**TUESDAY 12th OCTOBER**

**Task 1 Different operating systems**

**Operating systems**

A piece of software which interacts directly with the hardware, manages resources, and usually presents a user interface to the user.

Purpose of operating system : lets you use the interface.

Each computer has an operating system (OS). The three most common used operating systems are: Windows, Linux, and Mac. Apps, features, and hardware are managed by the operating system software. Besides providing features, operating systems also provide an interface that allows users to interact with them. They are present on laptops, desktop computers, smartphones, tablets, network routers, and other smart devices.

Kernel is the heart of the operating system.

Process management for application execution

Memory management, allocation and I/O

Device management using device drivers

System call control, which is essential for the execution of kernel services

**NETWORK OPERATING SYSTEM**

A network operating system controls other operating systems. You will need a network operating system on the single device if you want to control multiple computers from the same one.

**Advantages:** Servers are highly stable, security is server managed, hardware is easy to add, and it is remotely accessible.

**Disadvantage:** expensive, dependent on central operator and regular updates are needed.

**SECURITY**

Operating systems have security. This is to prevent them from threats against: viruses, worms, malware, and hackers. Ways to prevent these threats can be installing antivirus software, inspecting incoming and outgoing network traffic through firewalls, using authentication and one-time passwords.

Network security consists of protection, detection, and reaction.

Protection – Ensure the correct configuration of your systems and network for protection.

Detection- you must be able to name the problem.

Reaction – you should find the problem quickly and respond to it.

**Windows**

Windows has software called windows defender. This is one of Microsoft's selling points for their operating system. This functions as an antivirus and anti-malware at the same time.

**Linux**

As an alternative to Windows and OS/X, Linux is a free and open-source operating system that was created by a community of developers. According to technical terms, Linux is the kernel, or the core of the operating system.

**Mac**

The Mac OS was developed by Apple for use on computers. An operating system based on GUIs is Mac OS

**Task 2 Type of computer system**

Multi-functional device

MFD is also known as a multi-functional device. MFDs are devices that perform several tasks in one package. One of the best-known examples would be a multifunction device that combines a printer, scanner, and copier.

Personal Computers

A personal computer is a genral – purpose computer, designed to run applications.

Mobile Device

Unlike other types of computing devices, mobile devices are small and portable. An LCD screen is typically included in mobile devices to provide the user with a way to view content. Examples include mobile phones, laptops, and game consoles.

Servers

Typically, a server is a computer whose responsibility is to distribute data to other networked computers. The internet is an example of a network, as defined by the definition. An Internet server is often used by multiple users at the same time. Unlike personal computers, a server can be local or global.

**Task 3**

**Real time operating systems**

Like most operating systems, real time operating systems run on hardware. The way tasks are managed is what sets it apart from a regular operating system. It is possible for multiple processes to run simultaneously in real-time operating systems.

**Single - user single task**

A single user can only perform one task at a time in a single task operating system. There can be only one instance of a function, such as printing a document or downloading images.

**Single - users multi – tasking**

One of the most common types of operating systems is the multitasking operating system that is designed for single users to perform multiple tasks at once.

**Multi-user**

The term refers to two or more simultaneous users on a computer system. Although most personal computers and workstations are multi-user systems, mainframes and minicomputers are also.

**Task 4**

**Memory management**

Controlling and coordinating computer memory is known as memory management. Memory management gives you control over your computer's memory. It tracks every byte of memory and lets you know if it is free or not.

**Disk access**

In addition to giving some applications access to all a user's protected files, Full Disk Access lets them scan protected files for viruses, spyware, and other problems. Antivirus One requires Full Disk Access to check and scan your files.

**File system**

file system can be thought of as an index having the physical location of every piece of data on the hard drive or another storage device. The data is usually organized in folders called directories, which can hold other folders and files. It divides data into different pieces and names them separately, so the data can be easily found by users. Otherwise, all the data would be out-of-order and cannot even be found by users.

**Device drivers**

An electronic device driver is a computer program that uses or controls a particular type of electrical device attached to a computer or automatic device. The driver supplies an interface between the hardware device and software.

**Program Execution**

* **Interrupts**
* **Modes**
* **Memory management**
* **Multi-tasking**
* **Disk access**
* **File systems**
* **Device drivers**