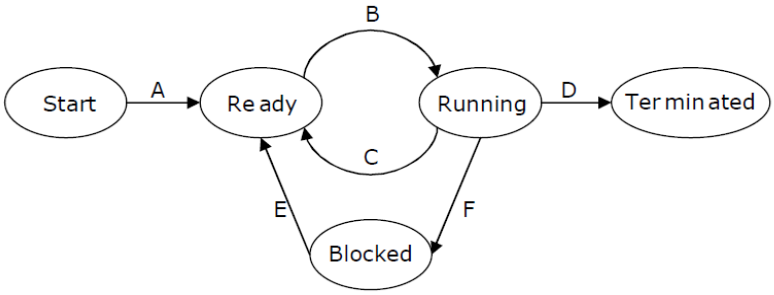
Tutorial-3

1. In the following process state transition diagram for a uniprocessor system, assume that there are always some processes in the ready state: Now consider the following statements:



I. If a process makes a transition D, it would result in another process making transition A immediately.
II. A process P2 in blocked state can make transition E while another process P1 is in running state.
III. The OS uses preemptive scheduling.
IV. The OS uses non-preemptive scheduling.

Which of the above statements are TRUE?
(A) I and II
(B) I and III
(C) II and III
(D) II and IV

2. Discuss six and seven states of the process. How it overcomes the shortcoming of the five-state process model?
3. For a system with 'n' processors, maximum how many processes can be in the
   A. Ready state
   B. Blocked state
   C. Running state
4. Indicate whether the following transitions are possible directly, also mention the reasons for those transitions
   A. Running to Ready
   B. Running to blocked
   C. Blocked to Running
   D. Running to Terminated
5. How we can diagrammatically represent the working of scheduler in process states? Explain the term swap-in and swap-out?
6. Explain Dispatcher. What is the difference between dispatcher and schedular?
7. Consider the processes P1, P2, P3, P4 given in the below table, arrives for execution in the same order, with Arrival Time 0, and given Burst Time

Process	Burst time
P1	21
P2	3
P3	6
P4	2

a. Find the average waiting time and average turn-around time using the FCFS scheduling algorithm.
b. Find the average waiting time and average turn-around time using the SJF non-pre-emptive scheduling algorithm.

8. Consider the processes P1, P2, P3, P4 given in the below table, arrives for execution in the same order, with Arrival time, and given Burst time, find the average waiting time and burst time using the FCFS scheduling algorithm.

Process	Arrival time	Burst time
P1	0	5
P2	2	3
P3	6	2
P4	7	3

9. Consider the processes P1, P2, P3, P4 given in the below table, arrives for execution in the same order with given arrival time, and given Burst time, find the average waiting time and turn-around time using the pre-emptive SJF scheduling algorithm.

Process	Arrival time	Burst time
P1	0	7
P2	2	3
P3	3	1
P4	5	4