

Name.		Printed Pages:01														
Student Admn. No.: _____																
School of SCAT Back Paper Examination Even Semester (Non - Graduating Batches) – June 2024 [Programme: BCA] [Semester: IV] [Batch:]																
Course Title: Operating System		Max Marks: 100														
Course Code: BCAC2202 / BCAS2015 / BTCS2400		Time: 3 Hrs.														
Instructions:	1. All questions are compulsory. 2. Assume missing data suitably, if any.															
		K Level	COs	Marks												
SECTION-A (15 Marks)		5 Marks each														
1.	Discuss various types of operating system with example.	K2	CO1	5												
2.	Differentiate between preemptive and non -preemptive process scheduling.	K1	CO1	5												
3.	Find the average turnaround time and average waiting time for the processes given in the table below using SJF Non preemptive algorithm. Process CPU burst time (in ms)			5												
	<table style="margin-left: 20px;"> <thead> <tr> <th><u>Process</u></th> <th><u>Burst Time</u></th> </tr> </thead> <tbody> <tr> <td>P_1</td> <td>6</td> </tr> <tr> <td>P_2</td> <td>8</td> </tr> <tr> <td>P_3</td> <td>7</td> </tr> <tr> <td>P_4</td> <td>3</td> </tr> </tbody> </table>	<u>Process</u>	<u>Burst Time</u>	P_1	6	P_2	8	P_3	7	P_4	3					
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SECTION-B (40 Marks)		10 Marks each														
4.	Discuss the necessary conditions for deadlock. How deadlock can be prevented?	K3	CO2	10												
5.	Consider the FCFS and RR (quantum = 10 milliseconds) scheduling algorithms for this set of processes. Which algorithm would give the minimum average waiting time?			10												
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P_1	10															
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6.	Define page fault. Write the steps taken by operating system to handle page fault.			10												
7.	Discuss various memory allocation methods in memory management..	K4	CO2	10												
SECTION-C (45 Marks)		15 Marks each														
8.	Consider the following page reference string: 1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6.	K3	CO3	15												

	<p>How many page faults would occur for the following replacement algorithms, assuming one, two, three, four, five, six, and seven frames? Remember that all frames are initially empty, so your first unique pages will cost one fault each.</p> <p>1.LRU replacement</p> <p>2.FIFO replacement</p> <p>3.Optimal replacement</p>			
9.	<p>Consider the following disk request sequence for a disk with 90 tracks 12, 34, 52, 14,25,68,39 R/W head is starting at 53. Find the number of movements using FCFS and SSTF Scheduling.</p>	K3	CO3	15
10	<p>Given six memory partitions of 300 KB, 600 KB, 350 KB, 200 KB, 750 KB, and 125 KB (in order), how would the first-fit, best-fit, and worst-fit algorithms place processes of size 115 KB, 500 KB, 358 KB, 200 KB, and 375 KB (in order)? Rank the algorithms in terms of how efficiently they use memory.</p>	K3	CO3	15