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Assignments :-

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?

a) Ensure the computer is plugged in to prevent electrostatic discharge.

b) Wear an anti-static wrist strap to prevent damage from electrostatic discharge.

c) Work on carpeted surfaces to prevent slipping.

d) Use magnetic tools to handle components more easily.

Ans. B) Wear an anti-static wrist strap to prevent damage from electrostatic discharge.

Note :- Electrostatic discharge (ESD) can cause serious damage to sensitive computer components such as the CPU, RAM, and Motherboard.

2. What is the purpose of thermal paste during CPU installation?

a) To insulate the CPU from heat.

b) To provide mechanical support for the CPU.

c) To improve thermal conductivity between the CPU and the heat sink.

d) To prevent the CPU from overheating.

Ans :- C) To improve thermal conductivity between the CPU and the heat sink.

Note :- Thermal paste fills these gaps and allows heats to transfer more efficiently from the CPU to the heat sink, helping to maintain optimal temperatures.

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

a) Multimeter

b) Screwdriver

c) Pliers

d) Hex key

Ans :- A) Multimeter

Note :- A multimeter is a electronic measuring tool that can measure voltage, current, and resistance. To check the output voltage of a power supply unit (PSU), you use the DC voltage.

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

a) CMOS battery

b) CPU

c) RAM

d) Hard drive

Ans :- A) CMOS battery

Note :- The COMS battery (Complementary Metal-Oxide Semiconductor battery) provides power to a small memory chip on the motherboard that stores BIOS settings, such as the system clock (date and time), boot order, and other hardware configuration.

Section 2: True or False

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

Ans. True

Note :- When you install a new hard drive, it must be formatted before it can be used to store data. Formatting sets up a file system (like NTFS, exFAT, or FAT32).

6. True or False: A POST (Power-On Self-Test) error indicates a problem with the CPU.

Ans. False

Note :- A POST (Power-On Self-Test) error does not necessarily indicate a problem with the CPU POST is a diagnostic testing sequence run by the BIOS or UEFI firmware.

7. True or False: It is safe to remove a USB flash drive from a computer without ejecting.

Ans. :- False

Note :- When a USB flash drive is connected to a computer to reading or writing. If remove the USB drive without ejecting the data transfers could be interrupted, data corruption or loss data and file and will be error.

Section 3: Short Answer

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

Ans. Steps to install new graphics card :-

1. Open the computer case :- Remove the screws that hold the side panel of the computer case and gently pry it open.

2. Locate the PCIe slot :- Identify an available PCIe (Peripheral Component Interconnect Express) slot on the motherboard.

3. Remove any existing graphics card :- If there's an existing graphics card, carefully remove it from the PCIe slot.

4. Prepare the new graphics card :- Remove the new graphics card from its packaging and handle it by the edges to prevent static damage.

5. Align the graphics card :- Align the gold contact on the graphics card with the PCIe slot.

6. Install the graphics card :- Gently push the graphics card into the PCIe slot until it clicks into place.

7. Secure the graphics card :- Use screws to secure the graphics card to the case.

8. Connect power cables :- Connect the power cables from the power supply unit (PSU) to the graphics card.

9. Connect any additional cables :- Connect any additional cables, such as HDMI or Display Port cables, to the graphics card.

10. Close the computer case :- Put the side panel back on the computer case and screw it in place.

11. Plug in the power cord :- Plug in the power cord and any other cables.

12. Turn on the computer :- Turn on the computer and install the graphics card drivers.

9. What is RAID, and what are some common RAID configurations?

Ans. RAID (Redundant Array of Independent Disks) is a data storage technology that combines multiple physical disks into a single logical unit to improve performance, redundancy, or both.

- **RAID Configurations :-**
  1. RAID 0 (Striping) :- Splits data across multiple disks, improving performance but offering no redundancy.
  2. RAID 1 (Mirroring) :- Duplicates data on two or more disks, providing redundancy and fault tolerance.
  3. RAID 5 (Striping with Parity) :- Combines striping and parity information, offering a balance between performance and redundancy.
  4. RAID 6 (Striping with Double Parity) :- Similar to RAID 5, but with an additional parity block, providing extra redundancy.
  5. RAID 10 (Mirroring and Striping) :- Combines RAID 1 and RAID 0, offering both redundancy and improved performance.

Section 4: Practical Application

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

Ans. **1. Shut down the computer :-** First power off a computer.

2. Unplug the power cord :- Unplug the power cord and any other cables from the back computer.

3. Open the computer case :- Remove the screws that hold the side panel of the computer case and it open.

4. Locate the CPU fan :- Identify the CPU fan, usually located on top of the CPU heatsink.

5. Disconnect the fan power cable :- Carefully disconnect the fan power cable from the motherboard or CPU fan header.

6. Remove any screws or clips :- Remove any screws or clips that hold the CPU fan in place.

7. Gently lift the CPU fan :- Carefully lift the CPU fan off the CPU heatsink.

8. Clean the CPU heatsink :- Clean the CPU heatsink of any dust or debris.

9. Apply new thermal paste :- The buy a new CPU fan and apply a small amount of thermal paste to the CPU on top surface.

10. Install the new CPU fan :- The new CPU fan on the CPU heatsink, ensuring proper alignment.

11. Secure the CPU fan :- Use screws or clips to secure the CPU fan in place.

12. Reconnect the fan power cable :- Connect the fan power cable to the motherboard or CPU fan header.

13. Close the computer case :- Put the side panel back on the computer case and screw it in place.

14. Plug in the power cord :- Plug in the power cord and any other cables.

15. Turn on the computer :- Turn on the computer and monitor the CPU fan to ensure it's working properly.

Section 5: Essay

11. Discuss the importance of regular maintenance for computer hardware and provide examples of maintenance tasks.

Ans.

- **Regular maintenance of computer hardware :-**
  1. Prevent Overheating :- Dust buildup and malfunctioning fans can cause overheating, leading to component failure.
  2. Ensure optimal performance :- Regular maintenance helps maintain system performance, preventing slowdowns and crashes.
  3. Extend hardware lifespan :- Proper care and maintenance can extend the lifespan of hardware components.

4. Prevent data loss :- Regular backups and disk checks can prevent data loss due to hardware failure.

- **Examples of Maintenance Tasks :-**

  1. Dust cleaning :- Regularly clean dust from fans, heatsink, and other components.

  2. Fan maintenance :- Check and replace fans as needed to ensure proper airflow.

  3. Disk check :- Run disk checks to identify and fix errors, preventing data loss.

  4. Backup data :- Regularly back up important data to prevent loss in case of hardware failure.

  5. Update drivers :- Keep drivers up-to-date to ensure optimal performance and compatibility.

  6. Monitor temperature :- Monitor system temperature to prevent overheating.

  7. Inspect cables :- Regularly inspect cables for damage or wear, replacing them as needed.

  8. Run disk cleanup :- Run disk cleanup tools to remove temporary files and free up disk space.