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Program:- BSCSE)

~~Subject:~~

Paper ->

operating system

Question # 2:-

Multiprocessor system:-

A Multiprocessor system is a system in which two or more CPU are used. In this type of system two or more processes can be processed in parallel i.e. at the same time interval.

Advantages of Multiprocessor system:-

High throughput:->

Throughput is the number of processes executed by the CPU at a given time, so this type of system has higher throughput.

Less Electricity usage:-

In a single processor system, there is more load as many processes have to be executed at a time. But in multiprocessor system execution of multiple processes is done in a few times. That means multiprocessor CPUs consume low electricity than a single processor.

High Reliability:->

As multiple processors share their work between one and another so work completed with collaboration.

That means these system are reliable.

Economic:

As more work is completed by the CPU's so these system are economically good as well.

Question # 3

The objective of multiprogramming is to have some process running at the same time to maximize CPU utilization. However, for a uniprocessor system, there will never be more than one running process. If there are more processes, the rest will have to wait until the CPU is free and can be rescheduled. Our project is dealing about the second kind of processors - we have three kind of queues.

- Job queue: Set of all processes in the system admitted for loading in the RAM and processing by the CPU.

- Ready queues: Set of all processes residing in main memory, ready and waiting to be executed.

- Device queues: Set of processes waiting for an I/O device.

Each device has its own device queue.

The objective of time sharing is to switch the CPU among processes so frequently that users can

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Interact with each program while it is running. To meet these objectives the process scheduler selects an available process (possibly from a set of several available processes) for program execution on the CPU.

Question #4:

Multi-threading allows the execution of multiple parts of a program at the same time. These parts are known as threads and are lightweight processes available within the process. So multi-threading leads to maximum utilization of the CPU by multitasking.

Some of the benefits of multi-threaded programming are given as follows

Resource Sharing:

All the threads of a process share its resources such as memory, data, files etc. A single application can have different threads within the same address space using resource sharing.

Responsiveness:

Program responsiveness allows a program to run even if part of it is blocked using multi-threading. This can also be done if the process is performing a lengthy operation. For example

A web browser with multithreading can use one thread for user contact and another for image loading at the same time.

Economy:

It is more economical to use threads as they share the process resources. Comparatively, it is more expensive and time-consuming to create processes as they require more memory and resources. The overhead for process creation and management is much higher than thread creation and management.

Question # 6:-

The main difference between these two operating systems (Network Operating System and Distributed Operating System) is that in Network Operating System each node or system can have its own operating system on the other hand in distributed operating system each node or system have same operating system which is opposite to the Network operating system.

The difference between Network operating system and Distributed operating system are given below.

* Network operating system *

1. Network operating system's main objective is to provide the local services to remote client.

2. In Network operating system, communication takes place on the basis of files.
3. Network operating system is more scalable than distributed operating system.
4. In Network operating system fault tolerance is less.

Distributed operating systems

1. Distributed operating system's main objective is to manage the hardware resources.
2. In Distributed operating system communication takes place on the basis of message and shared memory.
3. Distributed operating system is less scalable than Network Operating System.
4. While in Distributed Operating System fault tolerance is high.

Question # 7

The inconvenience of having to become an expert computer programmer in order to use the system at all. Without an operating system, there is no means by which to load programs, other than writing a boot loader program yourself, putting it on a disk that you can boot from, and having it load the program you actually want to run. Without an operating system, there are no device

drivers, so the user has to learn how to program ~~that~~ the machine to control the physical hardware. Without an operating system, there's no standard file system, so the user has to learn about disk blocks, how to allocate them and so forth.

Question # 5

The name of this algorithm comes from the round-robin principle, where each person gets an equal share of something in turns. It is the oldest & simplest scheduling algorithm, which is mostly used for multitasking.

In Round-robin scheduling, each ready task runs turn by turn only in a cyclic queue for a limited time slice. This algorithm also offers starvation free execution of processes.

Example of RR with ~~the~~ time Quantum = 2

Process	AT	Burst time	TAT: ETAT	WT: WT _{BT}
P ₁	0	5	14-0=14	14-5=9
P ₂	1	3 1	12-1=11	6 3=8
P ₃	2	2 1	5-2=3	3-1=2
P ₄	3	2 2	7-3=4	4-2=2

Question #1:

Purpose of operating system:

1) Primary Goals:

- => Convenience / user friendly
- => Execute user program and make solving user problem easier.
- = make the computer system convenient to use

2) Secondary Goals:

- => Efficiency
- => use the computer hardware in an efficient manner.