

Q:4 What are Computer Security Threats? Write their names.

Ans: A computer security threat refers to any possible malicious attack. These threats can affect the smooth functioning of our PC. The most harmful types of computer security threats are given below:

- Malware
- Phishing
- Rootkit
- Keylogger

Q:5 What is Firewall?

Ans: A firewall helps us to secure and protect our Information from various Security threats. It acts as a security guard between the internet and our local area network. It prevents hackers from attacking our system. Firewall blocks unauthorized access to our PC.

Que:V Long Answer Type Questions:**Q:1 Explain various functions of operating system.**

Ans: The main functions of the operating system are:

1. **Program Execution:** The operating system executes user programs and system programs in the computer.
2. **Input Output Operation:** The operating system controls all the input/output operations in the computer.
3. **File System Manipulation:** The operating system manages the files and directories in the computer system.
4. **Communication:** The operating system handles the communication between different types of devices and programs in a computer system.
5. **Error detection:** The operating system can detect various types of errors in the computer system and correct them too.
6. **Resource Management:** The various resources of the computer system, such as: Memory, CPU, Storage, etc. are also managed by the operating system.
7. **Protection:** The operating system provides various technologies to protect user data and programs.

Q:2 Write the difference between the Single-user and multi-user operating systems.

Ans: Following table shows the major differences between these two systems:

Single-User Operating System	Multi-User Operating System
1. In these Systems, only one user can access the computer at the same time.	1. In these System, more than one user can access a computer at the same time.
2. All the resources are allocated to a single user of the system.	2. All the resources are allocated among multiple users of the system.
3. Processing of system is faster.	3. Processing of system is slower.
4. These systems are simplistic and easy to design.	4. These are complicated and difficult to design
5. Types of Single User Operating systems are: <ul style="list-style-type: none"> • Single-User Single-Task systems • Single-User Multi-Task systems. 	5. The types of Multi-User Operating System are: <ul style="list-style-type: none"> • Time Sharing Operating System • Distributed Operating System
6. Examples: MS DOS, Windows 95, Personal Computers, etc.	6. Examples: Mainframe Computers such as IBM AS400, Linux & Unix Distributed OS, etc.

Q:3 What is Time-Sharing Operating System? Write its advantages and disadvantages.

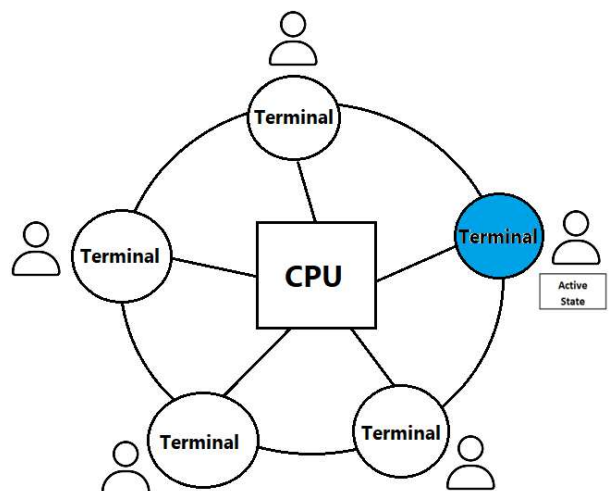
Ans: In Time sharing systems, many terminals/users are connected to a main computer system at the same time. A little time of CPU is given to each user's program in a circular way. This little CPU time given to each user is known as Time Slice or Time Quantum. The system switches rapidly from one user to the next user.

Advantages of Time-Sharing System:

- Reduces CPU idle time.
- Reduces the output of paper.
- Avoids duplication of software.

Disadvantages of Time-Sharing System:

- Large main memory is required for user programs.
- It requires CPU scheduling techniques.
- Memory management is required.



Q:4 What is Multi-Processing Operating Systems? Explain.

Ans: Multiprocessing system is used to describe interconnected computers, with two or more CPUs. These systems have the ability to simultaneously execute several programs. In such a system, instructions from different and independent programs can be processed simultaneously by different CPUs. The basic organization of a typical multiprocessing system is shown below:

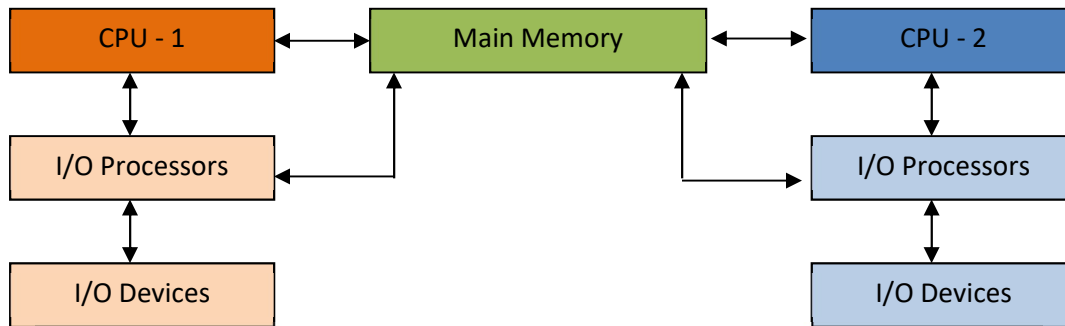


Fig: Basic Organization of Multiprocessing System

Multiprocessing systems are of two types:

- **Tightly Coupled Systems:** These systems are also known as Parallel Processing Operating Systems. In these systems, there is a single primary memory, which is shared by all the processors.
- **Loosely Coupled Systems:** These systems are also known as Distributed Operating Systems. In these systems, each processor has its own local memory.