Department of Computer Science & Engineering

Subject: Principle of Operating System

Semester- V   CSE

Frequently Asked Questions

Q1. Define an Operating System. Briefly explain different types of Operating system and their distinguishing features.

Q2. Differentiate between Multi-Tasking, Multi- Programming and Multi- Processing.

Q3. Write short notes on System Programs and System Calls.

Q4. Explain the different components of a computer system.

Q5. Define a Process. Explain the different states of a process using the process state diagram.

Q6. What is a Process Control Block? Explain the significance of Context Switch.

Q7. Explain Multi Level Queue Scheduling. What are the different parameters of choosing a scheduling algorithm?

Q8. Consider the following set of processes, with the length of CPU- burst time given in milliseconds.

Process	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

The processes are assumed to have arrived in the order P1, P2, P3, P4, P5 and all at time 0.

a) Draw four Gantt charts illustrating the execution of these process using FCFS, SJF, non-preemptive Priority (a smaller priority number implies a higher priority), and RR (quantum = 1) Scheduling.
b) What is the average turnaround time for each of the scheduling algorithms in part (a)?
c) What is the average waiting time for each of the scheduling algorithm in part (a)?

Q9. Write a short note on:

a) Demand Segmentation
b) Address Binding

Q10. Why are Page Replacement algorithms important? Explain the different Page Replacement Algorithms with examples.

Q11. Explain the role of Semaphore in Critical Section. Discuss the different types of semaphores with illustrative examples.

Q12. Explain Bounded Buffer Problem with example.

Q13. What is a Deadlock? How is it represented graphically?

Q14. What are various Deadlock Prevention techniques?

Q15. Explain Deadlock Detection algorithm both in case of multiple resource instance and single resource instance.

Q16. What are threads? What are the differences between user level threads and kernel level threads? Under what circumstances is one type better than the other?

Q17. What are the different attributes of a file? Explain the different File Access methods.

Q18. Write short notes on:

a) Tree Structured Directory Structure
b) Acyclic- graph Directory Structure

Q19. What is Distributed OS? What is the difference between Distributed OS and Network OS?

Q20. Suppose that disk drive has 1000 cylinders, numbered from 0 to 999. The drive is currently at cylinder 152 & the previous request was at cylinder 125. The queue of pending request in FIFO order is

86, 470, 913, 774, 185, 850, 155, 728, 500, 27

Starting from current head position, what is the total distance in cylinders that the disk arm moves to satisfy all the pending requests for each of the following disk scheduling algorithms?

i.   SSTF
ii.   FCFS
iii.   SCAN
iv.   C-SCAN
v.   LOOK
vi.   C-LOOK

Q21. Given memory partitions of 100K, 500K, 200K, 300K, and 600K (in order), how would each of the First-Fit, Best-Fit and Worst-Fit algorithms place processes of 22K, 417K, 112K, and 426K (in order)? Which algorithm makes the most efficient use of memory?

Q22. Discuss various performance issues in I/O system.

Q23. Write a short note on kernel I/O subsystem.

Q24. Explain I/O Device Organization. Describe I/O interrupts and I/O Buffering.

Q25. Write short notes on the following:

a) Shell Interpreter
b) Unix System Calls
c) Windows NT architecture
d) Windows NT File System