



Sardar Patel Institute of Technology
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India
(Autonomous College Affiliated to University of Mumbai)

Mid Semester Examination

March 2018

Max. Marks: 20

Class: S.E.

Course Code: CE43/IT44

Name of the Course: Operating Systems

Duration: 60 Min

Semester: IV

Branch: Computers/IT

Instruction:

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

Q No.	Question	Max. Mark	CO															
Q.1	<p>Use Round Robin Scheduling for the process mentioned below where time quantum, $Q=4$.</p> <ol style="list-style-type: none">1. Draw Gantt chart of the schedule.2. Calculate the Completion Time of all the processes.3. Calculate Turn Around Time of all the processes.4. Calculate Waiting Time of all the processes.5. Calculate Average Waiting Time <table><thead><tr><th>Process</th><th>Arrival Time</th><th>Burst Time</th></tr></thead><tbody><tr><td>P1</td><td>0</td><td>24</td></tr><tr><td>P2</td><td>1</td><td>6</td></tr><tr><td>P3</td><td>2</td><td>7</td></tr><tr><td>P4</td><td>3</td><td>8</td></tr></tbody></table>	Process	Arrival Time	Burst Time	P1	0	24	P2	1	6	P3	2	7	P4	3	8	06 [2M] [1M] [1M] [1M] [1M]	CO2
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Q.2(a)	<p>Differentiate between Simple Batch System and Serial Processing System. (Any 5 points)</p> <p style="text-align: center;">OR</p> <p>What are the various Process States? (Draw suitable diagram.)</p>	05 05	CO1 CO1															

Q.2(b)	<p>Consider the code given below and answer the questions.</p> <pre> #include<stdio.h> void main() { int p1,p2; p1 = fork(); wait(); if (p1 == 0) { p2=fork(); if(p2==0) printf("Child1\n"); else printf("Child2\n"); } printf("Main\n"); } </pre> <p>(i) What is the Output of the code given? (ii) Justify your answer.</p>	03	CO1																												
Q.3	<p>Consider the following snapshot of a system at time T0. Total instances of resource are <A,B,C,D> = <12,12,8,10>. Deduce whether the system is in Safe State for given snapshot? (If yes give the safe sequence)</p> <table> <thead> <tr> <th></th><th>Allocation</th><th>Max</th><th>Available</th></tr> <tr> <th></th><th>ABCD</th><th>ABCD</th><th>ABCD</th></tr> </thead> <tbody> <tr> <td>P0</td><td>2 0 0 1</td><td>4 2 1 2</td><td>3 3 2 1</td></tr> <tr> <td>P1</td><td>3 1 2 1</td><td>5 2 5 2</td><td></td></tr> <tr> <td>P2</td><td>2 1 0 3</td><td>2 3 1 6</td><td></td></tr> <tr> <td>P3</td><td>1 3 1 2</td><td>1 4 2 4</td><td></td></tr> <tr> <td>P4</td><td>1 4 3 2</td><td>3 6 6 5</td><td></td></tr> </tbody> </table>		Allocation	Max	Available		ABCD	ABCD	ABCD	P0	2 0 0 1	4 2 1 2	3 3 2 1	P1	3 1 2 1	5 2 5 2		P2	2 1 0 3	2 3 1 6		P3	1 3 1 2	1 4 2 4		P4	1 4 3 2	3 6 6 5		06	CO3
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