

Unit 2 Operating System Assignment

(Upgrade to Pro Version to Remove the Watermark)

Solve any 8 Question

1. Define term Process and Explain if it inside the memory.
2. Differentiate between program and processes.
3. With the help of a diagram explain different states of a process.
4. What is a PCB (Process Control Block)? Explain its all components.
5. Explain the term Process Scheduling with its proper layout and components.
6. Write short notes on
 - a. long Term Scheduler,
 - b. Medium or Mid Term Scheduler,
 - c. Short Term Scheduler
7. With the help of a diagram, describe the actions taken by the kernel to context switch between process?
8. Briefly discuss Process Creation and Termination procedures.
9. List out the advantage of process cooperation
10. Explain the two fundamental models of IPC.
11. Describe communication links that exists between sender and receiver.
12. Enumerate any three classical problems of synchronisation?
13. How IPC using shared memory is implemented using Bounded buffer.
14. Explain Dining Philosophers problem.
15. What are the necessary conditions that cause deadlock in a system?
16. Explain Readers-Writers Problem.
17. Explain the producer and consumer Problem?
18. What is thread? Explain difference between process and thread.
19. With the help of a diagram explain the different states of a thread.
20. Describe the flow of control of thread.
21. Differentiate single-thread and multi-threaded.
22. Write Short Notes on: One-To-One Thread Model, Many-To-Many Thread Model, Many-To-Many Thread Model
23. What is the need of process scheduling in OS?
24. Explain the Important criteria of CPU Scheduling.
25. What are objectives of Process Scheduling Algorithm
26. Explain Terms: Arrival Time, Completion Time, Burst Time, Turn Around Time, Waiting Time
27. Differentiate Pre-emptive Scheduling and Non-Pre-emptive Scheduling.
28. What is the main problem with Shortest Job First scheduling and what is its solution?
29. Describe Scheduling Algorithms: FCFS, SJF, Round-Robin and Priority Based scheduling
30. What is meant by system call? Give an example of system call used in process management.

Solve all Following Question

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1. Find the average waiting time for pre-emptive and non pre-emptive SJF scheduling for the following set of processes

Process Arrival Time Burst time

P1	0	8
P2	2	4
P3	4	9
P4	5	5

2. Find the average waiting time and average turnaround time for the processes given in the table below using:- i) SJF Scheduling Algorithm ii) Priority Scheduling Algorithm

Process Arrival Time (ms) CPU Burst Time (ms) Priority

P1	0	5	3
P2	2	4	1
P3	3	1	2
P4	5	2	4

3. Draw the Gantt Chart, find the average waiting time for the following algorithms

i) FCFS ii) Pre-emptive Priority iii) Non-pre-emptive priority

Process Arrival Time(ms) Burst time(ms) Priority

P1	0	8	4
P2	2	6	1
P3	2	1	2
P4	1	9	2
P5	3	3	3

4. Assume you have the following jobs shown in the table to execute with one processor. Calculate the average waiting time and average turnaround time if the system uses RR Scheduling and the time slice is 4ms

Process	Burst Time (ms)	Arrival time
0	11	0
1	13	5
2	6	9
3	9	13
4	12	17

5. Using Pre-emptive SJF scheduling draw the Gantt Chart and Calculate the average waiting time for the given data.

Process	Arrival Time	Burst Time
P1	0	19
P2	1	11
P3	2	83
P4	3	15

6. If the different jobs and their arrival time and burst time are given below.

Find average waiting time using FCFS and Pre-emptive SJF:

Process	Arrival Time	Burst Time
P1	0	8
P2	1	4
P3	2	9
P4	3	5