## Vivekananda College of Engineering & Technology, Puttur

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

CRM08

Rev 1.16 (2024 rev)

<CSE>

<12/12/24>

## CONTINUOUS INTERNAL EVALUATION - 2

Dept: AI / CD / CSE | Sem / Div: 3 A & B | Sub: Operating Systems | S Code: BCS303 |
Date: 19/12/24 | Time: 9:30-11:00 AM | Max Marks: 50 | Elective: N
Note: Answer any 2 full questions, choosing one full question from each part.

1	2						•	Quest	ions					e e .	Marks	RBT	COs
								PAR	TA								
1	a I	Expl	ain tl	ne fol	lowin	ıg:									5	L2	CO4
	1	<ul><li>i. Internal Fragmentation and External Fragmentation.</li><li>ii. Dynamic Loading and Linking.</li></ul>															
	b Explain paging. Analyze the problem in simple paging technique and											10	L2	CO4			
	show how ILB is used to solve the problem.										que and	10	D2				
	C	Apply Banker's Algorithm to answer the following:										,	10	L3	CO3		
	<ul><li>i. What is the content of NEED matrix?</li><li>ii. Is the system in a safe state?</li></ul>																
									P1(0	4 2	0)	arrive	es ca	n it be			
		iii. If a request from a process P1(0, 4, 2, 0) arrives, can it granted?															
	Assume that there are 5 processes and 4 types of resources A, B, C, I									3, C, D.							
	- 1	At time T <sub>0</sub> we have the following state:  P ALLOCATION MAX AVAILABLE															
	1	r			- manufacture or manufacture for the		MAX		Ta	T_	AVAILABLE				·	-	
			A	В	C	D	A	В	C	D	A	В	C	D			
		P0	0	0	1	2	0	0	1	2	1	5	2	0 .			
		P1.	1	0	0	0	1	7	5	0				^			1
		P2	1	3	5	4	2	3	5	6							
		Р3	0	6	3	2	0	6	5	2							
	-	P4	0	0	1	4	0	6	5	6							
										OR							
2				'ariou	s ste	ps of	addı	ess b	oindin	g wit	h the	e help	o of	a neat	5	L2	CO4
	_	liagr Expla		-man	d nag	ing in	deta	il Wl	nat is	nage	fault'	With	ı sun	porting	10	L2	CO4
	d	iagr	am ex	xplair	the s	steps i	nvol	ved in	hand	ling p	age f	ault.	Тэцр	portung	. 0		
	diagram explain the steps involved in handling page fault.  Apply Banker's Algorithm to answer the following:										10	L3	CO3				
i. What is the content of NEED matrix?																	
	ii. Is the system in a safe state? iii. If a request from a process P1(1, 0, 2) arrives, can it be																
		111				110111	а рі	100033	, , , ,	1, 0,	2) u	111103	,				
	Α	ssur	granted? assume that there are 5 processes and 3 types of resources A, B, C.											, B, C.	7		
	R	esou	irce t	type A	A has	ten ii	ıstan	ces, re	esour	ee typ	e B l	has fi	ve in	stances			
	i				pe C	has	seve	n ins	tance	s. At	time	$\Gamma_0$ v	ve ha	ive the			
	IC	following state:															
											1						
	1					1						1/0	THE	1		1	1

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Japan John

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## CONTINUOUS INTERNAL EVALUATION - 2

	PROCESSES	ALLOCATION			MA	X					
		A	В	С	A	В	С				
	P0	0	1	0	7	5	3				
	P1	2	0	0	3	2	2	-			
	P2	3	0	2	9	0	2	-			
	Р3	2	1	1	2	2	2				
	P4	0	0	2	4	3	$\frac{2}{3}$				
			ъ.		]	PART	В				
3 a	Explain the different access methods of files.									L2	CO5
b	Calculate the page faults using FIFO, OPTIMAL, LRU page									L3	CO5
	replacement algorithms for memory with 3 and 5 frames. Consider the										
page reference string 1, 2, 3, 4, 5, 3, 4, 1, 6, 7, 8, 7, 8, 9, 7, 8, 9, 5, 4, 5, 4, 2.											
С	Apply FCFS, S	apply FCFS, SSTF, SCAN, C - SCAN, LOOK, C - LOOK to								L3	CO5
	calculate the total disk traveled by the disk arm to satisfy the following								10		003
	sequence 95, 180, 34, 119, 11, 123, 62, 64 with the head initially at										
<u> </u>	track 50 and endi	ng at ti	ack 19	19.							
10	Evaloia the file to		J C1-	-44'14		OR					
	Explain the file types and file attributes.								5	L2	CO5
	Calculate the page faults using FIFO, OPTIMAL, LRU page replacement algorithms for memory with 3 and 5 frames. Consider the								10	L3	CO5
	replacement algorithms for memory with 3 and 5 frames. Consider the page reference string 1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6.										1
C	Apply FCFS, SSTF, SCAN C – SCAN, LOOK, C – LOOK to								10	L3	CO5
	calculate the total distance traveled (in cylinders) by the disk arm to								10	LJ	COS
	satisfy the request, starting from the current head position. Illustrate										1
	with figures in each case. A drive has 5000 cylinders numbered 0 to										
	4999. The drive is currently serving a request at cylinder 143. The										
	queue of pending request in FIFO order is: 86, 1470, 913, 1774, 948,										
	1509, 1022, 1750, 130.									.	