



Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058
(An Autonomous Institute Affiliated to University of Mumbai)

End Semester Examination

May 2019

Max. Marks: 60

Class: SE

Course Code: CE43/IT44

Name of the Course: Operating Systems

Duration: 3 Hours

Semester: IV

Branch: CMPN/IT

Instructions:

- (1) All Questions are Compulsory
- (2) Draw neat diagrams
- (3) Assume suitable data if necessary

Question No.		Max. Marks	CO																		
Q 1 (a)	Explain various objectives and functions of Operating System.	6	CO1																		
Q 1 (b)	Differentiate between fork and exec system calls. OR Differentiate between Monolithic and Micro-Kernel.	6	CO1																		
Q2	Consider the following set of processes with length of CPU burst given in milliseconds. All processes arrive at time 0. Draw Gantt charts for scheduling using a) Round Robin with time quantum = 2 ms and b) Priority Scheduling. Also calculate Average Turnaround Time and Average waiting Time. <table><tr><td>Process</td><td>Burst Time</td><td>Priority</td></tr><tr><td>P1</td><td>10</td><td>3</td></tr><tr><td>P2</td><td>1</td><td>1</td></tr><tr><td>P3</td><td>2</td><td>4</td></tr><tr><td>P4</td><td>1</td><td>5</td></tr><tr><td>P5</td><td>5</td><td>2</td></tr></table>	Process	Burst Time	Priority	P1	10	3	P2	1	1	P3	2	4	P4	1	5	P5	5	2	12	CO2
Process	Burst Time	Priority																			
P1	10	3																			
P2	1	1																			
P3	2	4																			
P4	1	5																			
P5	5	2																			
Q3 (a)	Illustrate Producer Consumer Problem. OR Analyze the necessary conditions for deadlock	6	CO3																		
Q3(b)	Explain various levels of RAID.	6	CO2																		
Q4 (a)	Differentiate between paging and segmentation.	6	CO4																		



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Q4(b)	Compare various file allocation methods. OR Describe I-node Structure in detail.	6	CO5
Q5	Consider a reference string: 4, 7, 6, 1, 7, 6, 1, 2, 7, 2. the number of frames in the memory is 3. Find out the number of page faults respective to: 1. Optimal Page Replacement Algorithm 2. FIFO Page Replacement Algorithm 3. LRU Page Replacement Algorithm	12	CO4