23SSP420

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc(SS) DEGREE EXAMINATION MAY 2025
(Fourth Semester)

Branch – **SOFTWARE SYSTEMS (Five Year 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 included in the Process Control Block (PCB)? a) CPU registers b) Program counter c) Process ID d) Source code of the process	K2	CO2
3	Which of the following is NOT a condition for deadlock? a) Mutual Exclusion b) Preemption c) Hold and Wait d) Circular Wait	K1	CO1
4	What is Scheduling? a) allow a job to use the process b) make proper use of process c) allow the create new process d) create a priority process	K2	CO2
5	Which of the following refers the process of converting logical addresses into physical addresses? a) Swapping b) Address Binding c) Fragmentation d) Compaction	K1	CO1
6	What is a Translation Lookaside Buffer (TLB)? a) A cache for page tables to speed up address translation b) A storage unit for virtual memory c) A main memory replacement strategy d) A mechanism for handling page faults	K2	CO2
7	Which of the following is NOT a function of a file system? a) File creation and deletion b) Memory allocation c) File access control d) Directory structure management	K1	CO1
8	Which page replacement algorithm replaces the least recently used page? a) FIFO b) Optimal c) LRU d) LFU	K2	CO2
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	CO1
10	What is the main function of a Virtual Machine Monitor (VMM)? a) Executes CPU instructions faster b) Emulates entire hardware for a virtual machine c) Schedules threads for execution d) Manages network traffic	K2	CO2

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

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

Question No.	Question	K Level	CO
11.a.	Explain the key functions of an operating system.	K2	CO2
	(OR)		
11.b.	Describe system calls and their role in OS functionality.		
12.a.	Explain different CPU scheduling algorithms with examples.	K3	CO3
	(OR)		
12.b.	Explain the role of semaphores in synchronization with an example.		
13.a.	Compare paging and segmentation memory management techniques.	K3	CO3
	(OR)		
13.b.	Describe page replacement algorithms with an example.		
14.a.	Explain the structure and organization of I/O systems.	K2	CO2
	(OR)		
14.b.	State the advantages and disadvantages of indexed file allocation.		
15.a.	Explain the concept of virtualization and its advantages.	K2	CO2
	(OR)		
15.b.	Explain the impact of virtualization on system performance.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

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

Question No.	Question	K Level	CO
16	Identify different operating system structures and compare their advantages.	K3	CO3
17	Compare different deadlock prevention, avoidance, and detection techniques.	K4	CO3
18	Discuss various memory management techniques and their importance in system performance.	K3	CO3
19	Summarise various disk scheduling algorithms and their impact on I/O performance.	K3	CO3
20	Discover how virtualization enhances resource management and efficiency in data centers.	K4	CO3

Z-Z-Z

END