

**Vivekananda College of Engineering & Technology, Puttur**  
 [A Unit of Vivekananda Vidyavardhaka Sangha Puttur ®]  
 Affiliated to VTU, Belagavi & Approved by AICTE New Delhi

CRM08	Rev 1.10	CSE	29/06/2022
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**CONTINUOUS INTERNAL EVALUATION - 1**

Dept:CSE	Sem / Div:4 <sup>th</sup> CSE	Sub: Operating Systems	S Code:18CS43
Date:05/07/2022	Time: 9:30-11:00	Max Marks: 50	Elective:N

Note: Answer any 2 full questions, choosing one full question from each part.

QN	Questions	Marks	RBT	CO's
<b>PART A</b>				
1	a Explain role of operating system from different view points. Explain the dual mode operation of an operating system. ✓	9	L1	CO1
	b Explain the UNIX system structure and layered approach structure of an operating system. ✓	8	L1	CO1
	c With neat diagram explain the concept of virtual machine. ✓	8	L1	CO1
<b>OR</b>				
2	a Distinguish between the following terms: i) Multiprogramming and multitasking ii) Multiprocessor systems and clustered systems.	9	L1	CO1
	b Compare and contrast short term, medium term and long term scheduling.	8	L1	CO1
	c Describe the implementation of inter-process communication using shared memory and message passing techniques	8	L1	CO1

## PART B

3	a	<p>Consider the following set of processes with CPU burst time (in ms).</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th>Process</th> <th>Arrival time</th> <th>Burst time</th> </tr> </thead> <tbody> <tr> <td>P1</td> <td>0</td> <td>6</td> </tr> <tr> <td>P2</td> <td>1</td> <td>3</td> </tr> <tr> <td>P3</td> <td>2</td> <td>1</td> </tr> <tr> <td>P4</td> <td>3</td> <td>4</td> </tr> </tbody> </table> <p>Compute the waiting time and average turnaround time for the above process using FCFS, SRT and RR (time quantum = 2ms) scheduling algorithm.</p>	Process	Arrival time	Burst time	P1	0	6	P2	1	3	P3	2	1	P4	3	4	9	L2	CO2
Process	Arrival time	Burst time																		
P1	0	6																		
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P3	2	1																		
P4	3	4																		
	b	Explain the different multithreading issues in detail	8	L1	CO2															
	c	With a neat sketch explain Single threaded & multithreaded process. List the benefits of multithreaded programming.	8	L2	CO2															

4	a	<p>Consider the following set of processes. Draw Gantt charts and calculate average waiting time and average turnaround time using non-preemptive SJF and preemptive SJF scheduling algorithms.</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th>Process</th> <th>Arrival time (ms)</th> <th>Burst time (ms)</th> </tr> </thead> <tbody> <tr> <td>P<sub>1</sub></td> <td>0</td> <td>8</td> </tr> <tr> <td>P<sub>2</sub></td> <td>1</td> <td>4</td> </tr> <tr> <td>P<sub>3</sub></td> <td>2</td> <td>9</td> </tr> <tr> <td>P<sub>4</sub></td> <td>3</td> <td>5</td> </tr> </tbody> </table> <p style="margin-left: 20px;">2.5 7.25</p> <p style="margin-left: 400px;">6.5 13 K<sub>2</sub></p>	Process	Arrival time (ms)	Burst time (ms)	P <sub>1</sub>	0	8	P <sub>2</sub>	1	4	P <sub>3</sub>	2	9	P <sub>4</sub>	3	5	9	L2	CO2
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P <sub>4</sub>	3	5																		
	b	Explain the multithreading models with neat diagrams ✓	8	L1	CO2															
	c	With a neat diagram explain Multilevel Queue and multilevel feedback queue scheduling. ✗	8	L2	CO2															

Prepared by: Mrs. Bharathi K/Mr. Raghavendra T.K

HOD