Assignment module 2: Installation and maintenance of Hardware and its

Section 1: Multiple choice

1. Which of the following precautions should be taken before working on computer hardware?

* Use magnetic tools to handle components more easily.

1. What is the purpose of thermal past during CPU installation ?

* To improve thermal conductivity between the CPU and heat sink.

1. Which tool is used to measure the output voltage of a power supply unit (PSU) ?

* Multimeter

1. Which component is responsible for storing BIOS setting ,such as date and time, even when the computer is powered off ?

* COMS battery

Section 2: True or

1. True or false : When installing a new hard drive ,it is essential to format it before use .

* True

1. True or false :A POST (power- on self – test) error indicates a problem with the CPU.

* True

1. True or false : It is safe to remove a USB flash drive from a computer without ejecting it first.

* False

Section 3: Short Answer

1. Describe the steps involved in installing a new graphics card in a desktop computer?

* open the case by removing the side panel.
* Turn off the pc and unplug it from the power source.
* Insert the new GPU into the PCIe x16 slot firmly.
* Secure the card with screws to the case bracket.
* Connect power cables from the PSU to the GPU
* Close the case , plug in the pc, and power it on
* Install or update drivers via the GPU manufacturer website.

1. What is RAID and what are some common RAID configurations ?

* RAID (Redundant array of independent disks) is a data storage technology that combines multiple hard drives into a single unit to improve performance , redundancy, or both
* Raid 0 = improves speed, no redundancy
* Raid1= copies data to two disks, good balance of speed and redundancy.
* Raid 5= data +parity distributed across 3+ disks ,good balance of speed and redundancy

Section 4: Practical Application

1. Demonstrate how to replace a CPU fan in a desktop computer.

* Tools needed:   
  Phillips-head screwdriver
* Thermal paste.
* the Clean cloth or alcohol wipes.
* Locate the CPU cooler: The CPU fan is mounted on top of the heatsink , which is attached to the CPU socket on the motherboard.
* Disconnect the fan : follow cable from the fan to the motherboard and gently unplug it.
* Clean the old thermal paste: Use isopropyl alcohol and lint free cloth to clean the old thermal paste from the top of the CPU and the base of the heatsink, let it dry completely.
* Apply new thermal paste : apply a pea-sized dot of new thermal paste to the center of the CPU.
* Install the new fan and heatsink: Align the heatsink over the CPU and gently press it down , secure it according to its mounting system.
* Close the case : Reattach the side panel and screw it back in .
* Test the system : plug the power back in and turn on the computer, enter the BIOS \ UEFI to check CPU temperatures and make sure the fan is spinning properly.

Section 5: long answer

1. Discuss the importance of regular maintenance for computer hardware and provide examples of maintenance?

* Improves performance : dust build up , overheating ,and degraded components can slow down your computer regular maintenance helps keep hardware running at peak efficiency.
* Extends lifespan : just like any other machine , computers wear out over time. proper care and timely interventions can significantly extend the life of components like hard drives, fans, and power supplies.
* Prevents overheating: dust and blocked airflow can cause components to overheat, which might lead to thermal shutdowns or permanent damage.
* Enhances security: regular checks help ensure that portse, drives , and connections are and not tempered with, reducing the risk of physical security breaches.

Examples of computer hardware maintenance :-

* Inspecting and replacing cables: check for frayed or loose cables and them to avoid connectivity issues or short circuits.
* Running diagnostics: use tools like mem test86 for ram and manufacturer tools for hard ware
* Hard drive defragmentation : helps optimize file storage , improving access speeds.
* Updating firmware and BIOS : keeps hardware compatible with new software and improves performance or stability.
* Battery health monitoring: check battery health periodically and replace it when its capacity diminishes significantly.