

Short answer questions:

1. What are the functions of memory management?
2. Draw the memory hierarchy available in operating system?
3. Describe entry and exit sections of a critical section?
4. List the various scheduling criteria for CPU scheduling?
5. Define segmentation?
6. Describe the techniques for recovery from deadlock?
7. Define thrashing?
8. What is TLB?
9. List the goals of protection?
10. Write the main differences between capability lists and access lists?
11. What is kernel and list its functions?
12. List out any four process control system calls?
13. Write various scheduling criteria for CPU scheduling?
14. Draw process state diagram.
15. What is a resource-allocation graph?
16. Define compaction.
17. What are the causes of thrashing?
18. What is file system mounting?
19. Define the terms – object, domain, access right.
20. List the goals of protection?
21. List out operating system services?
22. Describe distributed operating system?
23. What are the different types of scheduling queues?
24. Define entry section and exit section.
25. What is the use of Valid-Invalid Bits in Paging?
26. Define Swapping.
27. What is file sharing?
28. Explain about thrashing.
29. Define seek time?
30. What are goals of system protection?
31. Define interrupt?
32. List any four functions of operating system?
33. Define process state and mention the various states of a process?
34. Define CPU scheduling?
35. What are the memory management strategies?
36. Describe the conditions under which a deadlock situation may arise?
37. Define page fault.
38. List the file attributes.
39. What is indexed allocation?
40. What is free space list?

Long answer questions:

1. Explain the following
 - a) Process management
 - b) Memory management
 - c) Device management
2.
 - a) Draw and explain the abstract view of the components of a computer system
 - b) Discuss the user view and system view of operating system
3. Write short notes on the following.
 - a) Schedulers
 - b) Process control block
 - c) Context switch
4. Explain the following.
 - a) Scheduling Queues
 - b) Context switching
5. Write a short note on
 - a) Hierarchical paging
 - b) Hashed page table
 - c) Inverted page table
6.
 - a) Illustrate the use of Banker's Algorithm for Deadlock Avoidance
 - b) Discuss paging and structure of page table in detail
7. Discuss following system calls for file operations:
 - i) Open()
 - ii) Read()
 - iii) Write()
 - iv) Close()
 - v) Seek()

OR
8. Consider the following page reference string.
7,0,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0
Assuming three frames, how many page faults would occur in each of the following cases?
 - i. FIFO
 - ii. Optimal
 - iii. LRU
9.
 - a) Write a short note on protection & security.
 - b) What is the linked list allocation file implementation technique?
10.
 - a) Explain the access methods of files.
 - b) Briefly outline the directory overview.

11. Describe different computing environments.
12. Define an operating system? State and explain the basic functions and services of an operating system?
13. Consider the following set of processes with the length of the CPU burst time given in milliseconds

Process	BurstTime	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 all at time 0.

- a) Draw four Gantt charts illustrating the execution of these processes using FCFS, SJF, anon pre-emptive priority (a smaller priority number implies a higher priority) and RR (quantum=1) scheduling.
 - b) What is the turnaround time of each process for each of the scheduling algorithms in part?
 - c) What is the waiting time of each process for each of the scheduling algorithms in part? Which of the schedules in part a results in the minimal average waiting time?
14. Discuss inter process communication with the help of communication models.
 15. Consider the following snapshot of a system

PROCESS	ALLOCATION			MAX			AVAILABLE		
	A	B	C	A	B	C	A	B	C
P1	0	1	0	7	5	3	3	3	2
P2	2	0	0	3	2	2			
P3	3	0	2	9	0	2			
P4	2	1	1	2	2	2			
P5	0	0	2	4	3	3			

And answer the following Questions

- a) Compute the need matrix
 - b) Is the system in a safe state?
 - c) If a request from process P1 arrives for(1,0,2), can the request be granted immediately?
16. Discuss paging and structure of page table in detail

17. Consider the following page reference string.

7,0,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0

Assuming three frames, how many page faults would occur in each of the following cases?

- i. FIFO
- ii. Optimal
- iii. LRU

18. Discuss the following.

- i. File operations
- ii. File system mounting
- iii. File sharing

19. What is access matrix and how can we implement it?

20. a) What is the linked list allocation file implementation technique?

b) Explain the following in detail with respect to disk?

- a) Seek time
- b) Latency
- c) Access time
- d) Transfer time

21. a) Explain about multiprogramming and time sharing operating system?

b) What are the various objectives and functions of Operating systems?

22. a) What is system calls in OS? Explain in detail with its types

b) Describe about user interface?

23. a) Explain Round Robin scheduling algorithm with example.

b) Explain about different multithreading models

24. What is the important feature of critical section? State the Readers Writers problem and give solution using semaphore.

25. a) Explain about contiguous memory allocation?

b) Illustrate the use of Banker's Algorithm for Deadlock Avoidance.

26. Briefly explain and compare, fixed and dynamic memory partitioning schemes.

27. a) Explain about the following page replacement algorithms with an example

a) FIFO b) Optimal, c) LRU

b) What is virtual memory? Mention its advantages.

28. a) Explain different system calls for file operations.

b) Briefly explain about file access methods.

29. a) Briefly outline the directory implementation overview.

- b) Overview of mass storage structure.
30. a) Explain the concept of access matrix in detail and explain its implementation strategies.
b) Explain the concept of revocation access rights.
31. Explain the various types of System calls with an example for each
32. a) Explain the differences between multiprogramming and time-sharing systems?
b) Discuss the different structures of OS?
33. Explain critical section problem & what is software based solution to it explain.
34. Explain the following scheduling algorithms with suitable examples
a) SJF(shortest job first) b) Priority Scheduling
35. a) Distinguish between internal and external fragmentation?
b) Discuss paging and structure of page table in detail?
36. Explain the various methods which we apply for recovery from deadlocks
37. a) Write a short note on performance of demand paging
b) Consider the page reference string.
- 7,0,1,2,0,3,0,4,2,3,0,3,2,3 with 4 page frames.
- Find the number of page faults using FIFO page replacement algorithm.
38. Discuss the following.
- i. File operations
 - ii. File system mounting
 - iii. File sharing
39. a) List the different file system allocation methods?
b) Explain the concept of goals of protection?
40. a) What is the linked list allocation file implementation technique?
b) State the Access metrics mechanism?