Quiz-1_27-02-2025

saranshprajapati2022@vitbhopal.ac.in Switch account

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* Indicates required question

Email *

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Registration No *

22BCE10795

Name *

Saransh Prajapati

email Id *

saranshprajapati2022@vitbhopal.ac.in

Which of the following is NOT a valid inter-process communication mechanism? *

- Pipes
- Semaphores
- Shared memory
- Thread synchronization

In the context of synchronization, what does a "critical section" refer to? *

- ○ A section of code that is critical for the proper functioning of the program
- ◉ A section of code that must be executed atomically by only one process or thread at a time
- ○ A section of code that handles error conditions
- ○ A section of code that performs I/O operations

What are the essential contents in each entry of a page table? *

- ◉ Page frame number
- ○ Both virtual page number and page frame number
- ○ Virtual page number
- ○ Access right information

Which of the following scheduling algorithms is non-preemptive? *

- ○ Round Robin
- ◉ First-In First-Out
- ○ Multilevel Queue Scheduling
- ○ Multilevel Queue Scheduling with Feedback

Consider a set of three processes P1, P2 and P3 arriving in the order P1, P2, P3 at time instant 0 and having CPU burst times as shown below. Calculate the average waiting time and average turn around using FCFS algorithm. *

Process	Burst Time
P1	24
P2	3
P3	3

- ◉ Avg Waiting Time:17ms, Avg TAT:27ms
- ○ Avg Waiting Time: 11ms, Avg TAT:27ms
- ○ Avg Waiting Time:17ms, Avg TAT:37ms
- ○ Avg Waiting Time:11ms, Avg TAT:37ms

Use the Shortest Job first Method in Primitive way to Calculate Average Waiting time and Average Turnaround Time for this question. *

Processes(P)	Burst Time	Arrival Time
P1	4	0
P2	2	1
P3	6	2

- ○ Avg. TAT : 6.57, Avg. WT : 0.67
- ◉ Avg. TAT : 5.67, Avg. WT : 1.67
- ○ Avg. TAT : 1.67, Avg. WT : 5.67
- ○ Avg. TAT : 0.67, Avg. WT : 1.67

Use the Shortest Job first Method in Non-Primitive way to Calculate Average Waiting time and Average Turnaround Time this question. *

Processes(P)	Burst Time	Arrival Time
P1	5	0
P2	3	1
P3	8	2

- ○ Avg. TAT : 3.33, Avg. WT : 8.67
- ○ Avg. TAT : 0.67, Avg. WT : 1.67
- ◉ Avg. TAT : 8.67, Avg. WT : 3.33
- ○ Avg. TAT : 1.67, Avg. WT : 0.67

In a system with two processors, if four processes arrive for execution with burst times of 6, 4, 8, and 10 units, and a scheduling algorithm assigns them to processors in a Round Robin fashion with a time quantum of 5 units, what will be the total waiting time for all processes? *

- ◉ 7 units
- ○ 9 units
- ○ 11 units
- ○ 13 units

Three processes A,B and C each execute a loop of 50 iterations. In each iteration of the loop, a process performs a single computation that requires tc CPU milliseconds and then initiates a single I/O operation that lasts for tio milliseconds. It is assumed that the computer where the processes execute has sufficient number of I/O devices and the OS of the computer assigns different I/O devices to each process. Also the scheduling overhead of the OS is negligible. The processes have the following characteristics. *

Process ID	Arrival Time	tc	tio
P1	0	100ms	450ms
P2	5	350ms	450ms
P3	10	200ms	250ms

The system is using round robin CPU scheduling with time quanta of 50ms. The time in milliseconds at which the process C would complete its first I/O operation is

- ○ 750ms
- ◉ 1000ms
- ○ 500ms
- ○ 1250ms

Consider the peterson's algorithm for mutual exclusion between two concurrent processes K and L. The program executed by process is shown below. (Marks2) *

While(True)

{

Interested[k]=true;

Turn =L

While(X);

Enter critical section,

Perform action

Exit critical section

Interested[k]=False

}

For the program to guarantee mutual exclusion the predicate X in the while loop should be

- (●) Interested[L]==True and Turn ==L
- ( ) Interested[L]!=True and Turn ==L
- ( ) Interested[k]==True and Turn ==k
- ( ) Interested[k]==True and Turn ==L

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