

MSc(SS) DEGREE EXAMINATION MAY 2026
(Fourth Semester)

Branch- SOFTWARE SYSTEMS (Five years Integrated)

OPERATING SYSTEM CONCEPTS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Question No.	Question	K Level	CO
1	A program in execution is called a _____ a) Thread b) Process c) Job d) Instruction	K1	CO1
2	Which of the following is not a type of operating system? a) Real-time OS b) Batch OS c) Distributed OS d) Cloud OS	K2	CO1
3	What is the main disadvantage of First-Come-First-Serve (FCFS) scheduling? a) Starvation b) Convoy effect c) High throughput d) Preemptive nature	K1	CO2
4	Which of the following mechanisms is used to handle deadlocks? a) Mutual exclusion b) Preemption c) Virtual memory d) Circular wait prevention	K2	CO2
5	Which memory management technique divides memory into fixed-size blocks? a) Segmentation b) Paging c) Swapping d) Contiguous Allocation	K1	CO3
6	Which of the following page replacement algorithms is optimal? a) FIFO b) LRU c) Optimal d) Clock	K2	CO3
7	What is the purpose of disk scheduling? a) Allocate memory b) Optimize r/w efficiency c) Prevent deadlocks d)) Allocate CPU time	K1	CO4
8	Which of the following disk scheduling algorithms minimizes seek time? a) FCFS b) SSTF c) FIFO d) Round Robin	K2	CO4
9	What is the primary goal of virtualization in operating systems? a) Improve CPU scheduling b) Provide an abstraction of hardware resources c) Increase disk speed d) Reduce memory fragmentation	K1	CO5
10	What is containerization? a) A type of OS scheduling b) A lightweight form of virtualization c) A file management system d) A paging mechanism	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

ALL questions carry EQUAL Marks (3 x 7 = 21)			
Question No.	Question	K Level	CO
11.a.	Explain the major components of an operating system.	K2	CO1
(OR)			
11.b.	Describe different types of system calls with examples.		
12.a.	Examine different scheduling criteria and their significance.	K3	CO2
(OR)			
12.b.	Express the impact of race conditions on concurrent processing.		
13.a.	Compare fixed and dynamic partitioning in memory management.	K4	CO3
(OR)			
13.b.	Examine how paging helps in efficient memory allocation.		
14.a.	Explain the different types of I/O buffering techniques.	K5	CO4
(OR)			
14.b.	Compare different types of disk scheduling algorithms.		
15.a.	Explain how hypervisors manage virtual machines.	K5	CO5
(OR)			
15.b.	Evaluate the role of virtualization in cloud computing.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Question No.	Question	K Level	CO
16	Define interprocess communication (IPC) and explain mechanisms and their implementation.	K1	CO1
17	Develop different process scheduling algorithms with examples and compare their efficiency.	K3	CO2
18	Express various memory management techniques and their importance in system performance.	K3	CO3
19	Compare different file allocation methods and their efficiency.	K5	CO4
20	Explain how virtualization enhances resource management and efficiency in data centers.	K5	CO5