**Required:**

One of the major objectives of this course is to make sure that students can describe the function of the basic components of a computer and peripheral devices. To meet this objective, you are to complete the following assignment using the following resources:

www.pctechguide.com

www.pcguide.com

www.tomshardware.com

Other websites are also available but state the web address of these websites in your assignment.

The notes that you make when completing this assignment will be marked for completeness and effort. They will also serve as a study guide for a **written test** on this unit.

Mr. Larry Samson wants to buy a computer system and recently visited a newly opened electronics superstore called Shop-Til-You-Drop Electronics Warehouse (their slogan is: If you don’t find a product in our store, it ain’t made!!!). He wanted to find out about computers but came out of the store totally confused by the "computerese" he heard. He has made a list of questions he needs answered and has come to you for help.

**Answer the questions below:**

1. An acquaintance told him he needs four components hardware for an effective computer system. These four components are used to accomplish the four steps in the information processing cycle. Briefly describe the function of these components.

|  |  |
| --- | --- |
| Component | Function |
| Input | The function of input is to provide the computer with instructions from the user. |
| Output | The function of output is to provide the user with information from the computer. |
| Processing | The function of processing is to compute / carry out tasks. |
| Storage | The function of storage is to store information on the computer. |

2.

1. What are the two input devices that come with every computer system? Briefly describe what they are used for.

|  |  |
| --- | --- |
| Device | Function |
| keyboard | The keyboard is used to input text and specific commands from the user to the computer. |
| mouse | The mouse is used to interpret positional information in order to control the cursor on the computer. |

1. Samson has looked at other input devices as well. Briefly describe the following input devices for Samson and what he could use them for.

|  |  |
| --- | --- |
| Component | Function |
| Joystick | The joystick is used to interpret directional data from the user to control some aspect of a computer program. |
| Digital camera | The digital camera is used to take photos and video of the real world and store them as information about colors and arrangement of pixels on a screen. |
| Microphone | The microphone records sound and converts it into binary information for the computer to interpret and store. |
| Scanner | The scanner is used to scan a flat surface and, like a digital camera, take photo of the surface but scanning one line at a time. |

1. Samson was told he needed a monitor but is confused about what kind he should buy. An inexperienced salesperson at Shop-til-You-Drop told him that he should look at two things when looking for a monitor:

* the resolution which is the number of “pixies” on the screen
* the refresh rate which is the number of “Hertzies”

When Samson asked for a further explanation, the salesperson gave him a very blank look and

then tried to sell him a VCR.

1. What do you think the salesperson was talking about when he mentioned the "pixies" and “Hertzies” to Samson?

When the salesperson mentioned “pixies” I believe he was referring to pixels. When he mentioned “Hertzies” he must have been referring to hertz, which is the refresh rate per second/ number of frames per second the monitor can display.

1. A friend told Samson that he must also buy a proper video card with as much VRAM as possible for his computer.

What is a video card?

Put simply, a video card processes graphics and outputs it to a display.

What is VRAM and how much should Samson make sure he has?

VRAM is the same as RAM except it operates at much higher speeds and is only accessible by the video card. If Samson is going to just watch videos browse the web, and maybe edit some photos and videos he probably only needs between 2GB and 4GB of VRAM. If Samson wants to play current AAA video games such as Black ops or Rise of the Tomb Raider he would want to have around 6GB to 8GB of VRAM. Lastly, If Samson wants to make high detail 3D animations to the level as Pixar movies, he would need 24GB or more VRAM.

What else should he look at in a video card?

Some other things to look at in a video card:

* CUDA core count (Processing speed)
* Tensor cores (used for Ray-Tracing)
* VRAM speed
* TDP values (amount of energy produced in heat)
* Cost to performance ratio of the video card

4.

1. Samson has narrowed down his choice of printer to one of the following: laser or an ink-jet Briefly describe how each of the above work and the advantages and disadvantages of each.

|  |  |
| --- | --- |
| Laser | Ink-Jet |
| **How it works**  It works by charging a rotating drum in specific spots that will then attract the toner to those specific spots. The drum is pressed to the paper as it rolls to print the image.  **Pros**   * They print much faster than ink-jets * Black text is perfect and very sharp * Toner refills are cheaper than ink-jet ink refills   **Cons**   * They take time to warm up * Higher upfront cost than ink-jets * Bigger and heavier than ink-jet | **How it works**  There are two types of ink-jet printing, Continuous and Drop on demand. Continuous printers produce a continuous stream of droplets of ink to be applied to paper. Drop on demand printers drop individual ink droplets at high rates onto paper with high precision.  **Pros**   * Better for printing photos * Cheaper initial cost * Can print onto many kinds of paper * Smaller and easier to maintain   **Cons**   * The ink cartridges are very expensive * The prints are susceptible to water damage * Ink cartridges need to be cleaned |

If Samson decided he needed a color printer, what kind of printer should he buy? What are the disadvantages of buying a color printer as opposed to a black and white printer?

Since Samson needed a color printer, he could buy any printer that supports color cartridges.

A color printer is usually more expensive than a black and white equivalent.

5.

1. Samson is thinking of saving money by buying only one of the following long term (auxiliary) storage devices: a hard drive, a thumb drive, a DVD drive or a CD-ROM drive. Is this wise?

This is wise if he choses an external hard drive or thumb drive but not if he choses a DVD or CD-ROM drive.

1. What is the unit of storage used when measuring the storage capacity of long term storage devices.

The unit of data storage when measuring capacity of long-term storage devices is **Terabytes**.

1. How much data can each of the following long term storage devices store? What are they used for?

|  |  |  |
| --- | --- | --- |
| Device | Storage Range | Purpose |
| Hard Drive | 5MB-16TB | high capacity data storage. |
| USB Drive (Thumb Drive) | 8MB-2TB | portable data storage. |
| DVD | 4.7GB-17.08GB | Easily mass produced and prewritten data storage medium that cannot be rewritten to. |
| CD-ROM | 203.4MB- 943.7MB | Data storage. |

1. The salesperson at Shop-Til-You-Drop mentioned that the new STYD brand computer had a great motherboard. When Samson inquired about what a motherboard was, the salesperson replied very excitedly “It is the mother of all boards!”. What is a motherboard?

A motherboard holds and connects all the important components of a computer system together. It also provides ports to connect other peripherals to the computer.

1. Samson is looking at a microprocessor for his computer system:
2. What does GHz measure?

GHz measures the CPU’s Clock Speed. In other words, it measures the oscillation rate of the CPU’s transistors in number of high to low voltage switches per second at regular intervals.

1. What company makes the most of the processors sold? What other companies produce microprocessors for personal computers?

ARM has made most of the processors sold of all time with over 100 billion chips sold since 1991. Some other companies who sell large numbers of processors include AMD, Intel and Samsung.

What to Submit:

1. Edit this document and type your answers underneath each question.
2. Ensure you name is on EVERY PAGE.
3. Save as a WORD document and submit using Google Classroom.

1. Name your document A1MiniLastFirst.docx where LastFirst is YOUR last name and YOUR first name.
2. Do not submit a Google Doc