UNIT-II: CPU Scheduling and Deadlocks

Multiple Choice Questions (MCQs)

1. CPU scheduling is used to:

a) Manage files
b) Select a process for CPU execution
c) Allocate memory
d) Manage I/O devices

Answer: b) Select a process for CPU execution

2. Which of the following is a CPU scheduling criterion?

a) Throughput
b) File size
c) Memory size
d) Disk capacity

Answer: a) Throughput

3. Which scheduling algorithm follows the First Come First Serve principle?

a) Round Robin
b) FCFS
c) SJF
d) Priority Scheduling

Answer: b) FCFS

4. Which scheduling algorithm allocates CPU based on the shortest burst time?

a) FCFS
b) Round Robin
c) SJF
d) FIFO

Answer: c) SJF

5. In Round Robin scheduling, each process is assigned a fixed time called:

a) Burst time
b) Turnaround time
c) Time quantum
d) Waiting time

Answer: c) Time quantum

6. Which scheduling algorithm is mainly used in time-sharing systems?

a) FCFS
b) Round Robin
c) SJF
d) Priority Scheduling

Answer: b) Round Robin

7. Multiple-Processor Scheduling deals with systems having:

a) Single CPU
b) Multiple CPUs
c) No CPU
d) Virtual CPU only

Answer: b) Multiple CPUs

8. Which system call is used to create a new process in UNIX?

a) exec()
b) fork()
c) wait()
d) exit()

Answer: b) fork()

9. The system call used to terminate a process is:

a) fork()
b) wait()
c) exit()
d) exec()

Answer: c) exit()

10. Which system call causes the parent process to wait for child completion?

a) exec()
b) fork()
c) wait()
d) exit()

Answer: c) wait()

11. The exec() system call is used to:

a) Create a process
b) Replace a process image with a new program
c) Terminate a process
d) Suspend a process

Answer: b) Replace a process image with a new program

12. A deadlock occurs when:

a) A process completes execution
b) Two or more processes wait indefinitely for resources
c) CPU remains idle
d) Memory becomes full

Answer: b) Two or more processes wait indefinitely for resources

13. Which of the following is one of the necessary conditions for deadlock?

a) Preemption
b) Mutual Exclusion
c) Scheduling
d) Swapping

Answer: b) Mutual Exclusion

14. The circular wait condition in deadlock means:

a) Processes wait in a circular chain for resources
b) Processes execute in a circular manner
c) CPU scheduling is circular
d) Resources are allocated randomly

Answer: a) Processes wait in a circular chain for resources

15. Which algorithm is used for deadlock avoidance?

a) FCFS Algorithm
b) Banker's Algorithm
c) Round Robin Algorithm
d) Priority Algorithm

Answer: b) Banker's Algorithm

16. Deadlock prevention ensures that:

a) Deadlocks never occur
b) Deadlocks are detected after occurrence
c) Processes terminate immediately
d) Resources are unlimited

Answer: a) Deadlocks never occur

17. Which method allows deadlocks to occur and then detects them?

a) Deadlock Prevention
b) Deadlock Avoidance
c) Deadlock Detection
d) Deadlock Ignorance

Answer: c) Deadlock Detection

18. Recovery from deadlock may involve:

a) Process termination
b) Resource preemption
c) Both a and b
d) None of these

Answer: c) Both a and b

19. The "hold and wait" condition means a process:

a) Holds resources while waiting for additional resources
b) Releases all resources before requesting new ones
c) Never waits for resources
d) Executes continuously

Answer: a) Holds resources while waiting for additional resources

20. Which of the following is not a deadlock handling method?

a) Prevention
b) Avoidance
c) Detection
d) Compilation

Answer: d) Compilation

Fill in the Blanks

1. The process of selecting a process for execution is called CPU **_____**.
   Answer: scheduling
2. The number of processes completed per unit time is called **_____**.
   Answer: throughput
3. FCFS stands for **_____ Come First Serve**.
   Answer: First
4. The scheduling algorithm that uses a fixed time slice is **_____ Robin**.
   Answer: Round

5. In SJF scheduling, the process with the shortest CPU _____ is selected first.
   Answer: burst
6. Multiple-Processor Scheduling is applicable in systems with multiple _____.
   Answer: processors
7. The UNIX system call used to create a child process is _____**()**.
   Answer: fork
8. The system call used to terminate a process is _____**()**.
   Answer: exit
9. The _____**()** system call causes a parent process to wait for child completion.
   Answer: wait
10. The _____**()** system call replaces the current process image with a new program.
    Answer: exec
11. A situation where processes wait indefinitely for resources is called _____.
    Answer: deadlock
12. Deadlock can occur only if four necessary _____ are satisfied.
    Answer: conditions
13. The condition where only one process can use a resource at a time is called _____ **Exclusion**.
    Answer: Mutual
14. In the _____ **and wait** condition, a process holds resources while waiting for additional ones.
    Answer: hold
15. The condition in which resources cannot be forcibly taken away is called _____ **Preemption**.
    Answer: No
16. A circular chain of waiting processes is known as _____ **Wait**.
    Answer: Circular
17. The Banker's Algorithm is used for deadlock _____.
    Answer: avoidance
18. Deadlock _____ ensures that at least one of the necessary conditions never holds.
    Answer: prevention
19. Deadlock _____ identifies deadlocks after they occur.
    Answer: detection
20. One method of recovering from deadlock is process _____.
    Answer: termination