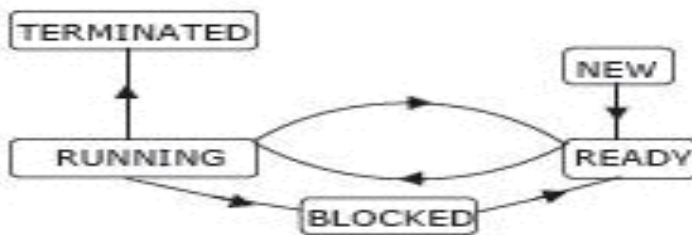


OS Tutorial Process Scheduling Questions

1) Which scheduling policy is most suitable for a time shared operating system?

- a) Shortest Job First
- b) Round Robin
- c) First Come First Serve
- d) Elevator

2) The process state transition diagram in the below figure is representative of



- a) a batch operating system
- b) an operating system with a preemptive scheduler
- c) an operating system with a non-preemptive scheduler
- d) a uni-programmed operating system

3) Which of the following statements are true?

- I. Shortest remaining time first scheduling may cause starvation
- II. Preemptive scheduling may cause starvation
- III. Round robin is better than FCFS in terms of response time

- (A) I only
- (B) I and III only
- (C) II and III only
- (D) I, II and III

4) A scheduling algorithm assigns priority proportional to the waiting time of a process. Every process starts with priority zero (the lowest priority). The scheduler re-evaluates the process priorities every T time units and decides the next process to schedule. Which one of the following is TRUE if the processes have no I/O operations and all arrive at time zero?

- (A) This algorithm is equivalent to the first-come-first-serve algorithm
- (B) This algorithm is equivalent to the round-robin algorithm.
- (C) This algorithm is equivalent to the shortest-job-first algorithm..
- (D) This algorithm is equivalent to the shortest-remaining-time-first algorithm

5) The maximum number of processes that can be in Ready state for a computer system with n CPUs is

- (A) n (B) n^2 (C) 2^n (D) Independent of n

6) A uni-processor computer system only has two processes, both of which alternate 10ms CPU bursts with 90ms I/O bursts. Both the processes were created at nearly the same time. The I/O of both processes can proceed in parallel. Which of the following scheduling strategies will result in the least CPU utilization (over a long period of time) for this system ?

- (A) First come first served scheduling
 (B) Shortest remaining time first scheduling
 (C) Static priority scheduling with different priorities for the two processes
 (D) Round robin scheduling with a time quantum of 5 ms

7) For the processes listed in the following table, which of the following scheduling schemes will give the lowest average turnaround time?

Process	Arrival Time	Processing Time
A	0	3
B	1	6
C	4	4
D	6	2

- a) First Come First Serve
 b) Non-preemptive Shortest Job First
 c) Shortest Remaining Time
 d) Round Robin with Quantum value two

8) Consider three CPU-intensive processes, which require 10, 7 and 3 time units and arrive at times 0, 2 and 6 , respectively. How many context switches are needed if the operating system implements a shortest remaining time first scheduling algorithm? Do not count the context switches at time zero and at the end.

- a) 1 b) 2 c) 3 d) 4

9) The jobs are assumed to have arrived at time 0+ and in the order p,q,r,s,t. Calculate the departure time (completion time) for job p if scheduling is round robin with time slice 1, where burst time of p,q,r,s,t processes are 4,1,8,1,2 respectively

- a) 4 b) 10 c) 11 d) 12

10) An operating system uses Shortest Remaining Time first (SRT) process scheduling algorithm. Consider the arrival times and execution times for the following processes:

P id	RT	AT
P1	20	0
P2	25	15
P3	10	30
P4	15	45

What is the total waiting time for process P2?

- (A) 5 (B) 15 (C) 40 (D) 55

11) Consider the following set of processes that need to be scheduled on a single CPU. All the times are given in milliseconds.

Process Name	Arrival Time	Execution Time
A	0	6
B	3	2
c	5	4
D	7	6
E	10	3

Using the *shortest remaining time first* scheduling algorithm, the average process turnaround time (in msec) is

- (A) 7.2 (B) 8 (C) 7 (D) 7.5

Answers:

- 1) B 2) B 3) D 4) B 5) D 6) D 7) C 8) C 9) C 10) B 11) A