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P#1

Q No 1

An operating system has three main functions.

- (1) manage the computer resources, such as the central processing unit, memory, disk drives and printers.
- (2) establish a user interface and,
- (3) execute and provide some services for application software.

Q No 2

The advantages of multiprocessing system are, Increased throughput - By increasing the number of processors, more work can be completed in a unit time cost saving - Parallel system shares the memory, buses, peripherals etc.

Multiprocessor system thus saves money as compared to multiple single systems.

Example :-

A computer's capability to process more than one task simultaneously is called multiprocessing. A multiprocessing operating system is capable of running many programs simultaneously, and most modern network operating systems (NOSs) support multiprocessing.

QNO3:-

The main objective of multiprogramming is to have process running at all times. With this design, CPU utilization is said to be maximized.

minimize unused CPU time reduce incidence of peripheral-bound operations minimize total elapsed time prevent single programs from dominating the CPU.

Objective are;

- (1) Used in distributed system
- (2) maximize the throughput
- (3) Increase CPU utilization.

Q No 4

Benefits of Multithreading programming are:

- * Improved throughput.
- * Simultaneous and fully symmetric, use of multiple processors for computation and I/O.
- * Superior application responsiveness.
- * Improved server responsiveness.
- * Minimized system resource usage.
- * Program structure simplification.
- * Better communication.

Q No 5

Round-robin (RR) is one of the algorithms employed by process and network schedulers in computing.

As the term is generally used, time slices (also known as time quanta) are assigned to each process in equal portions and in circular order, handling all processes without priority (also known as cyclic executive).

Characteristics of Round-Robin Scheduling

Round Robin is a pre-emptive algorithm.
Round Robin is a hybrid model which is clock-driven.

Widely used scheduling method in traditional OS.

Advantage of Round-robin Scheduling

All the jobs get a fair allocation of CPU.

It deals with all process without any priority.

It gives the best performance in terms of average response time.

QNo 6

<u>Network Operating System</u>	<u>Distributed Operating System</u>
1. Network Operating System's main objective is to provide the local services to remote client.	Distributed Operating System's main objective is to manage the hardware resources.
2. In Network Operating System, communication takes place on the basis of files.	In this system communication takes place on the basis of messages and shared memory.
3. This system is more scalable than Distributed operating system.	Distributed Operating is less scalable than Network operating systems.
4. In Network operating system fault tolerance is less.	While in Distributed operating system fault tolerance is high.
5. Rate of autonomy in Network operating system is high.	The rate of autonomy in this system is less.
6. Ease of implementation in network operating system is also high.	While in this system ease of implementation is less.

Q No 7

Operating system is a required component of the computer system.

Without an operating system computer hardware is only an inactive electronic machine, which is inconvenient to user for execution of programs.

As the computer hardware or machine understands only the machine language.

Without an operating system, you are back to the computers in the 1950s.

(1) Each program you run has to be manually loaded.

Hopefully there is enough of a loader left that you can do so from a USB stick or something.

(2) Once you have loaded that program, it has complete control over your system.

You can run only one program at a time.

(3) Everything you want to do with the program has to be included in it.

You want a network browser. The entire networking stack has to be part of the browser including all the device drivers.

(4) Worse, if you want to download something, it cannot depend on convenient APIs to simplify the code.

Either it is built to run on your specific versions of phone, tablet or computer or it simply does not work for you.

