Shri Gajanan Maharaj Shikshan Prasarak Mandal's

SHARADCHANDRA PAWAR ARTS AND COMMERCE COLLEGE,

Dudulgaon (Alandi), Pune- 412105

Question Bank

Class: -SYBBA (CA) SEM-IV Subject: CA-403: Operating Systems

Unit 1: Introduction to Operating System:

1. Define the terms: i)Operating System ii) spooling iii) batch operating system, iv) microkernel v)modules
2. With suitable diagram describe the structure of operating system.
3. What is virtual machine? Explain its benefits.
4. List & explain two types of multiprocessor system.
5. List the different types of operating system. Explain any one.
6. With the help of diagram describe distributed system.
7. List & explain services provided by operating system.
8. Explain layered approach of operating system with suitable diagram.

Unit 2: System Structure:

1. Define i) process ii) system program iii) system call.
2. List & explain systems calls related to process and job control & device manipulation.
3. Explain the following system calls : i) wait() ii) fork() iii) exec() iv)exit()
4. Explain the terms Message passing & Shared Memory Model in Interprocess Communication.

Unit 3: Process Management:

1. Define thread.
2. What is process? Explain with its state with suitable diagram(5 state Model)
3. Describe Process Control Block with suitable diagram.
4. Define the term Context Switch.
5. Define Scheduler. Explain the types of scheduler (Short term scheduler, long term scheduler & Medium term scheduler)
6. Explain the term swapping with suitable diagram **(swap in and swap out)**

Unit 4: CPU Scheduling:

1. What is meant by CPU Scheduling? What is CPU Scheduler?
2. Describe the following terms :
   a) Non-Primitive Scheduling
   b) Primitive Scheduling

   What is the difference between Primitive and Non-Primitive CPU Scheduling?

3. What is the role of dispatcher?
4. Explain CPU I/O Burst Cycle with diagram in detail.
5. With the help of diagram explain multilevel queue scheduling and multilevel feedback queue scheduling.
6. Explain Scheduling criteria in detail.
7. Define the term dispatch latency.

Unit 5: Process Synchronization:

1. Define i) Race Condition ii) Process Synchronization.
2. What is meant by Cooperative Process?
3. Explain the term Critical Section in detail.
4. Define Critical Section Problem and explain the solutions for critical Section problem.
5. What is Semaphore? List & explain its types (binary Semaphore & Counting Semaphore).
6. Explain WAIT and SIGNAL Semaphore Operation.
7. List all types of Classical problems of Synchronization.
8. What is meant by deadlock & starvation?
9. Explain in detail :
    1) Readers and Writers problem
    2) Dining Philosophers problem
    3) Bounded buffer problem