L5 Scheduling

1. What characterizes a CPU-bound process?
A) Frequent I/O operations with short CPU bursts
B) Long CPU bursts with infrequent I/O waits
C) Equal distribution of CPU and I/O operations
D) Prioritizes user interaction
Answer:

2. Only in preemptive scheduling (not in non-preemptive scheduling), a process can transition directly from:
A) Running → Waiting
B) Running → Ready
C) Ready → Terminated
D) Waiting → Ready
Answer:

3. Which metric is calculated as CompletionTime - ArrivalTime?
A) Waiting time
B) Response time
C) Throughput
D) CPU utilization
Answer:

4. The convoy effect can occur with which scheduling algorithm?
A) Round Robin (RR)
B) Shortest Job First (SJF)
C) First-Come-First-Served (FCFS)
D) Shortest Remaining Time First (SRTF)
Answer:

5. In Round Robin scheduling, if there are 5 jobs in the ready queue and time quantum=20ms, what's the maximum wait time for any job?
A) 40ms
B) 80ms
C) 100ms
D) 120ms
Answer:

6. What is the primary advantage of Shortest Remaining Time First (SRTF)?
A) Maximizes CPU utilization
B) Minimizes average response time
C) Ensures fairness among all jobs
D) Avoids starvation
Answer:

7. Which scheduling algorithm requires prior knowledge of job execution times?
A) FCFS
B) RR

C) SJF
D) Multilevel Queue
Answer:

8. In exponential averaging for burst prediction ($\tau_n = \alpha t_{n-1} + (1-\alpha)\tau_{n-1}$), what does $\alpha=1$ imply?
A) Only consider historical average
B) Only consider most recent burst
C) Equal weight to all bursts
D) No prediction capability
Answer:

9. What is a key disadvantage of priority scheduling?
A) High context-switch overhead
B) Difficulty in implementation
C) Potential for starvation
D) Poor CPU utilization
Answer:

10. Which scheduling system uses dynamic priority adjustment based on past behavior?
A) Multilevel Queue
B) Round Robin
C) Multilevel Feedback Queue
D) FCFS
Answer:

11. For the job sequence P1(24ms), P2(3ms), P3(3ms) in FCFS order, what's the average waiting time?
A) 10ms
B) 17ms
C) 24ms
D) 27ms
Answer:

12. What is the primary purpose of a time quantum in Round Robin?
A) Prevent CPU monopolization
B) Prioritize I/O-bound processes
C) Reduce job completion time
D) Improve cache locality
Answer:

13. Which algorithm would be best for minimizing response time in an interactive system?
A) FCFS
B) RR with small quantum
C) SJF
D) Multilevel Queue
Answer:

14. What scheduling characteristic does this diagram represent?

Gantt Chart

A) FCFS
B) SJF
C) RR
D) Priority
Answer:

15. Which statement about SRTF is FALSE?
A) It minimizes average waiting time
B) It requires prior knowledge of burst times
C) It's non-preemptive
D) Can cause starvation of long jobs
Answer:

16. In MLFQ scheduling, what typically happens to a CPU-bound job?
A) Gets promoted to higher queues
B) Maintains its initial priority
C) Drops to lower priority queues
D) Receives larger time quanta
Answer:

17. What percentage of CPU time is lost to context switching if quantum=25ms and switch cost=0.5ms?
A) 1%
B) 2%
C) 5%
D) 10%
Answer:

18. What scheduling method combines multiple queues with different priorities?
A) SRTF
B) Multilevel Queue
C) RR
D) Exponential Queue
Answer:

19. Which scenario benefits most from SRTF?
A) Batch processing system
B) Real-time system
C) Interactive system with mixed job lengths
D) Embedded system with fixed tasks
Answer: