Operating Systems - Unit Wise Important Questions

Unit-1

1. Definition of Operating Systems
2. Objectives and Functions of OS
3. Systems Calls
4. OS Services
5. System Programs
6. Types of System Calls
7. OS Design and Implementation
8. OS Structure: Simple and Layered
9. Difference between API and System Calls

Unit-2

1. Process Definition& PCB
2. Process State Diagram
3. Threads& Benefits of Threads
4. Multithreading Models
5. Schedulers and Types of Schedulers
6. Dispatcher
7. Difference Between Pre-emptive and Non pre-emptive Scheduling Algorithms
8. Problems on CPU Scheduling Algorithms (FCFS,SJF,Priority and Roundrobin)
   a) Turnaround time, b) Waiting Time, c) which algorithm gives minimum Average Times

Unit-3

1. Critical Section Problem and its solutions
2. Peterson's Solution
3. Synchronization Hardware
4. Classical Problems
   a) Readers and Writers Problem
   b) Dining Philosophers Problem
5. Definition of Deadlocks, Characteristics, Methods of Handling
6. Deadlock Avoidance: Bankers Algorithm
7. Problems on Bankers Algorithm

Unit-4

1. Memory Allocation
2. Paging
3. Segmentation
4. Demand Paging
5. Page Fault
6. Need of Page Replacements Algorithms and Explain about Algorithms (FIFO, LRU, Optimal)
7. Problems on Page Replacements Algorithms using Frame Size:3
8. Allocation of Frames
9. Thrashing

Unit-5

1. Concepts of File
2. File Attributes
3. File Operations
4. File Access Methods
5. Directory Structure
6. File Allocation Methods
7. Free Space Management (bit vector, linked list, grouping)
8. Directory Implementation
9. Efficiency and Performance

Unit-6

1. Boot Blocks, Bad Blocks
2. Disk Formatting
3. Disk Scheduling (FCFS, SSTF, SCAN, C-SCAN)
4. Problems on Disk Scheduling (FCFS, SSTF, SCAN, C-SCAN)
5. Goals of Protection
6. Principles of protection
7. Domain of Protection
8. Access Matrix, Implementation of Access Matrix