Operating System – Important Notes

1. 7-State Process Model

A process is a program in execution. During its life cycle, it passes through seven states.

1. New – Process is created.
2. Ready – Process is ready to use CPU.
3. Running – Process is executing on CPU.
4. Blocked – Process is waiting for I/O.
5. Ready Suspended – Ready but stored in disk.
6. Blocked Suspended – Blocked and stored in disk.
7. Exit – Process has finished execution.

2. User Mode vs Kernel Mode

User Mode is used for normal programs with limited access. Kernel Mode is used by the operating system with full access.

1. User Mode: No direct hardware access, safe, used by applications.
2. Kernel Mode: Full hardware access, controls CPU, memory, and devices.

3. Process Control Block (PCB)

PCB is a data structure that stores all information about a process.

1. Process ID (PID)
2. Process State
3. Program Counter
4. CPU Registers
5. Scheduling Information
6. Memory Management Information
7. I/O Status Information
8. Accounting Information