**OS**

**Mid-1 Important questions:**

**Unit-1**

1. Define System Calls? Explain types of System Calls.
2. What is an Operating System? Explain the services of Operating System?
3. Define Operating system? Explain abstract view of the components of a computer system.
4. Explain Operating System structure. (Simple and Layered structure)

**Unit-2**

1. Explain the states of process clearly with process state diagram.
2. What is multithreading? Explain different types of Multithreading models.
3. What is process scheduling? Explain the working of Priority Scheduling Algorithm for process given below and Find their average turnaround time and average waiting time.

|  |  |  |
| --- | --- | --- |
| Process | Burst Time | Priority |
| P1 | 5 | 2 |
| P2 | 4 | 1 |
| P3 | 3 | 3 |
| P4 | 6 | 4 |

1. What are the different CPU process scheduling algorithms. Explain with examples.

FCFS, SJF, PRIORITY , Round Robin Algorithms

1. Explain the significance of Process Control Block and describe its typical elements.
2. What is the need of Inter Process Communication mechanism? Explain the methods of IPC in detail.

**Unit-3**

1. What is Semaphore and Explain types of Semaphore . Discuss operations of semaphore?
2. Explain Critical section problem discuss the solutions for critical section with an example.
3. What is race condition. Discuss how to solve race condition problems with an example.

**Mid-2 Important questions:**

**Unit-3**

1. What is resource allocation graph. Explain about resource allocation graphs for deadlock with examples . How to use resource allocation graphs for deadlock detection.
2. Explain briefly deadlock avoidance algorithm with an example using safe and unsafe sequence? (Bankers algorithm )

Consider system with five processor P0 to P4 and 3 resources A, B and C, Resources type A has 10 instances, B has 5 instances and C has 7 instances. The snapshot at time T0 is given below and Available resources are of A, B, C are 3,3, 2 respectively.. Find the Safe sequence.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | ALLOTED | | | MAX | | |
|  | A | B | C | A | B | C |
| P0 | 0 | 1 | 0 | 7 | 5 | 3 |
| P1 | 2 | 0 | 0 | 3 | 2 | 2 |
| P2 | 3 | 0 | 2 | 9 | 0 | 2 |
| P3 | 2 | 1 | 1 | 2 | 2 | 2 |
| P4 | 0 | 0 | 2 | 4 | 3 | 3 |

1. What is Deadlock? Explain conditions or characterization needed for deadlock?
2. Explain strategies or methods to handle deadlocks?

**Unit-4**

1. What is paging explain it. Explain structure of page table.
2. Explain page replacement with examples of

1. FIFO 2.LRU 3. Optimal

1. Explain LRU page replacement algorithm with the reference string **7,0,1,2,0,3,0,4, 2,3,0,3,2** and number of frames is 4.
2. Explain briefly file or (space) allocation methods in file.
3. What is segmentation explain its advantages.

**Unit-5**

1. What is disc scheduling and disc scheduling algorithms.

FCFS, SSTF, SCAN, C-SCAN, LOOK, C-LOOK

Explain with example(any one can be given)

1. What is RAID? Explain raid structure briefly. What are different RAID levels? Explain them.
2. What is system security. Discuss program threats , system & network threats in detail.
3. What is system protection. Explain goals of system protection, principles and domain of protection.