

**PRAGATI ENGINEERING COLLEGE: SURAMPALEM
(AUTONOMOUS)**

III B.Tech I Semester Supplementary Examinations, May-2024

**OPERATING SYSTEMS
(Common to CSE(AI&ML), CSE(AI) and CSE(DS))**

Time: 3 hours

Max. Marks: 70

**Answer ONE Question from each Unit
All Questions Carry Equal Marks**

Q. No.	Question		BTL	CO	Marks
UNIT – I					
1.	a)	Draw and explain about the operating system structure.	K2	CO1	7M
	b)	List out the Operating systems operations.	K2	CO1	7M
OR					
2.	Define the systems call and explain in detail about the Types of System Calls.		K2	CO1	14M
UNIT – II					
3.	a)	Explain in detail, the sequence of actions taken by the operating system to context switch between processes.	K2	CO2	7M
	b)	Write and explain various scheduling criteria with respect CPU scheduling. And show the calculations for at least 5 processes arriving at consecutive intervals.	K3	CO2	7M
OR					
4.	a)	Discuss about the Semaphores.	K2	CO2	7M
	b)	Describe the Dining philosopher’s problem.	K2	CO2	7M
UNIT – III					
5.	a)	What is a page fault? Explain the steps involved in handling a page fault with a neat sketch.	K2	CO3	7M
	b)	Explain about the Kernel memory allocation.	K2	CO3	7M
OR					
6.	Consider the following page reference string 2,3,4,5,3,2,6,7,3,2,3,4,1,7,1,4,3,2,3,4,7. Calculate the number of page faults with LRU, FIFO and optimal page replacement algorithms with frame size of 3		K3	CO3	14M
UNIT – IV					
7.	a)	What is critical section problem? Write and explain Peterson’s solution for it.	K2	CO4	7M
	b)	How to prevent necessary and sufficient conditions of deadlock? Explain.	K2	CO4	7M
OR					
8.	Discuss about the SCAN, C-SCAN and LOOK, C-LOOK disk scheduling algorithms with an example.		K2	CO4	14M
UNIT – V					
9.	a)	Write about the Principles and domain of protection.	K2	CO5	7M
	b)	Discuss about the Access matrix and Access control.	K2	CO5	7M
OR					
10.	a)	Describe the System and network threats.	K2	CO5	7M
	b)	How to provide the Firewall to protect systems and networks? Explain.	K2	CO5	7M