OPERATING SYSTEM

Module 1

1. What is an Operating System? Explain different types of operating system.
2. What are the 3 main purposes of an Operating System?
3. Explain the distinguishing features of i) Real time system   ii) Multiprocessor system iii) Time sharing iv) Distributed system v) Real-time
4. What is operating system? What are functions of operating system?
5. Define Operating systems. Discuss its role with user and view points.
6. Explain different sub components of an operating system.
7. Explain the evolution of operating System.

Module 2

1. What is storage hierarchy?
2. Explain the disk structure.
3. Describe hardware protection.
4. What is Dual mode operations?
5. Explain DMA. Clearly explain the DMA structured in details.
6. What are the type of Interrupt?
7. Differentiate between volatile and non-volatile storage.

Module 3

1. What are system calls? Explain the different categories of the system calls. .
2. Write a brief note on different operating system structures.
3. List out services provided by the Operating Systems?
4. What is the purpose of the system calls & system programs?
5. Write short notes on operating system components.
6. Describe process states with the help of process transition diagram.
7. Give difference between Job-scheduling & CPU-scheduling.
8. List out and explain briefly the various services that the operating system provides to programs and users.
9. What is Scheduler? What is a dispatcher?
10. Explain the concept of 'process'. also describe the contents of a process control block (PCB) What is a process? Explain the process status diagram.

Module 4

1. What is the meaning of overlapped CPU and I/O operation? Explain.
2. State and explain the different types of CPU scheduling algorithms with example.
3. Write short note on CPU scheduling criteria.

4. Explain different types of CPU Schedulers.
5. Differentiate the following with examples i) Preemptive and non preemptive scheduling ii) I/O bound and CPU bound iii)Scheduler and dispatcher
6. For the following set of process find the average waiting time using Gantt chart for
   i> SJF   ii> Priority scheduling

process	Burst time	Priority
p1	5	5
p2	3	4
p3	8	3
p4	2	1
p5	1	2

   The process has arrived in the order p2, p1, p4, p3 and p5.
7. .What is the difference between a preemptive and non-preemptive scheduling algorithms? Explain FCFS scheduling algorithm. Find the average turnaround time and average waiting time for the processes given in the table below.

Process	CPU burst time (in ms)
P1	24
P2	3
P3	3

8. Consider the following data with burst time given in milliseconds:
   i> SJF   ii> Priority scheduling

process	Burst time	Priority
p1	10	3
p2	1	1
p3	2	3
p4	1	4
p5	5	2

   The process has arrived in the order p1, p2, p3, p4, p5 all at time 0.

   a. Draw Gantt charts for the execution of these processes using FCFS, SJF, a nonpreemptive priority and RR (quantum=1) scheduling.
   b. What is the turnaround time and waiting time of each process for each of the scheduling algorithm.
9. Define CPU utilization, throughput, and turnaround time, waiting time and response time.

Module 5

1. What are the three major activities of an operating system in regard memory management?
2. What is paging? Explain with an example.
3. What is demand paging? Explain.
4. What is segmentation? Explain. What is demand segmentation?
5. Explain the difference between Physical and logical address.

6. Differentiate between External fragmentation and internal fragmentation.
7. Write short notes on swap space management.
8. Explain in detail the implementation of paging.
9. What is fragmentation? Explain its types and disadvantages.
10. What is virtual memory and give its advantages.
11. Describe the LRU page replacement algorithm, assuming there are 3 frames and the page reference string is 7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1
12. Differentiate between the following   a) Paging and Segmentation b) Page table and segment table.
13. Explain any two page replacement algorithms.
14. Explain Memory management contiguous allocation.

Module 6

1. What are the five major activities of an operating system in regard to file management?
2. Write a note on file types and file structures.
3. Define file and directory. Give one implementation of file directory.
4. Name the different file allocation methods. Explain the linked allocation of file implementation with merits and demerits.
5. Explain the methods for free space management.

Module 7

1. Describe the SSTF disk scheduling algorithm using the following data. The dist head is initially at position-cylinder 53.the cylinder sequence of requests is 98, 183, 37, 122, 14, 124, 65. 67. find the total head movement.
2. What are the different disk scheduling algorithms explain.
3. Explain different disk scheduling techniques with example. How are their performance measured?
4. What is disk scheduling? Explain FCFS and SCAN disk scheduling algorithms.

Module 8

1. Explain the difference between protection and security.
2. What are the goals of protection?
3. Write a note on "Internet use policy".
4. Explain the terms 'WORMS' and 'VIRUSES' with reference to system threats
5. Discuss the different methods used to solve the problem of security at the operating system level.
6. Briefly explain the various kinds of program threats and system threats.
7. What are the problems encountered during protection?
8. Explain authentication.
9. Explain encryption.