

Roll No.

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SHAMBHUNATH INSTITUTE OF ENGINEERING AND TECHNOLOGY

Subject Code: BCS 401

Course: B.Tech

Subject: Operating Systems

SEMESTER: VIII

FIRST SESSIONAL EXAMINATION, EVEN SEMESTER, (2023-2024)

Branch: Computer Science and Engineering

Time -1hr30min

1. Attempt any FIVE questions.

Maximum Marks -30

Q N	QUESTION	Marks	CO	BL
a.	Define Batch operating system?			
b.	Give two differences between Real time System and Time Sharing System.	2	CO1	L2
c.	What is spooling?	2	CO1	L1
d.	Discuss any two main services of the operating system?	2	CO1	L1
e.	Define Multiprogramming and Multi Tasking.	2	CO1	L2
f.	Define GUI and API.	2	CO1	L2
		2	CO1	L2

2. Attempt any ONE of the following.

Q N	QUESTION	Marks	CO	BL
a.	Explain layered architecture / approach and its advantage in operating system design.	5	CO1	L1
b.	Differentiate between the Shell and Kernel.	5	CO1	L2
c.	What is system call? List three system call used for process management and file management?	5	CO1	L1

3. Attempt any FIVE questions.

Q N	QUESTION	Marks	CO	BL
a.	What is scheduling Criteria?	2	CO3	L1
b.	Define "Ageing" & "Starvation"?	2	CO3	L2
c.	What is Response time and Turnaround time?	2	CO3	L1
d.	What is Dispatcher?	2	CO3	L1
e.	Give two differences between FCFS & SJF.	2	CO3	L2
f.	Which scheduler is responsible to send processes from ready queue to CPU for execution?	2	CO3	L1

4. Attempt any ONE part of the following:

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Q N	QUESTION	5	CO3	L5																		
a.	Assume the following processes arrive for execution at the time indicated and also mention with the length of CPU burst time given in millisecond.																					
	<table><thead><tr><th>Job</th><th>CBT (ms)</th><th>Arrival time (ms)</th></tr></thead><tbody><tr><td>A</td><td>10</td><td>0</td></tr><tr><td>B</td><td>6</td><td>1</td></tr><tr><td>C</td><td>7</td><td>2</td></tr><tr><td>D</td><td>4</td><td>3</td></tr><tr><td>E</td><td>5</td><td>4</td></tr></tbody></table>				Job	CBT (ms)	Arrival time (ms)	A	10	0	B	6	1	C	7	2	D	4	3	E	5	4
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A	10				0																	
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C	7				2																	
D	4	3																				
E	5	4																				
	(i) Give a Gantt chart illustrating the execution of these processes using FCFS, RR (Time quantum $q=5$), and SJF																					
b.	Discuss the difference among short-term, medium term and long-term scheduling.	5	CO3	L1																		
c.	Discuss Process and Thread?	5	CO3	L2																		