

**SRINIVASA RAMANUJAN INSTITUTE OF TECHNOLOGY****(AUTONOMOUS)**

III B. Tech I Sem – Semester End Examinations – Regular – Dec 2022

**OPERATING SYSTEMS****[R204GA05503]**

(Computer Science and Engineering)

**Time: 3 hours****Max. Marks: 60****PART-A**

(Compulsory Question)

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1		Answer the following: (10 X 02 = 20 Marks)																
	a)	Draw State Diagram of a Process.																
	b)	Make a comparison between the process and threads.																
	c)	List methods to implement LRU Page Replacement Algorithm.																
	d)	Compute the average latency of a disk spindle rotates with 7200 RPM.																
	e)	What are the main differences between capability lists and access lists																
<div><b><u>PART-B</u></b> (Answer all five units, 5 X 10 = 50 Marks)</div>																		
<b>UNIT-1</b>																		
2	a)	Explain how operating systems are used in a variety of computing environments	<b>[5M]</b>															
	b)	Explain about the dual mode operation in OS with a neat block diagram.	<b>[5M]</b>															
(OR)																		
3	Explain in detail the role of Operating system as a resource Manager.		<b>[10M]</b>															
<b>UNIT-2</b>																		
4	What is Semaphore? How can we achieve the synchronization using semaphore for producer consumer problem?		<b>[10M]</b>															
(OR)																		
5	Consider the following four processes, with the length of the CPU burst time given in milliseconds. <table><tr><td>Process</td><td>Arrival Time(ms)</td><td>Burst Time (ms)</td></tr><tr><td>P1</td><td>1</td><td>6</td></tr><tr><td>P2</td><td>1</td><td>5</td></tr><tr><td>P3</td><td>2</td><td>5</td></tr><tr><td>P4</td><td>2</td><td>3</td></tr></table> Find Average Waiting Time and Turnaround time for given Process using FCFS and SJF Algorithms?		Process	Arrival Time(ms)	Burst Time (ms)	P1	1	6	P2	1	5	P3	2	5	P4	2	3	<b>[10M]</b>
Process	Arrival Time(ms)	Burst Time (ms)																
P1	1	6																
P2	1	5																
P3	2	5																
P4	2	3																
<b>UNIT-3</b>																		
6	What is Thrashing? Explain the Causes of Thrashing.		<b>[10M]</b>															
(OR)																		
7	What is the need of Page Replacement? Consider the following reference string 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1. Find the number of Page Faults with FIFO, Optimal Page replacement and LRU with		<b>[10M]</b>															

	four frames which are empty initially. Which algorithm gives the minimum number of page faults?	
<b>UNIT-4</b>		
8	Explain the following disk scheduling algorithm with proper diagram a) FCFS b) SSTF c) SCAN d) LOOK e) C-SCAN.	[10M]
(OR)		
9	Explain How I/O requests are transformed to Hardware Operations	[10M]
<b>UNIT-5</b>		
10	Describe the principles of protection. Explain the access matrix in detail.	[10M]
(OR)		
11	Illustrate encryption methods with suitable scenarios.	[10M]

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