

First Semester MCA Degree Examination, June/July 2024 Operating System Concepts

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M: Marks, L: Bloom's level, C: Course outcomes.

ime. 3 hrs.

		Module – 1	M	L	С
Q.1	a.	What is Operating System? Explain multiprogramming and time sharing system.	06	L1	CO1
	b.	Explain dual mode operating system with a neat block diagram.	10	L1	CO ₁
	c.	Distinguish between the client – server and peer – to – peer models of	04	L2	CO1
	C.	distributed system.		ν	1
		OR			
Q.2	a.	What is Interprocess communication? Explain direct and Indirect communication with respect to message passing system.	10	L2	CO1
	b.	What are system calls? Briefly print out its types.	04	L2	CO1
	c.	Analyze modular kernel approach with layered approach with a neat sketch.	06	L2	CO1
		Module – 2			
Q.3	a.	What is process? What is PCB? What are the different states of a process? Explain using diagrams.	10	L2	CO2
	la la	Write a note on IPC. Explain two methods.	04	L2	CO2
	b.	Explain in detail direct and indirect communication.	06	L2	CO1
	c.	Explain in detail direct and indirect communication.			
		OR			
Q.4	a.	What is a multithread programming? Explain multithreading models.	08	L1	CO ₂
V.1	b.	What is CPU scheduler? Consider the following set of process, with the	12	L3	CO ₂
	1	length of the CPU-burst time given in milliseconds. Find Turnaround Time and Waiting time. Process Arrival Time Burst Time P1 0 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7			
		Module – 3	06	L2	CO3
Q.5	a.	What is monitor? With a neat diagram explain the working of monitor.	08	L2	CO3
	b.	What is a Semaphore? Define wait and signal operation. Explain the usage of semaphores.			
	c.	What is paging? Give advantages and disadvantages.	06	L2	CO3
		OR	4.0	T 4	600
Q.6	a.	What are deadlocks? What are its characteristics? Explain the necessary	10	L1	CO3
		condition for its occurrence.	4.0	T 4	000
	b.	What is Resource Allocation Graph (RAG)? Explain how RAG is very	10	L1	CO ₃
		useful in describing deadly embrace by considering your own example.			

diagram. b. Explain with a diagram, how TLB is used to solve the problem of simple paging scheme. c. Distinguish between: i) Logical address space and physical address space ii) Internal fragmentation and External fragmentation iii) Paging and Segmentation OR Q.8 a. Discuss in detail about contiguous memory allocation with a neat diagram. b. Explain basic method of implementing paging concept. Module – 5 Q.9 a. What is File Concept? Discuss briefly about file attributes and operation. b. Explain various access methods in File System. c. What is a Directory Structure? Explain scheme for defining the logical of a directory. OR	Q.7		Modulo			
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