Subject Code: 22AM305PC	SET-II	HT NO:			7	R					

CMR TECHNICAL CAMPUS

UGC AUTONOMOUS

B. Tech. III Sem Regular End Examinations, February-2024

Operating Systems

Common to AIML, CSM

Time: 3 Hours **Max. Marks: 60**

Note

i. This Question paper contains Part- A and Part- B.
ii. All the Questions in Part A are to be answered compulsorily.
iii. All Questions from Part B are to be answered with internal choice among them.

****

PART-A

10 X 01 = 10 Marks

			Marks	CO	BL
1.	a	What are the advantages of Multiprogramming?	1	CO1	L1
	b	Define Thread?	1	CO1	L1
	c	What are various criteria for a good process scheduling algorithm?	1	CO2	L1
	d	Define Starvation in deadlock?	1	CO2	L1
	e	Write short notes on Monitor?	1	CO3	L1
	f	How message passing is used in inter-process communication?	1	CO3	L1
	g	What is virtual memory?	1	CO4	L1
	h	Write about swapping.	1	CO4	L3
	i	Mention the common file types.	1	CO5	L1
	j	Differentiate between file and directory.	1	CO5	L3

PART- B

5 X 10 = 50 Marks

			Marks	CO	BL
2.	a	Explain the different functions of an operating system and discuss the various services provided by an operating system.	5	CO1	L2
	b	Discuss about the Cooperating Processes?	5	CO1	L3
		OR			
3	a	Explain Operating System Structures?	5	CO1	L2
	b	What is a process? Explain Process Control Block with neat diagram.	5	CO1	L3
4	a	Consider the following four processes, with the length of the CPU burst time given in milliseconds.	6	CO2	L3

Subject Code: 22AM305PC	SET-II	HT NO:			7	R					

	Process	Arrival Time(ms)	Burst Time (ms)
	P1	1	6
	P2	1	5
	P3	2	5
	P4	2	3

Find Average Waiting Time and Turnaround time for given Process using FCFS and SJF Algorithms?

	b	Explain about Deadlock Avoidance?	4	CO2	L2
		OR			
5	a	Explain about the system calls fork, exit, and wait, waitpid and exec.	5	CO2	L2
	b	Explain Dead lock detection (Banker's Algorithm) with an Example?	5	CO2	L2
6	a	What is Semaphore? Explain producer consumer problem using semaphore?	5	CO3	L2
	b	Describe the steps involved in establishing communication between two processes using FIFOs.	5	CO3	L2
		OR			
7	a	Discuss about semaphores in process synchronization.	5	CO3	L3
	b	Explain the concept of inter-process communication between processes on different systems.	5	CO3	L2
8	a	Explain the Logical versus Physical Address Space.	5	CO4	L3
	b	Discuss about page replacement algorithms with example.	5	CO4	L2
		OR			
9	a	Consider the following page reference string 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6 Determine how many page faults would occur for Optimal page replacement algorithm. Assume three frames are initially empty.	5	CO4	L3
	b	Differentiate paging and segmentation.	5	CO4	L3
10	a	What is File system and what are the various File access methods? Explain.	5	CO5	L2
	b	Explain about the system call for File operations with examples.	5	CO5	L2
		OR			
11	a	Explain free space management with neat example.	5	CO5	L2
	b	Discuss the indexed file allocation method with an example.	5	CO5	L3

****