**Operating Systems Sheet- Arsh Goyal with Notes**

**Watch this video for complete details :**

**Questions List**

1. **What happens when you press the ON button on your laptop?**
2. **What is Operating System ? Why do we need it ?**
3. **Different Types of Operating Systems ?**
4. **Major Differences :**

| **RAM** | **ROM** |
| --- | --- |
| **Thread** | **Process** |
| **SRAM** | **DRAM** |
| **PROM** | **EPROM / EEPROM** |
| **Multiprocessing** | **Multiprogramming** |
| **Multitasking** | **MultiThreading** |

1. **Difference between a Process and Thread with example.**
2. **What is a Process and Thread ?**
3. **Terms in Process Scheduling - Arrival Time ,Completion Time , Burst Time, Turn Around Time , Waiting Time (WT)**
4. **What is fork()? User and Kernal Threads.**
5. **Scheduling Algorithms :**

**First Come First Serve (FCFS)**

**Shortest Job First (SJF)**

**Shortest Remaining Time First (SRTF)**

**Round Robin (RR) Scheduling**

**Priority Based scheduling (Non Preemptive)**

**Highest Response Ratio Next (HRRN)**

**Multilevel Queue Scheduling (MLQ)**

1. **What is Critical Section Problem and Race Around Condition ?**
2. **Mutual Exclusion and Bounded Waiting in Operating Systems?**
3. **What are Semaphores ? Types of Semaphores ?**
4. **What is Mutex ?**
5. **Differences between Mutex and Semaphore . Use Cases as well.**
6. **Deadlock and necessary conditions for deadlock to happen? Detailed.**
7. **How to handle a deadlock?**
8. **Banker’s Algorithm and its use case.**
9. **Memory Management**
10. **Partition Schemes - Best Fit , First Fit , Worst Fit**
11. **What is Paging and its need ?**
12. **What is Segmentation and its need ?**
13. **Difference between Paging and Segmentation ?**
14. **Why does a page fault occur?**
15. **Major Page Replacement Algorithms**
16. **Definitions : Logical address space , LBA , Spooling , Starvation , Aging ,Virtual Memory**
17. **FIFO**

**Optimal Page Replacement Algorithm**

**Least Recently Used (Along with Code) - VV Imp.**

**27.Disk Scheduling and Terms associated - Seek Time , Rotational Latency, Transfer Time , Disk Access Time ,Disk Response Time.**

**28. Disk Scheduling Algorithms - FCFS , SSTF , SCAN , CSCAN , LOOK , CLOOK**

**29. What is Thrashing ?**

**Resources to Prepare :**

**Detailed Book Recommendation : GALVIN - Wiley**

**1.Bed Time Stories with OS :** [**https://drive.google.com/file/d/1BMtW2e2Lm-ngAhAssicyN4lFq5InLJ6j/view?usp=sharing**](https://drive.google.com/file/d/1BMtW2e2Lm-ngAhAssicyN4lFq5InLJ6j/view?usp=sharing)

**2. GFG Last Minute Notes :** [**https://www.geeksforgeeks.org/last-minute-notes-operating-systems/**](https://www.geeksforgeeks.org/last-minute-notes-operating-systems/)

**3. Video PlayList :**

[**https://youtube.com/playlist?list=PLxCzCOWd7aiGz9donHRrE9I3Mwn6XdP8p**](https://youtube.com/playlist?list=PLxCzCOWd7aiGz9donHRrE9I3Mwn6XdP8p)

**4. InterviewBit Document :** [**https://drive.google.com/file/d/1-2aR5Jq1YVAB8hrrsdFxTJqGExgop8Ms/view**](https://drive.google.com/file/d/1-2aR5Jq1YVAB8hrrsdFxTJqGExgop8Ms/view)

**5. Handwritten notes for College Exams :**

[**https://drive.google.com/file/d/1tuK9UFCXtVDyfYyTKzhOcOoTt8wf2H5y/view?usp=sharing**](https://drive.google.com/file/d/1tuK9UFCXtVDyfYyTKzhOcOoTt8wf2H5y/view?usp=sharing)

[**https://drive.google.com/file/d/1Kk\_LC3EcOdDfRGulZ8Ow1ocJa5ejBI9D/view?usp=sharing**](https://drive.google.com/file/d/1Kk_LC3EcOdDfRGulZ8Ow1ocJa5ejBI9D/view?usp=sharing)