

KENNEDY SECONDARY SCHOOL-ENTEBBE

Uganda Certificate of Education

INFORMATION & COMMUNICATIONS TECHNOLOGY

END OF TERM ONE 2025

SENIOR THREE

EXPECTED RESPONSES

SECTION A (25 SCORES)

ITEM 1(a):

Helping James to understand the different hardware components he found in the CPU Case.

Introduction: (Int = 02 scores)

A desktop computer is a computer type that comprised of different components like the CPU case (System Unit), monitor, keyboard, mouse, and other peripherals that are assembled together to enable it to perform different tasks when instructed.

It's on a desktop computer where we find the system unit (CPU case) and inside this component, attached inside are different internal devices which enable it to function very well, below are some of the components James found inside the CPU Case;

1. Large Circuit board.

This is the **mother board** which provides a communication between the CPU and all other peripherals attached to it. It is the board where the HDD (Hard Disk Drive) is attached with the use of SATA cables and other devices.

2. A Rectangular chip.

This was a **microprocessor (processor chip or CPU Chip)**, this is the brain of the computer which is housed in the CPU Case and it is attached on the mother board. It's the chip that enables data conversion to information (processes data to information).

3. The Cooling fan.

These are two fans housed inside the system unit; they are majorly used to cool device(s) that heats up during data processing.

4. The Memory stick.

This is the **working memory** of a computer termed as **RAM (Random Access Memory)**, this enables a computer to process data at a faster rate, in that the more

RAM a computer possesses, the faster in data processing rate to form information.

5. **Metal box.**

It is a **Power Supply Unit (PSU)**; this provides power to the system unit through a power cable when connected from a surge protector or any power outlet.

6. **Hard Disk Drive.**

This is the **storage medium** of the desktop computer; it is a device where all files (system files and application files) and other related content or data is stored for future use.

7. **DVD Drive.**

This hardware component enables a computer to read and write an optical storage medium inserted into it. (CDs, DVDs, Blue-Rays etc.)

8. **Network Interface Card (NIC)**

This is an **electronic communication device** that connects a computer to a local area network (LAN), Some NICs are built on the motherboard while others built on a circuit board fitting into an expansion slot inside the system unit.

9. **USB Ports.**

These are interconnects on the motherboard where different USB peripheral devices like, printers, mice, keyboards, USB flash drives are attached.

10. **Graphics Processing Unit (GPU)**

Handles rendering of images, video, and animations. Essential for gaming, video editing, and graphic-intensive tasks.

11. **Cooling System (Fans / Heat Sink)**

Keeps internal components cool to prevent overheating. Ensures stable and efficient performance.

12. **Expansion Slots and Cards (PCIe)**

Allows additional cards like sound cards, network cards, or extra GPUs to be added. Enhances or expands the computer's capabilities.

13. **CMOS Battery**

Powers the BIOS firmware that starts the computer and keeps system time/settings.

ITEM 1(b):

The appropriate component James should upgrade is the RAM.

Reason:

James should upgrade his computer's Random-access memory because RAM plays a very big role in the data-processing cycle to be converted to information, when RAM is used up or small, the rate at which data is converted to information will be very slow. And when RAM is upgraded or added more, the computer converts data to information at a faster rate.

Conclusion. (Conc = 01 score)

Knowing all the components inside the CPU Case, James would now identify a better computer for his services as well as the different components to upgrade so that he manages his activities well with the use of a computer.

SECTION B (40 SCORES)

ITEM 2:

Introduction: (Int = 02 scores)

A slow computer is a common issue faced by many users, especially as systems age or become cluttered with files and applications. Over time, a computer may take longer to start up, load programs, or respond to basic commands. This decrease in performance can be caused by various factors such as low disk space, outdated hardware, background processes, or even malware. Identifying the root causes and applying the right solutions can help restore a computer's speed and improve overall efficiency.

Possible reasons why Emma's computer is slow.

1. Low Disk Space:

If her hard drive (especially the system drive, usually C:) is nearly full, the computer doesn't have enough room for temporary files or virtual memory, which slows everything down.

2. Too Many Startup Programs:

Programs that launch when the computer starts can drag down boot times and consume system resources.

3. **Fragmented or Failing Hard Drive:**

If she's using a traditional HDD, it could be heavily fragmented or even beginning to fail.

4. **Background Processes:**

Too many apps or processes running in the background can eat up CPU and RAM.

5. **Outdated Operating System or Drivers:**

Not keeping the system updated can lead to inefficiencies and performance issues.

6. **Malware or Adware:**

These can hog resources or cause system instability.

7. **Too Many Browser Tabs or Extensions:**

Especially if using Chrome or Edge, this can cause heavy RAM usage.

Ways to Improve Her Computer's Performance

1. **Free Up Disk Space**

- ☞ Use built-in tools like **Disk Cleanup** or **Storage Sense** on Windows.
- ☞ Uninstall unused apps and delete large or duplicate files.
- ☞ Move photos, videos, and documents to an **external drive** or **cloud storage**.

2. **Limit Startup Programs**

- ☞ Press Ctrl + Shift + Esc to open Task Manager.
- ☞ Go to the **Startup** tab and disable unnecessary programs.

3. **Run a Disk Check or Defragment**

- ☞ If using a traditional HDD, run "**Defragment and Optimize Drives.**"
- ☞ For SSDs, this isn't necessary — but she should check the **drive health** using software like CrystalDiskInfo.

4. **Scan for Malware**

- ☞ Run a **full antivirus/malware scan** with a trusted program like Windows Defender, Malwarebytes, etc.

5. Add More RAM or Upgrade to SSD

- ☞ If the computer is older and has limited RAM (e.g., 4GB), upgrading to 8GB or more can help.
- ☞ Switching from an HDD to an **SSD** can dramatically improve speed — especially startup time.

6. Update System & Drivers

- ☞ Make sure Windows is **fully updated**.
- ☞ Use **Device Manager** or third-party software to check for outdated drivers.

7. Clear Browser Cache & Extensions

- ☞ Limit browser extensions.
- ☞ Clear cached files and cookies regularly.

In conclusion, a slow computer can be frustrating and can affect productivity. However, with proper maintenance such as freeing up disk space, reducing startup programs, scanning for malware, and upgrading hardware if needed, performance can be significantly improved. Regular care and updates help ensure the computer runs smoothly and efficiently over time. **(Conc = 01 score)**

ITEM 3: (20 SCORES)

Benefits of using cloud storage instead of a USB flash drive.

Introduction: **(Int = 02 scores)**

Cloud storage means storing and managing different resources of data using a network of remote servers which is hosted on the internet.

Storing data and information using cloud storage is so vital and safe compared to USB flash drive as indicated in the following advantages.

1. More storage.

With cloud storage, David's device will not quickly run out of storage space as it happens when he saves with flash drives, cloud has unlimited storage capability which will enables him to store and manage huge data amounts. This is so because data is not stored on hard drive of the computer being used.

2. **World wide access.**

With cloud storage, David can access his documents and files from any place at any time around the world meaning it has no geographical boundaries unlike flash where he must have access to it to access data.

3. **Automatic updates.**

The cloud computing storage provider will automatically notify David when updates for his resources are available and provides him with instructions on how to install them which is not the case with flash drive storage.

4. **Affordability. (Affordable)**

Many cloud computing applications are available for free, for example **GoogleDrive, DropBox, OneDrive** and those which require payments are also relatively affordable for him hence flash drives are expensive and prone to damages.

5. **Safe and secure.**

Storing data using cloud will make David's content to be free and safe from cyber attacks like malware (viruses) if handled carefully which make it more secure.

6. **Easy Set-up.**

Setting up a cloud storage account, David will find it so easy and cheap where he will just need to contact the cloud service provider and an account will be created for him with any amount of storage space he wants at a reasonable fee.

Although Cloud storage is safe for data management and storage, here are some risks associated with it.

1. Internet reliance. Cloud storage only works with the availability of internet.
2. If a client fails to pay the required fee for the upgrade, then he or she is denied access to the data stored in the cloud.
3. There is possibility that data stored on the cloud may be accessed and used by unauthorized personnel like hacker.
4. Since the same server is used by other people around the world, if not handled well data may be vulnerable to viruses.

5. If the cloud storage owner forgets the credentials he or she used while creating an account, accessing data is denied.

I would therefore recommend David to use cloud storage unlike a flash disk because of;

- ☞ Unlimited storage capacity on the cloud.
- ☞ Automatic updates of resources stored on the cloud
- ☞ Affordability where David can afford purchasing and account from cloud.
- ☞ Accessing his data and resources from any place where he is, provided he is connected to network.

Conclusion. (Conc = 01 score)

Cloud storage provides better **accessibility**, **security**, and **collaboration** capabilities than flash drives, especially for large or growing storage needs. It also eliminates the risks associated with physical device failure or loss. However, **flash drives** still have their place for **quick**, **offline** storage and for **file transfers between devices** when internet access is unavailable.

ITEM 4 (20 SCORES)

(a) Ways in which Sarah can adjust her workstation to reduce health hazards.

Introduction. (Int = 01 score)

Increased use of computers today has greatly improved the quality of human life. However, it is important to note that if not carefully used, computers can bring health hazards to human beings in a number of different ways.

Sarah can adjust her workstation to reduce discomfort and long-term health issues through;

1. Taking regular breaks from typing to rest the hands.
2. Using wrist rests to minimize wrist pains.
3. Maintaining proper and good sitting postures.
4. Using adjustable chairs for better height depending on the computer desk.
5. Stop bending her head while using the computer.

6. Making sure that the sun does not shine directly onto the computer screen when using it.
7. Ensuring her eyes are at least 18 inches from the screen she is using.
8. Frequent standing and move around to allow normal blood flow in the legs, this reduces on deep vein thrombosis.
9. Making sure to take regular breaks and stretch the body.
10. Placing noisy ICT devices (equipment) in a separate room.

(b) Sarah can prevent eye strain while using her computer by adopting the following practices:

1. Follow the 20-20-20 Rule

- ☞ Every 20 minutes, look at something 20 feet away for at least 20 seconds.
- ☞ This gives her eyes a break from focusing on the screen, reducing the risk of strain and dryness.

2. Adjust Screen Brightness and Contrast

- ☞ Set the screen brightness to match the surrounding light, and adjust the contrast to make text easier to read.
- ☞ Reduces glare and makes it easier on the eyes, preventing excessive strain.

3. Use Proper Lighting

- ☞ Avoid having bright lights or sunlight directly behind or in front of the screen. Use soft, ambient lighting in the room.
- ☞ Proper lighting reduces glare on the screen, which can contribute to eye strain.

4. Blink More Often

- ☞ Consciously blinking more often, especially when using digital devices.
- ☞ Blinking helps keep the eyes moist, preventing dryness and irritation, which are common causes of eye strain.

5. Adjust Text Size and Screen Position

- ☞ Make text larger or adjust the screen's zoom level to avoid squinting or leaning forward. Position the screen at a comfortable viewing distance (about an arm's length) and at eye level.
- ☞ This reduces the effort required to focus, making it easier on the eyes.

6. Use Blue Light Filters

- ☞ Enable **blue light filter** settings or use apps that reduce blue light emission, or invest in blue light-blocking glasses.
- ☞ Blue light can contribute to digital eye strain and disrupt sleep, so reducing exposure helps protect her eyes.

7. Take Regular Breaks

- ☞ Take breaks every 30 minutes or so, and incorporate stretches or activities that move the eyes away from the screen.
- ☞ Breaks allow the eyes to rest and recover from prolonged screen time.

8. Adjust Monitor Settings (Resolution and Refresh Rate)

- ☞ Set the screen's resolution to the native resolution and use a high refresh rate (e.g., 60Hz or higher).
- ☞ This provides a clearer, smoother image, reducing strain on the eyes from flickering or blurriness.

9. Use Anti-Glare Screen Protectors

- ☞ Attach an anti-glare screen protector to the monitor.
- ☞ It reduces the amount of reflected light and glare, making it easier on her eyes.

10. Stay Hydrated

- ☞ Drink plenty of water throughout the day.
- ☞ Staying hydrated helps maintain moisture in the eyes, reducing dryness and discomfort.

Conclusion. (Conc = 01 score)

By adopting these habits, Sarah can significantly reduce her risk of **eye strain** and maintain better **eye health** while using her computer. These simple steps can help her stay comfortable and productive during long computer sessions.

(c) Importance of taking regular breaks while using a computer.

1. It created room for a computer user to do and think about other tasks
2. It enables a computers user to refresh his or her minds.
3. It reduces on physical injuries like muscle and joint pains since one stretches freely.

4. It minimizes of problems of vision like eye strains.
5. It enables a computer to cool while not in use.
6. Makes the user's body to be physically fit.
7. Taking breaks can reduce stress by giving your brain a chance to unwind. This can lead to better problem-solving and creativity when you return to your work.
8. Taking time away from the screen can allow you to return with a **clearer perspective**, helping you make better, more informed decisions.
9. Standing up, stretching, or walking around every 30 minutes helps keep your muscles flexible, reduces stiffness, and improves circulation, preventing long-term discomfort or injury (like **carpal tunnel syndrome** or **musculoskeletal disorders**).
10. Taking breaks allows your eyes to rest and recover, reducing the risk of discomfort. Following the **20-20-20 rule** (every 20 minutes, look at something 20 feet away for 20 seconds) can be a simple but effective way to relieve eye strain.

Conclusion. (Conc = 01 score)

Taking regular breaks is essential for your **physical health**, **mental clarity**, and **overall well-being** when using a computer for extended periods. Incorporating short breaks into your routine will not only make you feel better but will also help you stay more productive and focused in the long run.

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