**UNIT-3 (Process Scheduling)**

1. Which of the following do not belong to queues for processes?  
   a) Job Queue **b) PCB queue**c) Device Queue d) Ready Queue
2. When the process issues an I/O request :  
   **a) It is placed in an I/O queue** b) It is placed in a waiting queue  
   c) It is placed in the ready queue d) It is placed in the Job queue
3. When a process terminates :  
   **a) It is removed from all queues** b) It is removed from all, but the job queue  
   c) Its process control block is de-allocated d) Its process control block is never de-allocated
4. What is a long-term scheduler?  
   **a) It selects which process has to be brought into the ready queue**b) It selects which process has to be executed next and allocates CPU  
   c) It selects which process to remove from memory by swapping  
   d) None of the mentioned
5. What is a medium-term scheduler?  
   a) It selects which process has to be brought into the ready queue  
   b) It selects which process has to be executed next and allocates CPU  
   **c) It selects which process to remove from memory by swapping**d) None of the mentioned
6. The only state transition that is initiated by the user process itself is :  
   **a) block** b) wakeup  
   c) dispatch d) none of the mentioned
7. In a multiprogramming environment :  
   a) the processor executes more than one process at a time  
   b) the programs are developed by more than one person  
   **c) more than one process resides in the memory**  
   d) a single user can execute many programs at the same time
8. Suppose that a process is in “Blocked” state waiting for some I/O service. When the service is completed, it goes to the :  
   a) Running state **b) Ready state**c) Suspended state d) Terminated state
9. **Consider a set of n tasks with known runtimes r1, r2, … rn to be run on a uniprocessor machine. Which of the following processor scheduling algorithms will result in the maximum throughput? (GATE 2001)**   
   (a) Round-Robin   
   **(b) Shortest-Job-First**(c) Highest-Response-Ratio-Next   
   (d) First-Come-First-Served
10. **Which of the following does not interrupt a running process?**  
    (a) A device   
    (b) Timer  
    **(c) Scheduler process**   
    (d) Power failure
11. **Which of the following scheduling algorithms is non-preemptive?**a) Round Robin  
    **b) First-In First-Out**  
    c) Multilevel Queue Scheduling  
    d) Multilevel Queue Scheduling with Feedback
12. **Consider the 3 processes, P1, P2 and P3 shown in the table**

Process Arrival time Time unit required

P1 0 5

P2 1 7

P3 3 4

**The completion order of the 3 processes under the policies FCFS and RRS (round robin scheduling with CPU quantum of 2 time units) are**   
(A) **FCFS**: P1, P2, P3 **RR2**: P1, P2, P3   
(B) **FCFS**: P1, P3, P2 **RR2**: P1, P3, P2  
**(C) FCFS: P1, P2, P3 RR2: P1, P3, P2**   
(D) **FCFS**: P1, P3, P2 **RR2**: P1, P2, P3

1. **Consider the following table of arrival time and burst time for three processes P0, P1 and P2.**

Process Arrival time Burst Time

P0 0 ms 9 ms

P1 1 ms 4 ms

P2 2 ms 9 ms

**The pre-emptive shortest job first scheduling algorithm is use(D) Scheduling is carried out only at arrival or completion of processes. What is the average waiting time for the three processes?**  
**(A) 5.0 ms**(B) 4.33 ms  
(C) 6.33 ms  
(D) 7.33 ms

1. **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**
2. **An operating system uses Shortest Remaining Time first (SRT) process scheduling algorithm. Consider the arrival times and execution times for the following processes**:

Process Execution time Arrival time

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

1. **Pre-emptive scheduling, is the strategy of temporarily suspending a running process**

**(A) Before the CPU time slice expires**

(B) to allow starving processes to run

(C) when it requests I/O)

(D) none of the above

1. **Consider three CPU-intensive processes, which require 10,20 and 30 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