R17

Code No: R17A0513

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech I Semester Supplementary Examinations, April 2023

Operating Systems

(CSE & IT)

Roll No										

Time: 3 hours **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

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SECTION-I

1	***A***	Discuss in detail about the Functions and Types of operating system	**[7M]**
	B	Explain the concepts of Operating System Design in detail	**[7M]**
		OR	
2	***A***	Examine the concepts of Operating Systems Objectives and functions	**[7M]**
	B	Mention the differences between Simple Batch, Multi programmed OS	**[7M]**

SECTION-II

3	***A***	Explain in detail the Round Robin Algorithm and find the average waiting time where there are three processes p1, p2, p3 and 24, 3, 3 is the burst time.	**[7M]**
	B	Explain in detail Multilevel Feedback Queue Scheduling (MLFQ) CPU Scheduling along with Advantages and disadvantages?	**[7M]**
		OR	
4	***A***	Evaluate the First Come First Serve (FCFS) method by calculating Average Waiting Time with the following data, Considering the arrival time 2,5,1,0,4 and burst time 6,2,8,3,4 for processes P1, P2, P3, P4 and P5 also explain in detail Advantages and disadvantages of FCFS	**[7M]**

Process	Burst time	Arrival time
P1	6	2
P2	2	5
P3	8	1
P4	3	0
P5	4	4

	B	Discuss about the Critical section Problem and mention in detail about Peterson's solution	**[7M]**

SECTION-III

5	***A***	Discuss in detail about translation Look Aside Buffer and Evaluate a) Effective memory access with TLB, b) Effective memory access without TLB and c) Reduction in effective access time, For a paged system, TLB hit ratio is 0.9, Let the RAM access time, t be 20ns and the TLB access time, T be 100ns.	**[7M]**
	B	What is Thrashing? What is the cause of Thrashing? How does the system detect Thrashing? What can the system do to eliminate this problem?	**[7M]**

OR

6	***A***	Explain different types of fragmentation in operating systems	**[7M]**
	B	What is a Virtual Memory? Discuss the benefits of virtual memory technique	**[7M]**

SECTION-IV

7	***A***	Explain and compare the FCFS and SSTF disk scheduling algorithms	**[7M]**
	B	Mention in detail about file attributes, operations and types and structures	**[7M]**

OR

8	***A***	Describe the Protection Mechanisms in Disk space management.	**[7M]**
	B	Analyse the concept of Swap space Management	**[7M]**

SECTION-V

9	***A***	Explain how to recover the system from a deadlock.	**[7M]**
	B	Describe the goals of Principles of Protection in operating system	**[7M]**

OR

10	***A***	How characterize the structure of deadlock? Explain the two solutions of recovery from deadlock	**[7M]**
	B	Explain the Capability-Based Systems and system protection in detail	**[7M]**

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