**MZUMBE UNIVERSITY**



FACULTY OF SCIENCE AND TECHNOLOGY

(FST)

COURSE: CSS 062

TASK: INDIVIDUAL ASSIGNMENT 02

PROGRAMME: DIT-1

LECTURER: MATIKO KURIHO

NAME: NAJMA DUTCH HASHIM

REG.NO: 14233051/T.23

1. **WHAT ARE THE DIFFERENCES BETWEEN MAINTENANCE, REPAIR AND UPGRADE AS USED IN COMPUTER?**

ANSWER;

The following are the differences between maintenance, repair and upgrade as used in computer;

* **Maintenance** refer to a regularly routine which is carried or performed in order to keep the computer system function smoothly and prevent other issues from occurring. The activities are like software updates, disk cleanup, defragmentation, virus scanning and general system optimization.

**WHILE**

* **Repair** this involves fixing staffs that arise in a computer system such as hardware malfunctions ,software errors or system crashes which can hinder back up and running of the computer. The main aim of repair is to restore the system from its normal working condition. Repair normally range from a simple task like replacing a faulty component to more complex like troubleshooting and debugging.

**WHILE**

* **Upgrade** is the process of replacing or adding some component so as to improve or enhance computer system in order to increase its performance, capabilities or capacity. This could include installing a faster processor, adding more RAM, upgrading to a larger hard drive, or installing a newer operating system.

1. **SLUGGISH LOADING IS ONE OF THE PROBLEMS ASSOCIATED WITH**

**CPU.WHAT IS THE POSSIBLE CAUSE AND HOW TO SOLVE IT**

ANSWERS;

Sluggish loading can be caused by several factors related to the CPU;

* **Overheating:** if the CPU Temperature exceeds safe limits, it may throttle its performance to prevent damage, leading to slow processing speed.
* **Insufficient processing power:** if the CPU is unable to handle the workload, it can result in sluggish performance. This is due to running too many application simultaneously
* **Outdated hardware:** An outdated or aging CPU may struggle to keep up with modern software demand, resulting in slower performance.

Also, to address sluggish loading you can go on with the following solution;

* **Check for overheating:** Always make sure that the CPU is frequently cooled and that airflow within the computer case is sufficient. Clean any dust buildup from cooling components and consider improving the cooling system if necessary.
* **Close unnecessary programs**: reduce the workload on the CPU by closing unnecessary applications running in the background.
* **Update drivers and software:** Ensure that all device drivers and software are up to date, as outdated software can sometimes lead to poor performance issues.
* **Upgrade hardware:** If the CPU is outdated or underpowered, consider upgrading to a faster processor that can better handle the workload.
* Others solution are like; Monitor resources usage and optimize software.

1. **AUDITORY SIGNS OF A CPU PROBLEM AND HOW TO SOLVE IT?**

ANSWERS;

Auditory sign of a CPU problem are like:

* Unusual fan noises (like grinding or clicking).
* Beeps during startup (POST).
* Complete absence of any noise indicating a failure to power on.

To solve the CPU issues related auditory signs we do the following;

* Abnormal noise: To solve this you might need to clean the fan, replace it if damaged, or reapply thermal paste if overheating is suspected.
* Beeps during startup: the always indicate hardware errors, so consulting the mother board manual for beep codes can help diagnose the specific problem.
* If the CPU fails to power on at all: Check connection, power supply, and testing with known working components can help to identify and resolve the issue.
* If all the solution don’t work seek professional assistance which is very necessary.

1. **IN A TABULAR FORM SHOW THE POSSIBLE CAUSE OF THE FOLLOWING PROBLEM/SIGN IN COMPUTER AND HOW TO SOLVE IT.**
2. **Blue screen**
3. **Blank screen**
4. **Repeating beeps**
5. **1 long beep, 2 short beeps**
6. **1 long beep, 3 short beeps**
7. **High-frequency beeps**
8. **Repeating high/low beeps**
9. **Overheat problem**

ANSWERS;

The following table show the possible cause of the following problem/sign in the computer and their solution;

|  |  |  |  |
| --- | --- | --- | --- |
| S/NO. | PROBLEMS/SIGN | POSSIBLE CAUSES | SOLUTION |
| a. | Blue screen | Hardware failure or driver issues, software crush. | 1. Restart the computer.  2. Update drivers.  3. Run hardware diagnostics.  4. Check for over heating  5. If the issue persists consult a technician. |
| b. | Blank screen | Loose cable, power supply, faulty monitor, Display connection issues | 1.Reset BIOS setting.  2. Replace or repair power supply  3. Check power cables and connection  4. Test with different monitor or cables. |
| c. | Repeating beeps | Memory or mother board failure, hardware malfunction | 1. Check RAM modules and reseat them.  2. Clean RAM slots.  3. Replace faulty RAM.  4. Check CPU and motherboard connections.  5. Refer to motherboard manual for beep codes. |
| d. | 1 long beep, 2 short beeps. | Video card failure, BIOS issue | 1. Reseat or replace video card  2. Update BIOS firmware. |
| e. | 1 long beep, 3 short beeps | Memory failure, incompatible RAM | 1. Reseat or replace RAM  2. Ensure RAM is compatible with motherboard. |
| f. | High frequency beeps | Overheating, CPU fan failure | 1. Check CPU temperature and cooling system.  2. Clean or replace CPU fan. |
| g. | Repeating high/low beeps. | Power supply failure, voltage regulation issues. | 1. Check power supply connections.  2. Test with a different power supply. |
| h. | Overheat problem | Insufficient cooling, dust buildup | 1. Check fans and vents for dust buildup.  2. Ensure proper airflow in the computer case.  3. Consider adding additional cooling fans or upgrading cooling solution. |

**5. A COMPUTER SYSTEM IS A COMBINATION OF HARDWARE, SOFTWARE DATA AND USER , WHAT ARE THE ROLE OF EACH COMPONENT?**

ANSWERS;

The following are the roles of the following components in a computer system:

**a. HARDWARE;**

These are physical component of a computer system example the CPU, memory (RAM) ,storage devices, input devices and output devices etc. They perform the actual function of processing data and executing information.

**b. SOFTWARE;**

Its made up of programs and application that run on the computer system examples operation system (windows, macOS , Linux).Software provides instructions to the hardware, enabling it to perform specific tasks.

**c. DATA;**

Data is stored in various forms such as files, databases, or within the memory of the computer system. The role of data in the computer system is to manipulate and process by software to produce meaningful information.

**d. USERS**

Users interact with the computer system to input data, issues commands, and to receive output.

Users also interact with software applications to perform tasks and access information stored in the system.

**6. NEEMA CLAIMS THAT HER LAPTOP IS MAKING EXTRAORDINARY SOUNDS WHILE OPERATING AND THE FAN (HEAT SINK) IS RUNNING AT HIGH SPEED CONSTANTLY. AS A COMPUTER MAINTENANCE EXPERT, WHAT ARE THE POSSIBLE PROBLEMS WITH NEEMA’S LAPTOP.**

ANSWERS;

Based on Neema’s description, her laptop may face the following problems ;

* **Thermal paste problem:** this type of problem may lead to failure of cooling the CPU (central processing unit) making it be hot and hotter.
* **Damage of the processor:** these is normally caused by the virus of which damage the processor making it to heat faster hence making the laptop or computer hot.
* **Dust building in the fan:** Normally if the fan is not clean for a very long period of time it will generates a lot of dust making the fan to stop working causing the laptop to get hot.

**7. EXCESS HEAT FROM A COMPUTER SYSTEM LEADS TO ABRUPT SHUT DOWNS, THE ONLY SOLUTION IS TO HAVE A SYSTEM FOR REMOVING THE EXCESS HEAT. EXPLAIN THE SYSTEM FOR THAT WORK.**

ANSWER;

The system for removing excess heat from a computer typically involves several components:

1. **Temperature Monitoring**: software monitors can track component temperatures, alerting users if temperature rises to potentially damaging levels. This allows users to take action, such as increasing fan speeds or adjusting settings.
2. **Cooling fans:** They draw air into the computer case and expel hot air out, helping to dissipate heat from components like the CPU, GPU, and power supply.
3. **Thermal Paste:** Applied between the heat-generating component (CPU or GPU) and its heat sink, thermal paste fills microscopic gaps and improves heat transfer, ensuring better cooling efficiency.
4. **Airflow Management:** Proper cable management and arrangement of components within the case can optimize airflow, preventing hot spots and ensuring that components receive adequate cooling.

**8. ABDALLAH CLAIMS THAT HIS LAPTOP HAS A RAM PROBLEM AND IT NEEDS REPLACEMENT. HOW DOES ABDALLAH KNOW THE PROBLEM?**

ANSWER;

Abdallah might have identified a RAM problem if he experiences frequent crashes, freezes or error messages related to memory issues on his laptop. Running diagnostic software or observing performance degradation can also help pinpoint RAM issues. Additionally, if Abdallah has tried troubleshooting steps like reseating the RAM modules or swapping them out with known working ones and the problem persists, it could indicate a faulty RAM module that needs replacement.

**9. PROPOSE FIVE (5) BEST WAYS TO MAINTAIN THE BATTERY OF YOUR LAPTOP FOR LONG-LASTING.**

ANSWER:

**a) Limit full charge cycles:** whenever possible, aim to keep the battery level between 20% and 80%

**b) Keep your laptop cool:** excessive heat can degrade battery health over time. Ensure proper airflow around your laptop by using it on a flat surface and avoiding blocking the air vents.

**c) Regularly calibrate the battery**: Calibrating your laptop battery every few months helps ensure the battery indicator accurately reflects the remaining battery life.

**d) Avoid deep discharges:** Try to avoid fully draining your laptop battery frequently.

e**) Adjust Power settings**: Adjust your laptop’s power settings to optimize battery usage. Lower the screen brightness, set shorter idle times for sleep mode, and minimize background processes to conserve battery power.

**10. MOST OF THE TIME THE COMPUTER FACES A SLOW PERFORMANCE PROPLEM, EXPLAIN THE POSSIBLE CAUSE FOR SLOW PERFORMANCE AND ADDRESS THE BEST WAY TO IMPROVE THE PERFORMANCE OF YOU COMPUTER.**

ANSWERS;

Slow performance in a computer can be caused by various factors, including:

* **Outdated Hardware:** Normally old hardware components may struggle to keep up with modern software demands and this can lead to slow performance of the laptop.
* **Viruses or malware**: Infection from malware or viruses can significantly degrade system performance by consuming resources or causing system instability to the computer.
* **CPU overloading**: If the CPU is constantly running at high usage, it can slow down the overall performance of the system, especially if there are multiple demanding processes running simultaneously.
* **Insufficient RAM:** When the computer doesn’t have enough memory to handle the tasks at hand, it may slow down as it relies more on virtual memory, which is slower.

To improve the performance of your computer, you can consider the following steps:

* **Upgrade hardware**: Consider upgrading components such as the CPU, hard drive (to SSD for faster read/write speeds), or other outdated hardware to improve overall performance.
* **Run antivirus scan**: perform a thorough scan for malware and viruses to remove any harmful software that may be affecting system performance to the computer.
* **Regular Maintenance**: Schedule regular maintenance tasks such as disk cleanup, disk defragmentation, and software updates to keep the system running smoothly.
* **Upgrade RAM**: Adding more RAM can provide the system with more memory to handle tasks efficiently, reducing reliance on slower virtual memory.
* **Clean Up Disk Space**: Removing unnecessary startup programs to free up disk space and improve overall system performance.