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Subject:- Operating System

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### Question N.O (1):-

Answer:-

An operating system is a system software or system program that is executed when the computer is turned on so that it can act as an interface between humans and machines.

A hardware or machine is not understood by humans so to understand what can be done with that machine, operating system is required. Some of the responsibilities of O.S are:-

- i) It manages the computer resources, such as central processing unit (CPU), memory, disk drives, and printers.
- ii) Establish a user interface.
- iii) Execute and provide services for applications software.

### Question N.O (2):-

Answer:-

Multiprocessing operating system support the use of more than one processor in close communication.

The advantage of multiprocessing system

#### i) **Increased Throughput**

By increasing the number of processors, more work can be completed in unit time.



ii)

### Cost Saving :-

It shares the memory, buses, peripherals etc. Multiprocessor system thus saves money as compared to multiple single systems. Also, if a number of programs are to operate on the same data, it is cheaper to store that data on one single disk and shared by all processor instead of using many copies of the same data.

### iii) Increased Reliability:-

In this system, as the workload is distributed among several processors, which results in increased reliability. If one processor fails then its failure may slightly slow down the speed but system will work smoothly.

### Question No (3) :-

Answer:-

There are several objectives that a multiprogramming system strive for:-

- i) Minimising unused CPU time.
- ii) Reduce incidence of peripheral-bound operations.

- iii) Minimising total elapsed time.
- iv) Preventing single programs from dominating CPU

As you can see, multiprogramming is geared towards actually making the CPU of a computer perform much better in pretty much every single aspect possible from optimising CPU time in order to maximise the "profit" that any given program can get out of it to reducing the amount of peripheral hogging that any program can actually do.

#### Question N.O (4):-

Answer:-

This concurrent activity speeds application up. One of the main benefits of multithreading is:-

MT allows both the full exploitation of parallel hardware and the effective use of multiprocessor subsystems. While MT is essential for taking advantages of the performance of symmetric multiprocessors, it also provides performance benefits on uni processor systems by improving the overlap of operations such as computation and I/O. Some of most important benefits of MT are :-



- i) Improved Throughput.
- ii) Simultaneous and fully symmetric use of multiprocessors for computation and I/O
- iii) Superior applications responsiveness.
- iv) Improved server responsiveness.
- v) Minimized system resource usage.
- vi) Program structure simplification.
- vii) Better communication.

### Question N.O(5):-

Answer:-

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).

### Question N.O(6):-

Answer:-

The main difference between ~~these~~ these two operating system (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 distribute operating system each node or system have same operating system.

**Question No (7):**

**Answer:-**

Operating system is a required component of the computer system.

Without an operating system computer hardware is only an inactive machine, which is inconvenient to users for executions of programs.

As the computer hardware or machine understands only the machine language it is difficult to develop each and every program in machine language in order to execute it.

Thus without operating system execution of user programs or to solve user problems is extremely difficult.