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Class	10th	Chapter	02
Subject	Computer Science	Board	Punjab

CHAPTER 02: System Recovery and Advanced Maintenance

EXERCISE SOLUTIONS

Multiple Choice Questions (MCQs)

1. Task Manager is mainly used to*(a) Monitor running applications (b) Clean up disks (c) Scan for viruses (d) Manage files*

Correct Answer: (a) Monitor running applications

2. Safe Mode starts Windows with*(a) All drivers and services (b) Basic drivers only (c) Network services (d) Antivirus tools*

Correct Answer: (b) Basic drivers only

3. Bootable USB drives are used for*(a) Installing games (b) System repair and recovery (c) Watching videos (d) Sending emails*

Correct Answer: (b) System repair and recovery

4. In UEFI systems, a bootable USB must be created in*(a) NTFS format (b) MBR style (c) GPT style (d) ZIP format*

Correct Answer: (c) GPT style

5. The Power-On Self-Test (POST) is performed*(a) During system shutdown (b) After login (c) At system startup (d) When installing software*

Correct Answer: (c) At system startup

6. Tenorshare is a tool used to*(a) Play videos (b) Recover lost files (c) Create charts (d) Monitor CPU*

Correct Answer: (b) Recover lost files

7. File History helps to*(a) Track website history (b) Save copies of personal files (c) Install apps (d) Scan for malware*

Correct Answer: (b) Save copies of personal files

8. Windows Defender provides*(a) File compression (b) Virus protection (c) Disk formatting (d) Music playback*

Correct Answer: (b) Virus protection

Short Questions

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1. Write one key function of the Resource Monitor.

Answer:

The main function of Resource Monitor is to provide real-time detailed information about hardware resource usage (CPU, Memory, Disk, and Network) and running processes, helping users identify which applications or services are consuming excessive system resources.

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

Answer:

Safe Mode loads Windows with a minimal set of essential drivers and services. It is used in system recovery to troubleshoot and diagnose system errors, remove malware, or uninstall unstable drivers/updates without unnecessary background software interfering.

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

Answer:

1. **Insert** a USB flash drive (minimum 8 GB recommended) into your computer.
2. **Download and open** the Rufus utility application.
3. **Select** the USB drive under the **Device** drop-down menu.
4. Click **SELECT** to browse and choose the ISO image file of the operating system.
5. Set the **Partition scheme** (e.g., **GPT** for UEFI systems or **MBR** for legacy BIOS).
6. Click **START** and press **OK** to begin formatting and creating the bootable drive.

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

Answer:

During POST, the computer's firmware (BIOS or UEFI) tests and initializes hardware components—such as the processor, RAM, graphics card, storage drives, and keyboard—before the operating system boots up. If a hardware failure occurs, it alerts the user via beep codes or error messages.

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

Answer:

The boot order determines the priority sequence of storage devices checked by the system BIOS/UEFI to find an operating system or executable environment. Setting the USB drive first ensures the computer boots directly into the recovery tool or installation environment on the USB rather than attempting to load the primary hard drive.

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

Answer:

1. **Frees up storage space:** It removes temporary files, system logs, cache, and cached update files.
2. **Improves performance:** Clearing clutter optimizes disk usage, allowing the operating system and applications to operate smoothly.

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

Answer:

Windows Defender actively protects the computer by scanning files and memory in real time for malware, viruses, spyware, and ransomware. It automatically blocks unauthorized malicious

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software, removes threats, and regularly updates security definitions to keep the system safe and stable.

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.

Answer:

- **Task Manager:**
  - **Role:** Task Manager is an operating system utility that provides real-time oversight of open applications, background processes, system resource allocation (CPU, RAM, Disk, GPU), and startup programs. It allows users to manage running software, end unresponsive tasks, and monitor active resource utilization.
  - **Example Solution:** If a web browser freezes and stops responding, a user can open Task Manager, locate the unresponsive process under the *Processes* tab, and click **End Task** to safely terminate it without restarting the entire system.
- **Event Viewer:**
  - **Role:** Event Viewer is an administrative logging tool that keeps detailed records of system, application, and security messages, warnings, and error logs. It helps system administrators and users diagnose complex OS crashes, hardware failures, or software errors.
  - **Example Solution:** If a computer experiences sudden "Blue Screen of Death" (BSOD) crashes, the user can check the Event Viewer's **System** log around the exact timestamp of the crash to identify the problematic driver or failing hardware component.

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.

Answer:

When Windows experiences critical system failures that prevent normal operation, recovery tools can restore system functionality while preserving personal user documents, photos, and files.

- **Using System Restore:**

1. Boot into the **Advanced Startup Options** menu (or run Automatic Repair via installation media).
2. Navigate to **Troubleshoot** > **Advanced options** > **System Restore**.
3. Select a previously created **Restore Point** generated prior to when the issue started.
4. Confirm the selection and proceed with the restore process.
5. *Outcome:* Windows reverts registry settings, device drivers, and system files back to that specific saved point while leaving personal user files completely untouched.

- **Using a Bootable Recovery USB:**

1. Plug in the bootable recovery USB and access the boot menu by pressing the designated function key (e.g., F12, F11, or Del).
2. Select the USB drive as the primary boot device.
3. On the Windows Setup/Recovery screen, choose **Repair your computer**.
4. Access **Troubleshoot** and select tools such as **Startup Repair** (to fix unbootable system files) or **Uninstall Updates** (if a recent update caused the crash).
5. If necessary, use the **Reset this PC** option, selecting **"Keep my files"**, which reinstalls the operating system while saving all personal user files in their respective folders.

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

Answer:

1. Regular Storage Cleanup and Defragmentation/Optimization:

- **Storage Cleanup:** Over time, temporary files, cache, web logs, and update backups accumulate and consume disk space. Utilizing tools like *Disk Cleanup* or *Storage Sense* removes unnecessary clutter, freeing disk space for operational files.
- **Optimization/Defragmentation:** For traditional Hard Disk Drives (HDDs), running disk defragmentation reorganizes scattered data fragments into contiguous blocks, enabling faster read/write speeds. For Solid-State Drives (SSDs), system optimization executes TRIM commands to maintain healthy drive performance.

2. Keeping System Software and Security Definitions Updated:

- Routine operating system updates deliver crucial security patches, bug fixes, software compatibility updates, and driver enhancements that improve overall system stability.
- Concurrently, keeping antivirus/anti-malware security software (like Windows Defender) regularly updated ensures the system can detect and prevent modern cyber threats, adware, and background malware from consuming system resources or corrupting files.

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

Answer:

- **How Deleted Files are Recovered using Third-Party Software:**

When a file is deleted from the Recycle Bin, the actual data remains physically stored on the hard drive. The operating system simply removes the pointer index to that file and marks the storage space as "free" or available for writing new data.

Third-party file recovery applications (such as *Tenorshare 4DDiG*, *Recuva*, or *EaseUS*) perform deep disk sector scans to locate raw data structures and file headers that have not yet been overwritten. The software then re-assembles these file sectors and allows the user to restore the missing files to a separate location.

- **Why Recovery May Not Always Be Successful:**

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1. **Data Overwriting:** If new data is saved on the storage drive after file deletion, the drive sectors holding the deleted file's data may be overwritten, permanently destroying the original file content.
2. **TRIM Command on SSDs:** Modern Solid-State Drives (SSDs) utilize the TRIM function, which automatically wipes deleted data blocks immediately to optimize drive performance, making recovery extremely difficult or impossible.
3. **Physical Disk Damage:** Bad sectors, physical disk failures, or magnetic degradation on a drive can corrupt storage media, preventing recovery tools from reading the data.
4. **File Fragmentation:** Highly fragmented deleted files whose fragments are spread randomly across the drive may result in partial or corrupted recovery.

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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.

Answer:

After a major Windows update, the operating system stores several gigabytes of installation and update backup files (such as Windows.old) in case the user needs to rollback. Disk Cleanup safely removes these non-essential files.

Step-by-Step Instructions for Disk Cleanup:

1. **Open Disk Cleanup:**
   - Press Windows Key + S, type **Disk Cleanup**, and press **Enter**.
   - Select the system drive (usually **C:**) and click **OK**.
2. **Basic Scan:**
   - Disk Cleanup will perform an initial scan of non-critical user files (such as Temporary Internet Files, Recycle Bin, Thumbnails).
3. **Accessing System Files Removal:**
   - Click the **"Clean up system files"** button located at the bottom-left corner of the window.
   - Provide administrator permission if prompted, and select the **C:** drive again.
4. **Select Windows Update Cleanup Files:**
   - The utility will re-scan and display additional system-level categories.
   - Check the boxes for **Windows Update Cleanup**, **Previous Windows installation(s)**, and **Temporary Windows installation files**.
5. **Execute Cleanup:**
   - Click **OK**, then click **Delete Files** to confirm.
   - Disk Cleanup will safely delete the old system update backups, restoring significant storage space without affecting current personal files or system operation.
