SILVER OAK UNIVERSITY
College of Computer Application
BCA/Bsc IT
Subject Name: Operating System
Semester: 3rd

Question Bank

UNIT-1: OS Introduction

Answer in Short

1. What is an operating system?
2. Name three major components of a computer system.
3. What are the goals of an operating system?
4. Explain the concept of computer system architecture.
5. What are the basic functions of an operating system?
6. How does an operating system interact with the hardware architecture?
7. What is batch processing in operating systems?
8. Explain the concept of multiprogramming.
9. What is multitasking in the context of operating systems?
10. Describe the concept of time sharing.
11. What is a parallel operating system?
12. What are the characteristics of a distributed operating system?
13. Define a real-time operating system.
14. Name three examples of real-time operating systems.
15. How does a batch operating system schedule jobs for execution?
16. What are the advantages of multiprogramming?
17. Describe the purpose of a file system in an operating system.

Answer in Details:

1. Explain the role of an operating system in managing computer hardware resources.
2. Describe the major components of a computer system and their interactions with the operating system.
3. Discuss the goals and objectives of an operating system and how they contribute to efficient system operation.
4. Explain the basic functions of an operating system and provide examples of each.
5. Describe the interaction between an operating system and the hardware architecture of a computer system.
6. Discuss the benefits and challenges of multitasking in operating systems.
7. Describe the concept of time sharing and how it is implemented in operating systems.
8. Compare and contrast parallel and distributed operating systems.
9. Explain the concept of real-time operating systems and their importance in time-critical applications.
10. Analyze the concept of time sharing in operating systems, including time slicing, and discuss their implications for system performance and user fairness.
11. Compare and contrast parallel and distributed operating systems, evaluating their characteristics, advantages, and limitations in terms of scalability and fault tolerance.

UNIT-2: Process Management

1. Define a process in the context of operating systems.
2. Name the three main states of a process.
3. What is the purpose of a process control block (PCB)?
4. Differentiate between preemptive and non-preemptive scheduling.
5. Explain the concept of mutual exclusion and its significance in process management.
6. Apply the FCFS scheduling algorithm to a given set of processes.
7. Implement a round-robin & SJF scheduling algorithm with a specific time quantum.
8. What information is stored in a process control block (PCB)?
9. Explain the FCFS (First-Come, First-Served) scheduling algorithm.
10. Describe the Shortest Job First (SJF) scheduling algorithm.
11. What is round-robin scheduling, and how does it work?
12. Evaluate the pros and cons of preemptive scheduling in real-time systems.
13. Analyze the impact of different scheduling algorithms on system performance.
14. What is deadlock?
15. Name the necessary conditions for deadlock occurrence.
15. Define mutual exclusion in the context of deadlock.
16. Explain the concept of hold and wait in deadlock.
17. Describe the circular wait condition for deadlock occurrence.
18. Explain the concept of resource allocation graphs in deadlock detection.
19. Differentiate between deadlock detection and deadlock prevention.
20. Name one of the four necessary conditions for deadlock occurrence.
21. Define deadlock detection.
22. Given a resource allocation graph, determine if deadlock is present.
23. Apply a deadlock prevention strategy to a real-world system.
24. Design a deadlock detection algorithm using resource allocation graphs.

UNIT-3: Memory Management

1. Define memory management requirements.
2. What are the advantages of fixed partitioning?
3. Discuss the drawbacks of variable partitioning.
4. Explain the first fit memory allocation strategy.
5. How does the best fit allocation strategy work?
6. Describe the worst fit allocation strategy.
7. What are the advantages of using the first fit allocation strategy?
8. Describe the concept of paging and its benefits.
9. Explain the concept of fragmentation.
10. Differentiate between external and internal fragmentation.
11. Explain the concept of demand paging.
12. What are the advantages of demand paging?
13. Explain the security issues related to memory management.
14. What are the main requirements of memory management?
15. Describe the advantages of using fixed partitioning.
16. How does variable partitioning address the limitations of fixed partitioning?
17. Explain the first fit allocation strategy with an example.
18. Compare and contrast the best fit and worst fit allocation strategies.
19. How does swapping improve memory utilization?

20. Explain the concept of memory partitioning.
21. Differentiate between fixed and variable partitioning.
22. Discuss the potential drawbacks of demand paging.
23. Discuss the drawbacks of variable partitioning.
24. Compare and contrast the best fit and worst fit allocation strategies.
25. Discuss the potential drawbacks of demand paging.
26. Describe the concept of external fragmentation and its impact on memory utilization.

Unit 4: Shell Scripts

- Prepare All Commands with syntax & examples
- Prepare all Shell scripts completed in Lab Practicals According to Syllabus.