Topic: Computer Maintenance and Safety

Meaning of Computer Maintenance

Computer maintenance refers to the activities carried out to keep a computer system and its components in good working condition, prevent faults and improve performance.
It involves cleaning, inspecting, updating, repairing and protecting computer hardware and software.
Computer maintenance helps to increase the lifespan of computer equipment and reduce the cost of repairs.

Types of Computer Maintenance

There are four major types of computer maintenance.

A. Preventive Maintenance

Preventive maintenance involves taking regular steps to prevent computer faults and breakdowns before they occur.
Examples:

- Cleaning the keyboard and monitor regularly.
- Installing antivirus software.
- Updating the operating system.
- Using a UPS or surge protector.
- Removing unnecessary files.
- Backing up important data.

B. Corrective Maintenance

Corrective maintenance involves identifying and repairing faults after they have occurred.
Examples:

- Replacing a faulty keyboard.
- Repairing a damaged power supply.
- Replacing a damaged hard disk.
- Fixing a computer that cannot boot.

C. Predictive Maintenance

Predictive maintenance involves monitoring the condition and performance of computer equipment to identify possible problems before they cause failure.
Examples:

- Monitoring hard disk health.
- Checking CPU temperature.
- Monitoring battery condition.
- Checking computer fan performance.

D. Adaptive Maintenance

Adaptive maintenance involves modifying computer systems or software to meet new requirements or changes in the operating environment.
Examples:

- Updating software to work with a newer operating system.
- Upgrading computer memory.
- Installing drivers for new hardware.
- Modifying software to support new devices.

Preventive Care of Computer Systems

Preventive care refers to the regular activities performed to keep computer hardware and software in good condition.

A. Hardware Preventive Care

Hardware preventive care involves protecting the physical components of a computer.
The following practices should be observed:

1. **Regular Cleaning:** Clean the monitor, keyboard, mouse and system unit to remove dust and dirt.
2. **Proper Ventilation:** Ensure that air can circulate around the system unit to prevent overheating.
3. **Protection from Moisture:** Keep computers away from water and damp environments.
4. **Proper Cable Management:** Arrange cables properly to prevent accidental disconnection and tripping.
5. **Power Protection:** Use UPS devices and surge protectors to protect computers against power fluctuations.
6. **Proper Handling:** Avoid dropping or hitting computer equipment.
7. **Environmental Protection:** Keep computers away from excessive heat, direct sunlight and dust.
8. **Regular Inspection:** Check cables, plugs, fans and other components for damage.

B. Software Preventive Care

Software preventive care involves maintaining computer programs and protecting stored information.
Important practices include:

1. Installing and updating antivirus software.
2. Updating the operating system regularly.
3. Installing genuine and trusted software.
4. Avoiding suspicious email attachments.
5. Scanning external storage devices before use.
6. Removing unnecessary programs.
7. Performing regular data backups.
8. Using strong passwords.
9. Avoiding untrusted websites and downloads.
10. Running disk maintenance tools when necessary.

Computer Safety Measures

Computer safety measures are precautions taken to protect computer users, equipment and the working environment from accidents, injuries and damage.
These measures can be grouped into three major categories.

A. Electrical Safety Measures

1. Do not touch electrical equipment with wet hands.
2. Avoid using damaged power cables.
3. Do not overload electrical sockets.
4. Switch off equipment before disconnecting cables.
5. Use properly earthed electrical outlets.
6. Use a UPS or surge protector where appropriate.
7. Do not attempt electrical repairs without proper training.
8. Keep liquids away from electrical equipment.

B. Physical Safety Measures

1. Arrange computer tables and chairs properly.
2. Keep walkways free from cables and other obstructions.
3. Avoid placing heavy objects on computer equipment.
4. Do not run or play inside the computer laboratory.
5. Use suitable chairs and desks.
6. Keep the laboratory clean and dry.
7. Handle computer equipment carefully.
8. Know the location of fire extinguishers and emergency exits.

C. Data and Software Safety Measures

1. Use strong passwords.
2. Install reliable antivirus software.
3. Avoid opening suspicious links.
4. Back up important files regularly.
5. Restrict access to authorised users.
6. Lock the computer when leaving it unattended.
7. Avoid using unknown USB flash drives.
8. Do not share confidential information with unauthorised persons.

5. Health Measures When Using Computers

Continuous computer use can affect the health of users if proper precautions are not observed.
Common health problems associated with prolonged or improper computer use include:

A. Eye Strain

Eye strain occurs when the eyes become tired due to prolonged screen viewing.

Prevention:

- Take regular breaks.
- Adjust screen brightness.
- Avoid sitting too close to the monitor.
- Reduce screen glare.
- Follow the 20-20-20 rule.

The 20-20-20 Rule: After every 20 minutes of screen use, look at something about 20 feet away for at least 20 seconds.

B. Back and Neck Pain

This may occur when users sit in an incorrect position for a long period.

Prevention:

- Sit upright.
- Use an adjustable chair.
- Keep the monitor at a comfortable eye level.
- Avoid bending the neck for long periods.
- Take regular movement breaks.

C. Repetitive Strain Injury (RSI)

RSI is an injury that may affect muscles, tendons and nerves due to repeated movements such as continuous typing and mouse use.

Prevention:

- Use a comfortable keyboard and mouse.
- Avoid excessive typing without breaks.
- Keep wrists in a neutral position.
- Perform gentle stretching exercises.

D. Headaches

Headaches may result from eye strain, poor posture, glare or prolonged computer use.

Prevention:

- Take regular breaks.
- Adjust screen brightness.
- Ensure proper lighting.
- Maintain a comfortable sitting position.

E. General Body Fatigue

Sitting in one position for too long may cause tiredness and discomfort.

Prevention:

- Stand and stretch regularly.
- Take short walking breaks.
- Maintain good posture.
- Avoid working continuously for long periods.