2 (B) F4 (C) F10 (D) F12

2.5

Data Recovery Techniques

54. Which of the following is a built-in tool to recover deleted files?
 (A) Junk cleaner (B) Recycle Bin (C) Trash (D) Tenorshare
55. Which of the following is a backup feature of Windows?
 (A) Recycle Bin (B) File History
 (C) Previous Versions (D) None of them
56. Which is act as temporary storage?
 (A) Recycle Bin (B) Cache (C) File History (D) None of them

2.6**Best Practice for Preventive Maintenance**

57. Which tool help to remove file safely?
 (A) Recycle Bin (B) File History (C) Disk Cleanup (D) Disk Manager
58. Which of the following is a temporary file?
 (A) Windows updates (B) Recover files
 (C) Virus scan files (D) System cache
59. Software updates are also know as:
 (A) Cache files (B) Temporary files (C) Patches (D) Latches

2.7**System Documentation and Logs**

60. Keeping important records is important because:
 (A) Installing software (B) Fixing issues
 (C) Performing updates (D) All above

Answers

- | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|
| 1. D | 2. B | 3. C | 4. B | 5. C | 6. A | 7. B |
| 8. D | 9. B | 10. C | 11. D | 12. C | 13. B | 14. C |
| 15. A | 16. D | 17. C | 18. B | 19. A | 20. B | 21. A |
| 22. C | 23. D | 24. C | 25. B | 26. B | 27. C | 28. A |
| 29. D | 30. C | 31. D | 32. D | 33. A | 34. C | 35. B |
| 36. C | 37. D | 38. B | 39. C | 40. D | 41. C | 42. A |
| 43. C | 44. A | 45. B | 46. D | 47. A | 48. B | 49. A |
| 50. C | 51. C | 52. D | 53. C | 54. B | 55. B | 56. D |
| 57. C | 58. D | 59. C | 60. D | | | |

Additional Short Question's

Short Answer Questions prepared in the light of new Examination Techniques
 (Knowledge, Understanding, Application, Analytical & Conceptual)

2.1**Introduction to Post Troubleshooting**

1. How troubleshooting process works. Give an example.

Ans: Troubleshooting is a process which checking computer system, physical connections if they are not respond properly, and addressing simple issues related to software or hardware. Troubleshooting can fix common computer problems if the user does not have proper knowledge about it.

Example: If your computer does not connect to a printer, troubleshooting can check the issue and resolve its driver update etc.

2. What is post troubleshooting? Also give an example.

Ans: Post-troubleshooting maintenance is a process which includes additional steps that help the computer continue to work properly and avoid the same problems in the future.

Example: Sometimes WIFI didn't connect to a system regularly, post troubleshooting can help to look at the setting and signal connection regularly and automatically resolve the issue.

3. Why regular troubleshooting is more important for user?

Ans: In troubleshooting process, the system is currently being solved but if you want system work for a long period of time the system still needs regular care to continue working properly. Without maintenance, the same issue can happen again and again, or new problems may appear. Regular maintenance keeps the system stable and prevents future problems.

4. What are two common problems due to poor maintenance?

Ans: Slow Performance:

Temporary files, unused programs, and background processes can build up over time. If these are not managed, the computer may become slow and unresponsive.

System Failures: If important system updates are not installed, the computer may stop working properly. It can freeze, crash, or fail to start.

5. How many activities follow by different tools for health check?

Ans: Memory Check:

Check how much memory and processing power are being used currently.

Background applications: It checks the monitor background applications and services

2.2 Using Built-in Diagnostic Tools

6. Why build in diagnostic tools to help troubleshooting?

Ans: These tools give useful information about the computer's current state, working components status and help identify problems related to memory (RAM or Registers), storage (HDD or SSD), processing power (CPU and GPU), and system errors.

7. Name the built-in tools for diagnostics available in MS Windows.

Ans: These tools are:

- Task Manager
- Resource Monitor
- Event viewer

8. What are the responsibilities of task manager?

Ans: It shows real-time information about the Computer system's processor (CPU), memory (RAM), and storage disk (HDD or SSD) are being used.

9. Write down the procedure to open task manager,

Ans: There are two simple ways to open Task Manager:

- Press the Ctrl + Shift + Esc shortcut key from the keyboard

OR

- right-click on the taskbar and select Task Manager from the menu

10. Describe any two tasks done by task manager.

Ans: Resource details:

See how much processing power and memory are being used by each program.

Program responses and Handling:

Select a program from the processes tab of task manager and click End Task to close it if it is not working properly.

11. What is resource monitor describing its responsibilities?

Ans: Resource Monitor is an advanced system tool in Microsoft Windows that gives a deeper view of how your computer's resources (memory, CPU, and disk) are being used.

Responsibilities:

While Task Manager gives a quick overview, Resource Monitor provides more detailed information about which programs and background services are using system resources.

12. Write down the procedure to open resource monitor.

Ans: There are two common ways to open Resource Monitor:

- Open Task Manager, go to the Performance tab, and click on Open Resource Monitor at the bottom.

OR

- press the shortcut key Windows + R, type the command resmon in the dialog box that appears, and press Enter

13. Explain any two key features of resource monitor.

Ans: Some key features of the resource monitor are listed below:

- **CPU Tab:**
Shows which processes and services are using the processor.
- **Memory Tab:**
Displays how much memory is used, free, or reserved.

14. What is event viewer? Describe its responsibilities?

Ans: Event Viewer is also a built-in Windows tool that records detailed logs of system activities.

Responsibilities:

It helps users check for errors, warnings, and important events related to software, hardware, and security.

15. Did ending the task improve system performance?

Ans: Yes, by ending the task VLC media player software which is being stocked system performance become smooth and efficient.

2.3

System Recovery Options

16. Why a recovery option is important in today's technology?

Ans: In some cases, basic troubleshooting is not enough to fix a problem. The computer may crash, become unresponsive, or fail to start. To handle such situations, operating systems like Microsoft Windows provide special tools known as system recovery options.

17. How could you define windows safe mode?

Ans: Safe Mode starts Windows with only the most important and mostly used drivers

and services. It disables unnecessary background programs and startup software. It is helpful to fix problems caused by faulty apps or windows settings.

18. In what cases window's safe mode is used?

Ans: Safe Mode is useful when:

- The system keeps crashing or restarting
- A program or driver is causing the computer to freeze
- You need to scan for malware or uninstall a recent app

19. Write down the procedure to open safe mode?

Ans: On most MS windows setting:

- Go to Settings > Update & Security > Recovery > Advanced Startup > Restart Now.
- Then choose Troubleshoot > Advanced Options > Startup Settings > Restart > Press F4.
- On some older systems: Restart and press F8 repeatedly before the Windows logo appears. Select Safe Mode.
- Press Enter.

20. What is restore point?

Ans: A restore point is a saved setting of your system's programs and files. It helps you to return your computer to an earlier, working state, if something goes wrong, such as after installing a faulty program or driver. Restore points are made automatically before system updates or driver installations, or manually by the user when it is needed.

21. Write down the procedure to set restore point.

Ans: Follow these steps to create a restore point manually:

- Click the start button and open the control panel.
- Go to system and security option, then click system.
- On the left, click system protection.
- In the new window, under the system protection tab, click the create button.
- Type a name for your restore point
- click create.

22. What is bootable recover media?

Ans: In some cases, when a computer internal hard drive (e.g., HDD or SSD) stop working completely and fail to start the window. In this situation, normal recovery options like Safe Mode and Restore Points create in internal drives may not work. So, in this case, we use and external bootable recovery media to recover the system.

23. Why bootable storage media is important?

Bootable recovery media in modern technology is USB flash drive or SSD and in old technology DVD or CD that contains important system files. It helps start the computer from an external device when the built-in storage stops working completely.

24. Explain any two built-in recovery tools used in MS Windows.

Ans: After starting the system, you can use built-in recovery tools such as:

Startup Repair: It is used to fix problems that prevent Windows from loading.

System Restore: To go back to a working state using a restore point

25. When we use bootable recovery media?

Ans: We use this media in such cases where the system:

- Safe Mode is not accessible
- You need to repair or reinstall the operating system

26. Write down the procedure to check the partitioned style.

Ans: To check the Partition Style, you need to:

- Press **Win + X** and select **Disk Management**.
- Find the drive where Windows is installed (usually Disk 0).
- Right-click on the disk label (e.g., Disk 0), then choose **Properties**.
- Go to the **Volumes** tab.

Look at Partition Style:

It will show either:

- GUID Partition Table (GPT)
- Master Boot Record (MBR)

2.4

BIOS/UEFI and Process Awareness

27. What is a boot process and firmware?

Ans: **Boot Process:** When a user press the power button of his/her computer, several hidden steps take place before the desktop of operating system appears on the screen. This process is known as boot process. By default in every operating system boot process is gone through internal storage drive either it is HDD or SSD.

Firmware: All computers have special software built into the motherboard called **firmware**. It is not stored on the hard drive and does not get deleted when the computer is turned off. Firmware gives the computer basic instructions on how to start.

28. Explain types of firmware.

Ans: Two common types of firmware are:

BIOS: Older firmware software shows a basic, text-only menu and works with the keyboard only.

UEFI: Newer type of firmware software, supports a graphical menu that uses both mouse and keyboard, and larger hard drives

29. What is POST test? Why it is important? Also give an example.

Ans: POST stands for Power-On Self-Test. It is the first thing the firmware does after the computer is turned on.

Importance:

POST checks the most important hardware to make sure everything is working properly. If all parts are fine, the computer continues to load the operating system. If something is wrong, it may beep or show an error message on the screen.

Example: If the RAM is missing, the computer will beep continuously

30. How to Open BIOS/UEFI Settings?

Ans: To open this setting, you need to shut down your computer.

- Turn it on and immediately press a key like Del, F2, F10, or Esc (the correct key depends on the brand, like HP, DELL, and MSI).
- The BIOS or UEFI screen will appear.

31. What is boot order and boot repair?

Ans: Boot order: Boot order means the sequence in which the computer looks for a device to load the operating system. For example, it may try the USB drive first, then the hard drive.

Boot repair: Sometimes the computer cannot start due to missing files or errors. This can be fixed by using Startup Repair from Windows recovery USB or DVD

2.5

Data Recovery Techniques

32. For what purpose build-in recovers tools are available in windows? Give an example.

Ans: These tools are already part of the windows operating system, which is why we call them built-in tools. In window, three built-in tools are available for data recovery.

Recycle Bin:

When a file is deleted in Windows, it usually goes to the Recycle Bin. It stays there until the bin is empty.

33. Write down the two steps to recover data from Recycle Bin.

Ans: You can open the Recycle Bin

- Right-click the file, and select Restore.
- It will bring the file back to its original location.

34. Write down the procedure to use Tenor Share.

Ans: Steps to Use Tenor Share:

- Open Tenor Share, select the location from which you want to recover a file, such as a specific drive or folder.
- Choose the type of file to recover (e.g., pictures, documents).
- Click "Scan" to start searching for lost files.
- Select the files you want to recover and click "Recover" to restore them.

35. Describe limitations of recovery.

Ans: While data recovery tools can be helpful, they have the following limitations:

1. If a file is deleted a long time ago, it may no longer be recoverable.
2. Recovery is not always possible if the hard drive is damaged or formatted.
3. Files may be permanently lost if the Recycle Bin is emptied, and no backups were made.

2.6

Best Practice for Preventive Maintenance

36. What is meant by preventing maintenance?

Ans: Preventive maintenance means doing simple tasks that help avoid bigger problems

in the future. These tasks can improve your computer's speed, keep it secure, and help it last longer. Just like we take care of our health or maintain our vehicles, computers also need regular attention to keep working properly.

37. Define disk cleanup.

Ans: Disk Cleanup is a built-in Windows tool that helps remove unnecessary files such as temporary internet files, system cache, Windows update files, and items in the Recycle Bin. These files take up space and may slow down system performance.

38. What is software update? Describe the method to check system update.

Ans: Software updates, also known as patches, are released regularly by developers to fix bugs, add features, and improve security. Keeping your system updated helps to protect it from viruses and security threats.

Method to check for updates in Windows:

- Open Settings > Update & Security.
- Click Check for updates.
- Install the updates if available.

39. What are the responsibilities of window's defender?

Ans: Windows Defender also provides real-time protection, which means it keeps watching your system in the background and alerts you if anything suspicious happens.

2.7 System Documentation and Logs

40. Why keeping maintenance calendar is important?

Ans: Keeping maintenance calendar:

It's a good idea to set a regular schedule for basic maintenance tasks. A maintenance calendar helps you remember when to clean your system, scan for viruses, or check for updates. You can write it down or set reminders on your phone or computer.

41. Why Keeping proper records is compulsory for future maintenance?

Ans: Keeping proper records is an important part of a computer system's maintenance. When we document what we do, such as installing software, fixing issues, or performing updates, it becomes easier to manage and troubleshoot systems in the future. This section explains the basics of system documentation in a simple and practical way.

Exercise Questions (Solved)

Multiple Choice Questions

- 1. Task Manager is mainly used to**
(a) Monitor running applications
(b) Clean up disks
(c) Scan for viruses
(d) Manage files
- 2. Safe Mode starts Windows with**
(a) All drivers and services
(b) Basic drivers only
(c) Network services
(d) Antivirus tools

3. **Bootable USB drives are used for**
(a) Installing games (b) System repair and recovery
(c) Watching videos (d) Sending emails
4. **In UEFI systems, a bootable USB must be created in**
(a) NTFS format (b) MBR style (c) GPT style (d) ZIP format
5. **The Power-On Self-Test (POST) is performed**
(a) During system shutdown (b) After login
(c) At system startup (d) When installing software
6. **Tenorshare is a tool used to**
(a) Play videos (b) Recover lost files (c) Create charts (d) Monitor CPU
7. **File History helps to**
(a) Track website history (b) Save copies of personal files
(c) Install apps (d) Scan for malware
8. **Windows Defender provides**
(a) File compression (b) Virus protection
(c) Disk formatting (d) Music playback

Answers

1. (a) 2. (b) 3. (b) 4. (c) 5. (c)
6. (b) 7. (b) 8. (b)

Short Questions

1. **Write one key function of the Resource Monitor.**

Ans: While Task Manager gives a quick overview, Resource Monitor provides more detailed information about which programs and background services are using system resources.

2. **Define the use of Safe Mode in system recovery.**

Ans: Safe Mode is useful when:

- The system keeps crashing or restarting
- A program or driver is causing the computer to freeze
- You need to scan for malware or uninstall a recent app

3. **List the steps to create a bootable USB using Rufus.**

Ans: To create bootable file using rufus, following steps needs to follow:

- Open Rufus, select the USB and the ISO file.
- Set partition scheme from GPT to MBR, it will show target system to BIOS
- Set file system to NTFS (By default this feature is already selected)
- Click create.

The process takes 20 to 30 mins to complete the process.

4. What happens during the Power-On Self-Test (POST)?

Ans: POST stands for Power-On Self-Test. It is the first thing the firmware does after the computer is turned on.

Importance:

POST checks the most important hardware to make sure everything is working properly. If all parts are fine, the computer continues to load the operating system. If something is wrong, it may beep or show an error message on the screen.

5. Why is the boot order setting important when using recovery tools from a USB drive?

Ans: Boot order means the sequence in which the computer looks for a device to load the operating system. If the boot order setting is not set the operating system does not get started and display the message "No bootable storage media found".

6. List the two benefits of running regular disk cleanup.

Ans: Improve efficiency:

This task can improve your computer's speed and performance.

Security: Using disk cleanup, you can keep secure of your system from unnecessary corrupted files

7. How does Windows Defender help in maintaining system health?

Ans: Windows Defender helps maintain system health by constantly scanning and removing viruses and malware. It also protects your computer from harmful websites and downloads in real-time. This keeps your system running safely and smoothly.

Long Questions

1. Explain the roles of Task Manager and Event Viewer in system maintenance. Give one example for each tool where it can help solve a problem.

Ans: Task Manager:

Define:

Task Manager is a built-in tool in all Microsoft Window versions. It helps users to monitor the performance of their computer screen.

Responsibilities:

It shows real-time information about the Computer system's processor (CPU), memory (RAM), and storage disk (HDD or SSD) are being used.

Processes tab:

The Processes tab of the task manager shows all active programs and how much system resources they are using.

Performance tab:

The Performance tab displays detailed graphs for CPU, memory, disk, and network usage.

Example:

Program responses and Handling:

Select a program from the processes tab of task manager and click End Task to close it if it is not working properly.

Event Viewer:

Define:

Event Viewer is also a built-in Windows tool that records detailed logs of system activities.

Responsibilities:

It helps users check for errors, warnings, and important events related to software, hardware, and security.

2. Your computer is not starting properly due to a system issue. Describe how System Restore or a bootable recovery USB can be used to fix the problem without deleting personal files.

Ans: If your computer is so damaged that it won't even show the recovery menu, you will need to use a bootable USB drive. This is a USB stick that has Windows recovery tools on it. You can create this on another working computer using a tool like "Windows Media Creation Tool" to put Windows installation files on it, which also contains the recovery tools.

How it works without deleting personal files: Just like System Restore, using the repair tools from a USB drive only targets the operating system. It gives you options to fix the startup process or use System Restore, leaving your personal files untouched.

Steps to use it:

1. **Plug in the USB:** Insert the bootable Windows recovery or installation USB drive into your non-working computer.
 2. **Boot from the USB:** Start the computer and immediately press the key to open the Boot Menu (common keys are F2, F12, ESC, or DEL). Select your USB drive from the list to start the computer from it.
 3. **Start recovery tools:** When the Windows setup screen appears, do not click "Install Now". Instead, look in the bottom-left corner and click on **Repair your computer**.
 4. **Navigate to the tool:** This will take you to the same Windows Recovery Environment (WinRE) menu. Go to Troubleshoot > Advanced Options.
 5. **Choose your fix:**
 - **Startup Repair:** This is a great first option. It will automatically scan your system for common issues that prevent Windows from starting (like missing boot files) and try to fix them.
 - **System Restore:** You can also choose this from the Advanced Options menu. It will work the same way as described in Method 1, using restore points saved on your computer to roll back system changes.
-

3. Briefly explain any two preventive maintenance techniques that help to keep a computer running smoothly.

Ans: Boot Process:

When a user press the power button of his/her computer, several hidden steps take place before the desktop of operating system appears on the screen. This process is known as boot process. By default in every operating system boot process is gone through internal storage drive either it is HDD or SSD.

Firmware:

All computers have special software built into the motherboard called firmware. It is not stored on the hard drive and does not get deleted when the computer is turned off. Firmware gives the computer basic instructions on how to start.

Types of Firmware:

Two common types of firmware are:

BIOS: Older firmware software shows a basic, text-only menu and works with the keyboard only.

UEFI: Newer type of firmware software, supports a graphical menu that uses both mouse and keyboard, and larger hard drives

Post Test:

POST stands for Power-On Self-Test. It is the first thing the firmware does after the computer is turned on.

Importance:

POST checks the most important hardware to make sure everything is working properly. If all parts are fine, the computer continues to load the operating system. If something is wrong, it may beep or show an error message on the screen.

Example:

If the RAM is missing, the computer will beep continuously.

4. Explain how deleted files can be recovered using a third-party software. Also, discuss why recovery may not always be successful.

Ans: For Answer See Q No. 14.

5. A classmate wants to clean up disk space after a large Windows update. Explain how to use Disk Cleanup, including the option to remove system files safely.

Ans: For Answer See Q No. 20.
