

MSc. I(DS)/02.22.005

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M.Sc. COMPUTER SCIENCE WITH SPECIALISATION IN DATA SCIENCE
FIRST SEMESTER EXAMINATION, FEBRUARY 2022
20-359-0102 OPERATING SYSTEM CONCEPTS
(Regular)

Time : 3 Hours**Maximum Marks:50**

(Answer ANY FIVE questions)

Each question carries 10 Marks

QUESTIONS		Marks																		
I	<p>An operating system uses Round Robin process scheduling with time quantum = 2 unit</p> <p>Consider the arrival time and burst time of the following processes:</p> <table border="1"> <thead> <tr> <th>Process</th><th>Arrival Time</th><th>Execution Time</th></tr> </thead> <tbody> <tr> <td>P1</td><td>0</td><td>5</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>2</td></tr> <tr> <td>P5</td><td>4</td><td>3</td></tr> </tbody> </table> <p>Calculate the average waiting time and turn around time.</p>	Process	Arrival Time	Execution Time	P1	0	5	P2	1	3	P3	2	1	P4	3	2	P5	4	3	10
Process	Arrival Time	Execution Time																		
P1	0	5																		
P2	1	3																		
P3	2	1																		
P4	3	2																		
P5	4	3																		
II	Describe in detail about threading models and threading patterns used in Linux operating systems.	10																		
III	Explain in detail the different types of virtual machines and their implementations.	10																		
IV	<p>a) Explain in detail the different scheduling queues and schedulers used for process scheduling.</p> <p>b) With examples explain about internal and external fragmentation.</p>	5 5																		
V	Explain in detail about the different types of distributed operating systems.	10																		
VI	Describe in detail the OSI protocol layers.	10																		

VII	a) What is a process ID? Describe the process ID allocation process. Which are the system calls used for obtaining the process ID and parent process ID?	4
	b) Describe in detail about mmap() system call. What are the advantages and disadvantages of the same?	6