OPERATING SYSTEMS

PROCESS MANAGEMENT – EASY LEVEL

1. Which of the following best describes a process?
   A) A program in execution
   B) A file stored on disk
   C) A thread of control
   D) A compiler instruction
   Answer: A

2. Which of these is responsible for scheduling processes?
   A) Compiler
   B) CPU Scheduler
   C) Linker
   D) Loader
   Answer: B

3. Which state is a process in when it is waiting for I/O?
   A) Ready
   B) Running
   C) Blocked/Waiting
   D) New
   Answer: C

4. The part of the operating system that manages processes is called:
   A) Process Manager
   B) Kernel
   C) Loader
   D) Linker
   Answer: B

5. Which of the following is not a process state?
   A) New
   B) Ready
   C) Running
   D) Compiling
   Answer: D

6. A context switch occurs when:
   A) A process is created
   B) The CPU switches from one process to another
   C) A program is compiled
   D) A program is linked
   Answer: B

7. Which data structure is used by the OS to keep process information?
   A) Process Control Block (PCB)
   B) Ready Queue
   C) Job Table
   D) File Control Block
   Answer: A

8. The ready queue contains:
   A) Processes waiting for I/O
   B) Processes waiting for CPU
   C) Completed processes
   D) Child processes only
   Answer: B

9. Which of the following is true about multiprogramming?
   A) Only one process is in memory
   B) Multiple processes reside in memory
   C) Only one process executes per system lifetime
   D) It reduces CPU utilization
   Answer: B

10. Which of the following is the smallest unit of CPU scheduling?
    A) Program
    B) Process
    C) Thread
    D) Instruction
    Answer: C

11. Which of the following is a non-preemptive scheduling algorithm?
    A) Round Robin
    B) Shortest Job First (SJF)
    C) Priority Scheduling (preemptive)
    D) Multilevel Queue
    Answer: B

12. Time quantum is used in:
    A) Round Robin scheduling
    B) FCFS scheduling
    C) SJF scheduling
    D) Priority scheduling
    Answer: A

13. Which process gets more CPU time in priority scheduling?
    A) Process with higher priority
    B) Process with lower priority
    C) Process that arrived first
    D) Random process
    Answer: A

14. Turnaround time is defined as:
    A) Time taken to execute a process

B) Waiting time + burst time
C) Completion time – arrival time
D) Time spent in CPU only
Answer: C

15. Which scheduling algorithm may cause starvation?
A) FCFS
B) Round Robin
C) Priority scheduling
D) Multilevel Queue
Answer: C

16. Which of the following prevents starvation?
A) Aging
B) Deadlock
C) Preemption
D) Context switch
Answer: A

17. Which of the following is not an example of process synchronization issue?
A) Race condition
B) Critical section problem
C) Deadlock
D) Compilation
Answer: D

18. Which statement about threads is correct?
A) Threads are heavier than processes
B) Threads share resources of a process
C) Threads cannot run concurrently
D) Each thread has a separate address space
Answer: B

19. Which type of scheduling is used in real-time systems?
A) FCFS
B) Round Robin
C) Preemptive Priority
D) SJF
Answer: C

20. In a multiprocessor system, load balancing ensures:
A) Equal memory allocation
B) Even CPU utilization
C) Single process execution
D) Sequential execution only
Answer: B

21. Which of the following is not a CPU scheduling criterion?
A) CPU utilization
B) Throughput
C) Turnaround time

D) Cache size
Answer: D

22. The main purpose of process scheduling is to:
    A) Increase response time
    B) Maximize CPU utilization
    C) Minimize throughput
    D) Reduce context switch time
    Answer: B

23. What is the degree of multiprogramming?
    A) Number of CPUs in the system
    B) Number of processes in memory
    C) Number of I/O devices
    D) Number of threads in a process
    Answer: B

24. Which of the following is used to prevent race conditions?
    A) Critical section
    B) Mutex locks
    C) Semaphores
    D) All of the above
    Answer: D

25. Deadlock occurs when:
    A) Processes are waiting for CPU
    B) Processes wait indefinitely for resources
    C) CPU utilization is high
    D) Multiprogramming is low
    Answer: B

26. The Banker's algorithm is used for:
    A) Scheduling
    B) Deadlock avoidance
    C) Memory allocation
    D) File management
    Answer: B

27. A process that finishes execution but still has an entry in the process table is called:
    A) Zombie process
    B) Orphan process
    C) Child process
    D) Parent process
    Answer: A

28. Which system call creates a new process in UNIX?
    A) fork()
    B) exec()
    C) wait()
    D) exit()
    Answer: A

29. In preemptive scheduling, a process:
    A) Cannot be interrupted
    B) Is executed until completion
    C) Can be interrupted and moved to ready state
    D) Must wait for I/O
    Answer: C

30. A process waiting indefinitely because of low priority is an example of:
    A) Deadlock
    B) Starvation
    C) Aging
    D) Context switching
    Answer: B

31. Which process state comes immediately after NEW?
    A) Ready
    B) Running
    C) Waiting
    D) Terminated
    Answer: A

32. Which of the following is used to measure CPU utilization?
    A) Execution time
    B) CPU busy time / total time
    C) Waiting time
    D) Throughput
    Answer: B

33. Which scheduling algorithm is most suitable for time-sharing systems?
    A) FCFS
    B) Round Robin
    C) Priority scheduling
    D) SJF
    Answer: B

34. Context switching time is considered as:
    A) Overhead
    B) Execution time
    C) Waiting time
    D) Burst time
    Answer: A

35. Which of the following allows a child process to run a new program in UNIX?
    A) fork()
    B) exec()
    C) wait()
    D) kill()
    Answer: B

36. A semaphore initialized to 1 is called:
    A) Binary semaphore

B) Counting semaphore
C) Mutex
D) Both A and C
Answer: D

37. Which of these scheduling algorithms may lead to convoy effect?
A) FCFS
B) Round Robin
C) Priority scheduling
D) Multilevel Queue
Answer: A

38. The CPU-bound process spends more time on:
A) I/O
B) CPU computation
C) Waiting state
D) System calls
Answer: B

39. What does turnaround time not include?
A) Waiting time
B) Burst time
C) Completion time
D) Context switch overhead
Answer: D

40. A thread that is waiting for resources indefinitely may cause:
A) Deadlock
B) Starvation
C) Mutual exclusion
D) Synchronization
Answer: B

41. Which algorithm is optimal for minimizing average waiting time?
A) SJF
B) FCFS
C) Round Robin
D) Priority
Answer: A

42. Which of the following ensures that only one process can access a critical section at a time?
A) Atomic operations
B) Preemption
C) Mutual exclusion
D) Multiprogramming
Answer: C

43. The CPU scheduling done before a process enters the ready queue is called:
A) Long-term scheduling
B) Medium-term scheduling
C) Short-term scheduling

D) None of these
Answer: A

44. In time-sharing systems, response time should be:
A) High
B) Low
C) Medium
D) Irrelevant
Answer: B

45. What is the purpose of the wait() system call?
A) Create a new process
B) Terminate a process
C) Make parent wait until child finishes
D) Switch context
Answer: C

46. Which of the following is not a deadlock prevention method?
A) Resource ordering
B) Allowing circular wait
C) Preemption
D) Hold and wait avoidance
Answer: B

47. Which scheduling algorithm gives each process equal share of CPU time?
A) FCFS
B) Round Robin
C) Priority
D) SJF
Answer: B

48. Which of these is not part of process control block?
A) Program counter
B) CPU registers
C) I/O status
D) Source code
Answer: D

49. In operating systems, aging is used to:
A) Prevent deadlock
B) Prevent starvation
C) Prevent race condition
D) Prevent context switching
Answer: B

50. A process that has completed execution is in which state?
A) Ready
B) Terminated
C) Waiting
D) Running
Answer: B