## COMPUTER HARDWARE MIDTERM

\_\_QUESTION1:\_\_ \*Development of the PC (from C. 01)\*

\*Comment on the convergence of components (as they have gone from all individual components to largely integrated [i.e. combined on the motherboard / system board / logic board]). What effects do you feel this has on the computer support segment of the IT industry?\*

`Answer: I think the most important part of this convergence of components is that it now becomes similar. Having component already installed on a board allows for less variables and ensure that it will work correctly with the main board and other components on the board. Overall, it seems to have simplified the computer industry and therefore made it easier for people to get into computers. This does take a toll on IT support as most people won’t have complex problems with their components unless they completely die. `

\_\_QUESTION2:\_\_ \*Processor Types and Specifications (from C. 03)\*

\*Explain the overall benefits of 32-bit systems vs 64-bit systems. Does one allow a greater “utilization” of hardware? If so, be specific and indicate particular components that can benefit from either 32-bit or 64-bit architectures.\*

`Answer: The main difference is that the 64 bit processor is more capable then the 32 bit processor. The reason being that it can handle more data at once and therefore is capable of storing more values, including memory addresses. So 64 bit is able to handle much more memory then the 32 bit where you are limited to 4gb or less. `

\_\_QUESTION3:\_\_ \*Motherboards and Buses (from C. 04)\*

\*How have motherboards changed over the years? Indicate some of the key aspects. Note whether you believe many or any of theses changes to be beneficial and in what way(s).\*

`Answer: Some of the biggest changes relates to the consumer and what they wanted to connect. Early boards had very little inputs for devices along with other slots on the board for expansion or integration. Now day most boards have all kinds of ports (USB, audio, display, etc.) to support the consumers needs along with having all kinds of slots for expansion cards, more memory, on board storage (m.2 SSD’s), audio chips. There was also a huge change to the basic form factors that accompany the size and shape of the board along with where component slots are located. Along with this many boards come with pre-installed chips and cards that take care of disk controlling and audio. This used to be separate and installed in a expansion card slot. Although pre-installed chips do limit the user from installing there own choice it does take care of a lot of problems that could be related to components not working. But overall the changes that have been made have greatly improved the ability for consumers to build and understand computers and there hardware.`

\_\_QUESTION4:\_\_ \*Power Supplies (C. 17)\*

\*Explain the type of power that serves as INPUT for most power supplies (i.e. the average Desktop, Laptop, Server). Explain the overall job of the standard (i.e. most common) (computer) power supply. What, if any, are potential issues or challenges for power supplies?\*

`Answer: Computers as a whole need low-voltage DC power to account for the parts that are using that power. The purpose of a power supply is to 1. regulate that power from the wall 2. convert it from high voltage AC power to the low voltage DC. Common problems to power supplies often relate to power surges and spikes which can causes huge problems depending on the rating and protections of the power supply. for this very reason servers often use multiple power supplies incase one get knocked out. These are referred to as redundant power supplies. `

\_\_QUESTION5:\_\_ \*Question 05:Magnetic Storage (C. 08)\*

\*Explain the past and current roles of magnetic storage (specifically address spinning disks, not solid state).\*

`Answer: Magnetic used to be the main storage option for everyone as it was one of the only options but now it among much better alternatives. Although it is still used today because of its cost effective nature that allows people to put there data in "cold storage" for long periods of time where it is not accessed. magnetic tape another form of magnetic storage has a long life without need for specific conditions. It is about a cent per gigabyte of space compared to several cents compared to magnetic drives and $3 to 20$ with solid state. Overall the current purpose of any magnetic storage is for long data storage with limited interaction with that data, along with being less money for large amounts of space. `

\_\_QUESTION6:\_\_ \*Flash and Removable Storage (C. 09)\*

\*Explain the benefits of flash storage to desktops, laptops or servers. In your answer, indicate if one would opt for flash over spinning magnetic disks and note your reason(s) why.\*

`Answer: The first part of flash storage is that it lacks moving parts. This enables increased durability that doesn’t have huge vulnerability to damage from drops and shocks. To go along with this because there is no spinning disk the devices often have a smaller formfactor, or at least a more favorable one. Allowing them to fit in thinner laptops/devices along with being more portable.`

`Transfer speeds are also much more favorable as they again don’t have a spinning disk and all the information is faster to access. Removable flash devices are often compact and have more compatible with a wider range of devices because they often have a USB interface.`

`In situation that require speed and reliability along with transport flash is a better option.`

\_\_QUESTION7:\_\_

\*Explain the importance of Ethernet and indicate how it plays a role in modern day computing and phone service within businesses. What are some performance aspects to consider?\*

`Answer: Although Wi-Fi is always getting better Ethernet continues to be more secure and reliable option, and not to mention it has better performance. Wi-Fi has increased in speeds but often the environment and location you are in relation to the start of the signal largely effects your performance. Ethernets range is much longer and doesn’t have huge speed decreases based on range.`

`Signal quality is one of the biggest parts of the Wi-Fi\_\_\_33 vs Ethernet debate, often talking about how as more wireless networks come online the more signal interference there will be and therefore worse speed. Ethernet does have better luck with this if the cabling has enough insulation to prevent cross talking.`

`The price of Ethernet is far better then wireless and often times its easier to install with less hassle to get a good connection. phone, camera, and low power items rely on ethernet to be the easy fast solution. `

\_\_QUESTION8:\_\_

\*Explain the role and importance of device drivers within operating systems. Focus: Device support and stability.\*

`Answer: The most important part of drives is that they are a flexible element to a devices programming. Often the core code of the device is written but when installed it has to work with a variety of different brands, and types of components. Drivers are what connect that gap, by filling in information and code that was missing in order to solve connection problems with these different components. Drivers also allow easy changes to be made to old hardware so it will work with new hardware. Instead of re-writing all the core code of a component all that needs to be done is install an updated drivers that fixes the connections between the components. The ease of updating and fixing problems with stability and errors makes drivers a much more efficient part of components and stops you from having to update the entire firmware of a component.`