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Subject : Operating System

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Mid Semester Assignment
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Subject : Operating System Concepts

Section A

* Question No: 1 (M-1)

The hardware mechanism that enable a device to notify CPU is called an Interrupt

- (▶) Interrupt
- ▶ Signal
- ▶ Trap
- ▶ Process

* Question No: 2 (M-1)

The Section of the process control block comprises of Page and Segment tables. Memory related information.

- (▶) Memory related information
- ▶ Accounting information
- ▶ Register information
- ▶ Scheduling information

* Question No: 3 (M-1)

The wait System call. Suspends the Calling process.

- Fork
- (wait)
- exec
- exit

* Question No: 4 (M-1)

In Asymmetric addressing, the recipient is not required to name the Sender.

- Symmetric
- (Asymmetric)
- Both Symmetric and asymmetric
- None of the given option.

* Question No: 5 (M-1)

Ps Command to gives a Snapshot of the current processes.

- (Ps)
- top
- who
- ls

* Question NO: 6 (M-1)

Fg Command to resume the execution of a Suspended job foreground.

- (▶) Fg
- ▶ bg
- ▶ jobs
- ▶ Kill

* Question NO: 7 (M-1)

You can use the jobs Command to display the Status of Suspended and background processes.

- ▶ Fg
- ▶ bg
- (▶) jobs
- ▶ Kill

* Question NO 8: (M-1)

You can terminate a foreground Process by pressing <Ctrl-C>.

- ▶ <Ctrl-A>
- (▶) <Ctrl-C>
- ▶ <Ctrl-I>

- None of the given options.

* Question NO: 9 (M-1)
A time Sharing System is
All of these
- Multi-tasking
- Interactive
- Multi user
- (All of these.)

* Question NO: 10 (M-1)
The main Characteristic of a Real time System is.
- Efficiency
- Large virtual Memory
- Large Secondary Storage device
- (Usability)

* Question NO: 11 (M-1)
Shared Libraries and Kernel modules are Stored in directory.
- /bin
- /dev

- /boot
- (✓) /lib

* Question NO : 12 (M-1)
long term Scheduler Selects the Process the job Pool Put them main memory.

- (✓) Long term
- Short term
- Medium term
- Swapper

* Question NO : 13 (M-1)
In indirect inter process Communication a Sender mention the name of the recipient.

- do
- (✓) do not
- do
- do not

* Question NO : 14 (M-1)
A is an integer variable that, apart from initialization is

accessible only through two Standard atomic operations: wait and Signal.

- (▲) Semaphore
- ▲ Monitor
- ▲ Critical region
- ▲ Critical Section:

* **Question NO : 15 (M-1)**

A Semaphore that Cause Busy-waiting is termed as

- (▲) Spinlock
- ▲ Monitor
- ▲ Critical region
- ▲ Critical Section.

* **Question NO : 16 (M-1)**

The execution of Critical Sections must NOT be mutually exclusive.

- ▲ True
- (▲) False
- ▲ True
- ▲ False

* Question NO: 17 (M-1)

The performance of Round Robin algorithm does NOT depends heavily on the size of the time quantum.

- (a) True
- False
- True
- False

* Question NO: 18 (M-1)

The following requirement for Solving Critical Section problem is Known as _____ "There exists a bound on the number of times that other processes are allowed to enter their Critical Sections after a process has made a request to enter is Critical Section and before request granted."

- Progress
- (a) Bounded waiting
- Mutual Exclusion
- Critical Region

* Question NO: 19 (M-1)

The Critical Section problem can be Solved by the following except.

- Software based Solution
- (Firmware based Solution)
- Operating System based Solution
- Hardware based Solution.

* Question NO: 20 (M-1)

_____ is also called Swapper.

- Swap Space
- (Medium term Scheduler)
- Short term Scheduler
- long term Scheduler.

(Section B)

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* Question NO: 23 (M-5)
Considering the Resource Sharing feature of thread, what do you think is 'resource sharing' an advantage of a thread or disadvantage of a thread. Explain yours answer briefly.

Answer:-

* **The Advantages and Disadvantages of Threads**

Advantages of threads are:

- **Responsiveness**

Multithreading an interactive application may allow a program to continue running even if part of it is blocked or is performing a lengthy operation, thereby increasing responsiveness to the user.

· Resource Sharing

By default, threads share the memory and the resources of the process to which they belong. Code sharing allows an application to have several different threads of activity all within the same address space.

· Economy

Allocating memory and resources for process creation is costly. Alternatively, because threads share resources of the process to which they belong, it is more economical to create and context switch threads.

• Utilization of multiprocessor architectures:

The benefits of multithreading of multithreading can be greatly increased in a multiprocessor environment, where each thread may be running in parallel on a different processor. A single threaded process can only run on one CPU no matter how many are available.

* Disadvantages of threads are:

• Resource Sharing

Whereas resource sharing is one of the major advantages of threads, it is also a disadvantage because proper synchronization is needed.

between threads for accessing the shared resources (e.g., data and files).

- **Difficult Programming model.**

It is difficult to write, debug and maintain multi-threaded programs for an average user. This is particularly true when it comes to writing code for synchronized access to shared resources.

(Section B)

* Question NO: 21 (M-2)
Write the formula/ procedure for Calculating the waiting time in preemptive Shortest job First Scheduling?

Answer:-

Preemptive SJF Scheduling is Sometimes Called Shortest-remaining-time-first Scheduling we illustrate the working of the SJF algorithm by using the following System State.

Process	Arrival Time	Burst Time
P1	0.0	7
P2	2.0	4
P3	4.0	1
P4	5.0	4

Memory related information:-

- This Section of the process Control block Comprises of Page and Segment tables.
- It also Stores the data Contained in base and limit registers.

Accounting information:-

- This Section of process Control block. Stores the details relate to Central processing unit (CPU) utilized and execution time of a process.

* Question No: 22 (M-3)
If a process exits and there are still threads of that process running, will they continue to run?

Answer:
If the thread in the process is running and receives a signal (Say Ctrl-C) and the default action of the signal is to terminate a process, does the running thread terminates or the parent process will also terminate. That happens to the threads if the running process terminates because of some signal.
As the name itself suggests, multi tasking refers to execution of multiple tasks (Say processes, programs, threads etc. at a time.

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- Multiprocessing occurs by means of Parallel processing whereas Multi Programming occurs by Switching from one process to other.