**MIT CIDCO College, Aurangabad**

**Operating System**

**Important Questions**

**Unit I:**

1. What are the four components of a computer system?
2. What are the three main purposes of an operating system?
3. What are the main purposes of Operating System?
4. What are the steps to handle Page fault?
5. What is the purpose of interrupts? How does an interrupt differ from a trap?
6. Explain the difference between internal and external fragmentation.
7. What is the role of base register and limit register in defining a logical address space?
8. Explain logical versus physical address space.
9. What is paging?
10. Define the following terms. (Two marks Questions )
11. Operating System
12. Kernel
13. Caching
14. Bootstrap Program
15. Compaction
16. Frame
17. page
18. True or False
19. In a pure demand paged system a page is never brought into memory until it is needed.
20. A program does not need to be stored in memory in its entirety.
21. An address generated by the CPU is also referred to as a physical address.
22. Fragmentation can still occur in paging systems.
23. Lazy swapper never swaps a page into memory unless page will be needed.
24. In External fragmentation total memory space exists to satisfy request and in contiguous order.

**Unit II:**

1. What are the four component of the process?
2. What is Process Control Block (PCB)?
3. Write a note on process scheduler.
4. What are the two fundamental models of interprocess communication?
5. What are criteria’s for designing a CPU scheduling algorithm?
6. Differentiate between preemptive and non-preemptive?
7. Explain Round Robin algorithm with gantt chart and suitable example.
8. Explain FCFS algorithm with gantt chart and suitable example.
9. Explain SJF algorithm with gantt chart and suitable example.
10. Explain Priority scheduling algorithm with gantt chart and suitable example.
11. Explain SRTF algorithm with gantt chart and suitable example.
12. Differentiate between SJF and SRTF.
13. What is critical-section problem? What are the three requirements a solution to the critical-section problem must satisfy?
14. What is semaphore? What are the two operations that can be performed on a semaphore?
15. What is Readers-Writers Problem? How many writers may concurrently share the database with the readers-writers problem?
16. What is Dining-Philosophers problem? What is the problem if all philosophers simultaneously pick up their left fork or chopstick?
17. What are the four necessary conditions for characterizing deadlock?
18. True OR False
19. Semaphores can provide the same functionality as mutex locks.
20. A binary semaphore is functionally equivalent to a mutex lock.
21. A synchronization tool semaphore uses a character variable S.
22. A non-preemptive kernel is essentially free from race conditions.
23. Starvation is a situation in which processes wait indefinitely within the semaphores.
24. Answer the short questions. (1M)
25. What scheduling algorithm assigns the CPU to the process with the highest priority?
26. What scheduling algorithm assigns the CPU to the process that first requested it?
27. What scheduling algorithm assigns the CPU to a process for only its time slice (or time quantum?)
28. What scheduling algorithm assigns the CPU to the process with the shortest burst?
29. What are the two bursts that CPU schedulers are designed around?
30. What is the term used to describe the segment of code where shared data is accessed and possibly manipulated?

**Unit III:**

1. Explain typical PC Bus structure.
2. Distinguish between polled mode & interrupt-driven mode.
3. What is interrupt? How to solve interrupt?
4. What are the characteristics of I/O devices?
5. Differentiate between block and character devices.
6. Differentiate between blocking versus non-blocking I/O.
7. What are the two conflicting trends of I/O devices?
8. Explain overview of mass storage structure.
9. True or False.
10. Most CPUs allow some interrupts to be ignored so that a critical instruction cannot be interrupted.
11. A given device may require different drivers for different operating systems.
12. The lifecycle of an I/O request does not require many CPU cycles.
13. I/O operations do not have a significant impact on performance.

**Unit IV:**

1. Explain access matrix with example.
2. What is access control? How it helps to protect the O.S
3. Explain Distributed system structures?
4. Explain Distributed file system.
5. True or False.
6. In the UNIX operating system, a domain is associated with a process, not with a specific user.
7. The user mode/kernel mode paradigm is an example of domain switching.
8. Policies determine how something will be done, mechanisms describe what will be done.

**Unit V:**

1. What are the two different types of scheduling algorithms in Linux?
2. What are the three layers of software that implement networking in the Linux kernel?
3. Explain the scheduling in Windows XP?
4. Explain win XP interrupt request levels.