Course Code: 23CS4T04

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

(AUTONOMOUS)

II - B. Tech II-Semester Supplementary Examinations (BR23), Aug - 2025

OPERATING SYSTEMS (Common to CSE, CSE- (AI & DS))

Time: 3 hours Max. Marks: 70

Question Paper consists of Part-A and Part-B

*Answer **ALL** the question in **Part-A and Part-B***

PART–A (10X2 = 20M)

		Marks	CO	BL
1. a)	What is an operating system?	(2M)	CO1	BL1
b)	Define system software.	(2M)	CO1	BL1
c)	What does the term concurrency mean?	(2M)	CO2	BL2
d)	What is a burst time?	(2M)	CO2	BL2
e)	What is resource allocation?	(2M)	CO3	BL2
f)	Analyse a code and identify the critical section.	(2M)	CO3	BL5
g)	What is paging?	(2M)	CO4	BL1
h)	Choose the best-fit strategy for a 300KB process in blocks 100KB, 350KB, 200KB.	(2M)	CO4	BL3
i)	Is indexed allocation better for random access?	(2M)	CO5	BL5
j)	Name two file allocation techniques.	(2M)	CO5	BL1

PART–B (5X10 = 50M)

2a.	Justify the need for system calls in operating system design.	5(M)	CO1	BL5
b.	Describe how open-source OS contributes to academia and industry using examples.	5(M)		BL3
	(OR)			
3a.	Compare system programs and application programs based on structure and functionality.	5(M)	CO1	BL4
b.	Review the different techniques for OS debugging. Which is most effective and why?	5(M)		BL5
4a.	Apply the concept of inter-process communication to design a producer-consumer system.	10(M)	CO2	BL3
	(OR)			
5a	Examine the conditions that can lead to race conditions in multithreaded applications.	10(M)	CO2	BL4
6a.	Analyse the differences between semaphores and monitors.	5(M)	CO3	BL4
b.	Evaluate how a process enters and exits a monitor.	5(M)		BL4
	(OR)			
7a.	Apply Peterson's solution to synchronize two threads.	5(M)	CO3	BL3
b.	Show how you would avoid deadlock using resource-ordering strategy.	5(M)		BL3

8a.	Judge whether LRU is better than FIFO for page replacement.	10(M)	CO4	BL5
	(OR)			
9a. b.	Apply the First-Fit, Best-Fit, and Worst-Fit memory allocation strategies to a given memory scenario.	10(M)	CO4	BL4
10a.	Demonstrate mounting of a secondary file system on a running OS.	10(M)	CO5	BL4
	(OR)			
11a.	Show how to implement an access matrix for a set of users	10(M)	CO5	BL4

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