Hall Ticket No.: | | | | | | | | | | |

SRIT R20

SRINIVASA RAMANUJAN INSTITUTE OF TECHNOLOGY

(AUTONOMOUS)

III B. Tech I Sem – Continuous Internal Examinations II – Dec 2022 (AY: 2022-2023)

OPERATING SYSTEMS

[R204GA05503]

(Computer Science & Engineering)

Time: 2 hours **SET – 1** **Max. Marks: 30**

Answer the following questions

Q. No		Questions	Unit	Marks	CO	Cognitive Level
1	a)	Define deadlock.	III	2	CO1	Remember
	b)	Classify dimensions of application I/O interface.	IV	2	CO1	Remember
	c)	List the goals of protection.	V	2	CO1	Remember
UNIT-III						
2	a)	Explain about the banker's algorithm for deadlock avoidance.		4	CO4	Understand
	b)	Describe any two solutions of recovery from deadlock.		4	CO4	Understand
OR						
3		What are the different methods of handling deadlock?		8	CO4	Understand
UNIT-IV						
4		Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The current head position is at cylinder 143. The queue of pending requests is: 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130. What is the total distance that the disk arm moves to satisfy all the pending requests for each of the following Disk scheduling algorithms? i) SSTF ii) SCAN		8	CO5	Apply
OR						
5		Suppose that a disk drive has 5000 cylinders numbered 0 to 4999. The drive is currently serving a request at cylinder 143. The queue of pending requests in FIFO order 86,1470,913,1774,948,1509, 1022, 1750, 130 starting from current head position. What is the total distance that disk arm moves to satisfy the entire pending request for FCFS and SSTF disk scheduling algorithm?		8	CO5	Apply
UNIT-V						
6		Illustrate various access matrix implementation techniques.		8	CO6	Understand
OR						
7		Explain about domains of protection.		8	CO6	Understand

Prepared by

Name of the Faculty: Mr. M. Narasimhulu, Assistant Professor, CSE.

Signature of the Faculty:

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III B. Tech I Sem – Continuous Internal Examinations II – Dec 2022 (AY: 2022-2023)

OPERATING SYSTEMS

[R204GA05503]

(Computer Science & Engineering)

Time: 2 hours SET – 2 **Max. Marks: 30**

Answer the following questions

<table>
<tr><th colspan="2">Q. No</th><th>Questions</th><th>Unit</th><th>Marks</th><th>CO</th><th>Cognitive Level</th></tr>
<tr><td rowspan="3">1</td><td>a)</td><td>State resource allocation graph.</td><td>III</td><td>2</td><td>CO1</td><td>Understand</td></tr>
<tr><td>b)</td><td>Compute the average latency of a disk spindle rotates with 7200 RPM.</td><td>IV</td><td>2</td><td>CO1</td><td>Understand</td></tr>
<tr><td>c)</td><td>How security levels are measured?</td><td>V</td><td>2</td><td>CO1</td><td>Remember</td></tr>
<tr><td colspan="7">UNIT-III</td></tr>
<tr><td rowspan="2">2</td><td></td><td colspan="2">Consider the table given below for a system, find the need matrix and the safety sequence, using Banker’s algorithm. Resource – 3 types</td><td rowspan="2">8</td><td rowspan="2">CO4</td><td rowspan="2">Apply</td></tr>
<tr><td></td><td>A(10 instances)
B (5 instances)
C (7 instances)</td><td>
<table>
<tr><th>Process</th><th>Allocation
A B C</th><th>Maximum
A B C</th><th>Available
A B C</th></tr>
<tr><td>p_0</td><td>0 1 0</td><td>7 5 3</td><td>3 3 2</td></tr>
<tr><td>p_1</td><td>2 0 0</td><td>3 2 2</td><td></td></tr>
<tr><td>p_2</td><td>3 0 2</td><td>9 0 2</td><td></td></tr>
<tr><td>p_3</td><td>2 1 1</td><td>2 2 2</td><td></td></tr>
<tr><td>p_4</td><td>0 0 2</td><td>4 3 3</td><td></td></tr>
</table>
</td></tr>
<tr><td colspan="7">OR</td></tr>
<tr><td>3</td><td></td><td colspan="2">A system has four processes and five resources. The current allocation and maximum needs are as follows:
<table>
<tr><th></th><th>Allocated</th><th>Maximum</th></tr>
<tr><td>Process A</td><td>1 0 2 1 1</td><td>1 1 2 1 3</td></tr>
<tr><td>Process B</td><td>2 0 1 1 0</td><td>2 2 2 1 0</td></tr>
<tr><td>Process C</td><td>1 1 0 1 0</td><td>2 1 3 1 0</td></tr>
<tr><td>Process D</td><td>1 1 1 1 0</td><td>1 1 2 2 1</td></tr>
</table>
Find the minimum Available matrix that makes the system in safe state.</td><td>8</td><td>CO4</td><td>Apply</td></tr>
<tr><td colspan="7">UNIT-IV</td></tr>
<tr><td>4</td><td></td><td colspan="2">Explain the different disk scheduling algorithms with their comparisons.</td><td>8</td><td>CO5</td><td>Understand</td></tr>
<tr><td colspan="7">OR</td></tr>
<tr><td rowspan="2">5</td><td>a)</td><td>Explain the different components of I/O Hardware and different layers of I/O Software.</td><td>4</td><td>CO5</td><td>Understand</td></tr>
<tr><td>b)</td><td>What is File system? Explain various File Access Methods.</td><td>4</td><td>CO5</td><td>Understand</td></tr>
<tr><td colspan="7">UNIT-V</td></tr>
<tr><td>6</td><td></td><td colspan="2">Illustrate role-based access control with suitable diagrams.</td><td>8</td><td>CO6</td><td>Understand</td></tr>
<tr><td colspan="7">OR</td></tr>
<tr><td>7</td><td></td><td colspan="2">Illustrate encryption methods with suitable scenarios.</td><td>8</td><td>CO6</td><td>Understand</td></tr>
</table>

Prepared by

Name of the Faculty: Mr. M. Narasimhulu, Assistant Professor, CSE.

Signature of the Faculty: