Course Code: 24BC3T06

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

(AUTONOMOUS)

II - BCA I-Semester Supplementary Examinations (BR24) May - 2026

OPERATING SYSTEMS (BCA)

Time: 3 hours | Max. Marks: 70

Question Paper consists of Part-A and Part-B
*Answer **ALL** the question in **Part-A andPart-B***

PART–A (10X2 = 20M)

		Marks	CO	BL
1. a)	Define Operating system	(2M)	CO1	BL1
b)	List different types of Operating System services	(2M)	CO1	BL1
c)	Define Process Control Block (PCB). Explainany two fields stored in it.	(2M)	CO2	BL2
d)	What is Inter process Communication (IPC)Name any two IPC mechanisms.	(2M)	CO2	BL1
e)	Define Page and frame	(2M)	CO3	BL1
f)	What is Page fault and list different page replacement algorithms	(2M)	CO3	BL1
g)	Define semaphore and Give different operations in semaphores	(2M)	CO4	BL1
h)	Explain the different necessary conditions for deadlock.	(2M)	CO4	BL2
i)	Define file and list different attributes of the file	(2M)	CO5	BL1
j)	Define file protection	(2M)	CO5	BL1

PART–B (5X10 = 50M)

2	Explain Different Structures of an Operating system in detail	10M	CO1	BL2

(OR)

3a.	Explain different services provided by an operating system.	5(M)	CO1	BL2
3b	What are the different system calls in an operating system Explain in brief	5(M)	CO1	BL2

4a.	Define Process Explain Process state diagram in detail	5(M)	CO2	BL2
4b.	What is a Context switch and Explain how context switch from process to process with a neat diagram	5(M)	CO2	BL1

(OR)

5	Apply Pre-emptive Shortest Job First scheduling algorithm on the following Process table with given Burst time and arrival time to calculate the average waiting time and average turnaround time	10(M)	CO2	BL3

Process	Arrival time	Burst time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

6a.	What is fragmentation Compare internal and external fragmentation	5(M)	CO3	BL4
6b.	Explain Optimal Page replacement algorithm with an example	5(M)	CO3	BL2

(OR)

7	A system uses 3 page frames for storing process pages in main memory. It uses the FIFO and Least Recently Used page replacement policy. Assume that all the page frames are initially empty. Find the total number of page faults that will occur while processing the page reference string given below 7, 0, 1 ,2, 0 ,3 ,0 ,4, 2 ,3 ,0 ,3, 2,1, 2 ,0, 1, 7 ,0 ,1	10(M)	CO3	BL5
8a.	What is a critical section Problem explain Peterson's solution for it	5(M)	CO4	BL2
8b.	What is monitor and explain the use of monitor in process synchronization	5(M)	CO4	BL2

(OR)

9	Explain Different deadlock prevention methods	10(M)	CO4	BL2
10a.	List and Explain Different file operations in detail	5(M)	CO5	BL1
10b.	List and Explain different file access methods in detail	5(M)	CO5	BL1

(OR)

11a.	Explain different file protection techniques in detail	5(M)	CO5	BL2
11 b	Explain Different file allocation methods in brief	5(M)	CO5	BL2

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