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# Mid Semester Assignment

## **OPERATING SYSTEMS CONCEPTS**

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***BS (SE) Section B (8<sup>th</sup> semester)***



Question No: 1 ( M - 1 )

*In -----addressing, the recipient is not required to name the sender.*

**Answer :** ( None of the given options )

Question No: 2 ( M - 1 )

*-----command to resume the execution of a suspended job in the foreground*

**Answer :** ( fg )

Question No: 3 ( M - 1 )

*The ----- system call suspends the calling process.*

**Answer :** ( wait )

Question No: 4 ( M - 1 )

*The hardware mechanism that enables a device to notify CPU is called an -----*

**Answer :** ( Interrupt )

Question No: 5 ( M - 1 )

*----- command gives a snapshot of the current processes.*

**Answer :** ( ps )

Question No: 6 ( M - 1 )

*The section of the process control block comprises of page and segment tables*

**Answer : ( Memory related information )**

Question No: 7 ( M - 1 )

A time sharing system is

**Answer : ( All of these )**

Question No: 8 ( M - 1 )

You can terminate a foreground process by pressing -----

**Answer : ( <Ctrl-C> )**

Question No: 9 ( M - 1 )

*A time sharing system is You can use the ----- command to display the status of suspended and background processes*

**Answer : ( \_jobs )**

Question No: 10 ( M - 1 )

The main characteristic of a Real time system is

**Answer : ( Usability )**

Question No: 11 ( M - 1 )

*Shared libraries and kernel modules are stored in \_\_\_\_\_ directory*

**Answer : ( \_/lib )**

Question No: 12 ( M - 1 )

\_\_\_\_\_ scheduler selects the process from the job pool and put them in main memory.

**Answer : ( Long term )**

Question No: 13 ( M - 1 )

In indirect inter process communication, a sender \_\_\_\_ mention the name of the recipient.

**Answer : ( 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.

**Answer : ( Semaphore )**

Question No: 15 ( M - 1 )

\_\_\_\_\_ is also called Swapper.

**Answer : ( Medium term scheduler )**

Question No: 16 ( M - 1 )

The execution of critical sections must NOT be mutually exclusive

**Answer : ( False )**

Question No: 17 ( M - 1 )

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

**Answer : ( True )**

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 its critical section and before that request is granted."*

**Answer : ( Bounded Waiting )**

Question No: 19 ( M - 1 )

The critical section problem can be solved by the following except

**Answer : ( Firmware based solution )**

Question No: 20 ( M - 1 )

A semaphore that cause Busy-Waiting is termed as \_\_\_\_\_.

**Answer : ( Spinlock )**

### **Section B**

Question No: 21 ( M - 2 )

***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 :**

A **thread** is a basic unit of CPU utilization, consisting of a program counter, a stack, and a set of registers, ( and a thread ID. )

- Traditional ( heavyweight ) processes have a single thread of control  
- There is one program counter, and one sequence of instructions that can be carried out at any given time
- Threaded applications have within a single process, each having their own program counter, stack and set of registers, but sharing common code, data, and certain structures such as open files.

Question No: 22 ( M - 3 )

***If a process exits and there are still threads of that process running, will they continue to run?***

#### **Answer :**

A process is an instance of program execution. This means if you open up two browser windows then ou have two processes even though they are running the same program.

Thread in a process can execute of program code at the same time ,they can also execute the same parts of the code at the same time , but with different execute state:

- They have independent current instructions, they have appear independent program counters.
- They are working with different data, they are appear to be working with independent registers.

Question No: 23 ( M - 5 )

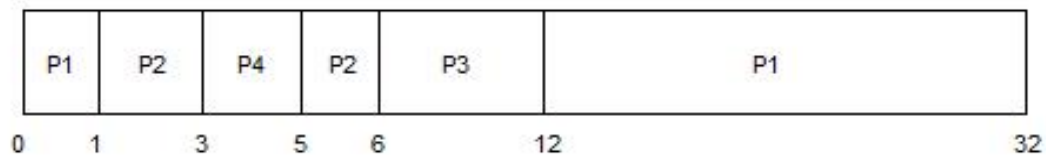
***Write the formula/ procedure for calculating the waiting time in preemptive Shortest Job First scheduling.***

**Answer :**

Consider the following Four process:

PROCESS	BURST TIME	ARRIVAL TIME
P1	21	0
P2	3	1
P3	6	2
P4	2	3

The GANTT chart for Preemptive Shortest Job First Scheduling will be,



The average waiting time will be,  $(( 5-3 ) + ( 6-2 ) + ( 12-1 )) / 4 = 4.25$  ms

### Order in which process gets executed

4 2 3 1

### Processes Burst time Waiting time Turn around time

4 2 0 2

2 3 2 5

3 6 5 11

1 21 11 32

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Average waiting time = 4.5

Average turn around time = 12.5

**End of the Assignment**

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