Unit -1

1. What is an operating system and its functions?
2. Define the operating system and its goals in our computer system.
3. Explain functions of the operating system in detail.
4. Explain in brief Fault Tolerance.
5. Write a short note on Modern Operating Systems.
6. Explain Types of operating system.
7. Write a short note on the batch operating system.
8. Explain a brief note on Windows.
9. Explain execution of the operating systems.
10. Write a short note on the multicore system.
11. What are the generations of Operating Systems?
12. Explain five-state process model.
13. What is a process and what are the different states of a process?
14. Write a short note on Processes.
15. What are the different states of the Process? Explain in detail.
16. What is the Process Control Block?
17. Explain Two-state process model.
18. Explain virtual machines. What are the advantages of virtual machines?

Unit 2:

1. Write a short note on Threads.
2. Explain User-level and Kernel-level threads.
3. Explain Thread-execution in Windows.
4. Explain Multi-core and Multithreading.
5. Explain the life cycle of an activity in Android.
6. What is Thread?Explain mapping of threads.
7. What are the threading granularity options?Explain multi-threading.
8. Write a note on Linux threads.
9. Explain Dekker's algorithm.
10. Explain Peterson's algorithm.
11. Explain principles of concurrency.
12. Write a brief note on Message passing.
13. Explain addressing in message passing.
14. Describe general message format with an example.
15. Write a note on Semaphores.
16. Explain operating systems concerns, process interactions and requirements for mutual exclusion.
17. Explain thread execution.
18. Explain in brief thread functionality and types of mapping.
19. Explain critical section problem and its solutions in Operating System.
20. Explain Test Set Lock mechanism in OS.

Unit 3

1. Explain the principles of Deadlock.
2. Explain in brief conditions and prevention for Deadlock.
3. Write a brief note on Deadlock Avoidance.
4. Explain a brief note on Deadlock Detection.
5. Write a short note on Dining Philosophers Problem.
6. Write a short note on Segmentation.
7. Explain in detail about Paging.
8. Write a short note on the memory partition.
9. Explain in brief about Memory Management requirements.
10. Explain dynamic partitioning in brief.
11. Explain fixed size partitioning in brief.
12. Explain Virtual Memory Terminology.Give two characteristics fundamental to memory management.
13. Explain  windows virtual Address Map.
14. Explain Linux Memory management.
15. Write a short note on operating system software.
16. Write a short note on Banker's algorithm.
17. Explain logical and physical organisation in memory management.
18. Write a brief note on Safe and unsafe states.

Unit 4:

1. Write a short note on scheduling.
2. Explain FCFS algorithm with an example.
3. Briefly define round-robin scheduling.
4. Explain real time scheduling.
5. Explain multiprocessor and multicore scheduling.
6. Explain categories of parallelism that differ in the degree of granularity.
7. Explain multi core thread scheduling.
8. Write a short note on deadlock scheduling.
9. Write a short note on rate monotonic scheduling.
10. Write a note on windows scheduling.
11. Write a note on Design issues.
12. Explain priority scheduling in brief.
13. Explain Highest Response Ratio Next with an example.
14. Explain the types of scheduler.
15. How to categorise scheduling?
16. Explain Shortest Job First.
17. Write a note on Fair-share scheduling.
18. Explain Linux scheduling.

Unit 5:

1. Write a note on Operating System Design Issues.
2. Explain I/O Buffering.
3. Explain Disk Cache.
4. List and briefly define three techniques for performing I/O.
5. Explain disk scheduling policies.
6. Explain Single buffer and double buffer.
7. Write a short note on DMA.
8. Explain contiguous allocation and linked list allocations along with its advantages and disadvantages.
9. Explain Indexed allocation with its advantages and disadvantages.
10. Write a short note on Access control.
11. Explain Intruders and malicious software.
12. Explain a brief note on Operating systems Hardening.
13. Explain Windows Security.
14. Write a short note on Security maintenance.
15. Explain a brief note on Record blocking.
16. Write a note on B-Trees.
17. Describe File organisation and access types.
18. Describe File and File Systems.