	1-76)				SET-II	
Roll No.						
	END CEMECT		/ersity EVEN SEMESTER, 2023-24			
	END SEMEST	ER EXAMINATION,	EVEN SEMESTER, 2020 - Total M	arke • 1(00	
Time Program Course Co	: 3 hour Name : B.Tech ode : SOC302	Semester Branch/Special Course Name	: VI Total H ization : CSE,AI&ML,Cyber Security : Operating System			
Note: All que	estions are compulsory. No stu	ident is allowed to leave the	examination hall before the completion of theti	me.		
Q. No 1	Attempt Any Four Pa	irts. Each Question Ca	arries 5 Marks.	C0 1		
(a)	Elaborate the main fund	tions of an operating system	stem?	CO 1	2	
(b)	Difference between mu	Itiprocessing and multip	rogramming operating system?	CO 1	2	
(c)	Explain the difference b	between monolithic and r	nicrokernel operating system		-	
(-1)	architectures.			CO 1	2	
(a)	What are the types of o	perating systems evolved	over time? Justify	CO 1	1	
(e)	How has the role of ope	rating systems evolved	over time: sustry.			
O. No 2	Attempt Any Four Par	ts. Each Question Ca	rries 5 Marks.	CO	BL	
(a)	What are the different st	ates of a process in an O	perating System? Explain with block	CO 2	2	
	diagram.					
(b)	Consider the set of 5 processes whose arrival time and burst time are given below- If the CPU scheduling policy is SJF, Calculate the average waiting time and average turnaround time.			CO 2	3	
	Process ID	Arrival time	Burst time			
	P1	1	3			
	P2	2	4			
	P3	1	2			
	P4	4	4			
(c)	Explain the difference be	etween preemptive and n	on-preemptive scheduling.	CO 2	2	
(d)	Explain the concept of semaphores in operating system. A counting semaphore S is initialized to 7. Then, 20 P operations and 15 V operations are performed on S. What is the final value of S?			CO 2	2	
(e)	Differentiate between Lo	ong-Term, Short Term ar	d Medium-Term Schedulers.	CO 2	2	
		0				
		to Fach Question Co				
Q. No 3	Attempt Any Four Parts. Each Question Carries 5 Marks.			CO	BL	
(a)	Explain the concept of demand paging in operating System.			CO 3	2	
(D)	Differentiate external fragmentation with internal fragmentation.			CO 3	2	
(C) (d)	Explain necessary cond	find required for deadlo		CO_3	2	
(a)	A system uses 3 page frames for storing process pages in main memory. It uses the First in First out (FIFO) page replacement policy. Assume that all the page frames are initially empty. What is the total number of page faults that will occur while processing the page reference string given below-				3	
(e)	Explain the differences methods.	between contiguous a	nd non-contiguous memory allocation	CO 3	2	

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Q. No 4	Attempt Any Two Parts, Each Question Carries 10 Marks,	CO	BL
(a)	Consider a disk with 200 tracks and the queue has random requests from different processes in the order: 55, 58, 39, 18, 90, 160, 150, 38, and 184. Initially read/write head is at 100. Find the Average Seek length using FIFO and SCAN.	CO 4	3
(0)	Compare and contrast the advantages and disadvantages of contiguous, linked, and indexed allocation methods.	CO 4	2
(C)	Explain the structure of a directory in a file system. Discuss the different methods of organizing directories.	CO 4	2

Q. No 5	Attempt Any Two Parks Friday		
(a)	Explain the line of the line o	CO	BL
(b)	Discuss the unique challenges and requirements of real-time devicemanagement	CO 5	2
(D) (C)	Elaborate the Variance T for the Variance T for the Variance of the Variance o	CO 5	2
	all of the various Techniques for Accessing a Device?	COF	2

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