USN							18CS43
COIL				~			
		Fourth Semester B.E. Degree Example Example 5 (1997)			ı, Jui	ne/July	y 2024
		Operating Sys	ste	ms			
Tin	ne: 3	3 hrs.				Ν	Max. Marks: 100
	N	ote: Answer any FIVE full questions, choosing (ONE	full q	uestio	n from e	ach module.
		Module-1				G	
1	a.	Explain what is an operating systems. Discuss	the r	ole of	f opera	ting sys	
		view points.			ABARRAN		(06 Marks)
	b.	Explain the dual mode of operation of an operation List and explain the different states of process with					(07 Marks) (07 Marks)
	c.		nn a i		lagran	1,	(07 Warks)
2	a.	OR With a neat diagram, explain the concept of virtu	al ma	achine	د د		(07 Marks)
2	a. b.	What are system calls? Explain the handling of o				11.	(07 Marks) (07 Marks)
	с.	List the different operating system services and e				100 C	(06 Marks)
		Module-2	-				
3	a.	Explain the different multi threading models wit	h a d	iagrar	n. List	out the	different threading
		issues with multi threaded models. Explain any c	one.				(10 Marks
	b.	Calculate the average waiting time by drawing					
		shortest job first and round robin scheduling a	lgori	thms	for the	e follow	ing process. Time
		quantum = 4				4	
		ProcessBurst timeP024				APPENDE	
		P_1 3	5			91	
		P_2 3					
							(10 Marks)
		OR		in the	Q	ion to t	hia muchlam maina
4	a.	What is a critical section problem? List and e	expla	in the	solut		(10 Marks)
4		Peterson's algorithm	- F			e used f	
4	b.	Peterson's algorithm. What is Bounded Buffer problem? Explain how	~ ~	phore	s can b	i ubcu i	,
4	b.	Peterson's algorithm. What is Bounded Buffer problem? Explain how in this problem.	~ ~	phore	s can ł	le useu i	or synchronization
4	b.	What is Bounded Buffer problem? Explain how in this problem.	~ ~	phore	s can t	ie useu i	or synchronization
4	b. a.	What is Bounded Buffer problem? Explain how	sema	phore	s can ł	ie useu i	or synchronization (10 Marks)
		What is Bounded Buffer problem? Explain how in this problem. Module-3	sema nted.	phore	s can t		or synchronization (10 Marks) (10 Marks)
	a.	What is Bounded Buffer problem? Explain how in this problem. <u>Module-3</u> What is a deadlock? Explain how can it be preve	sema nted.	phore	s can t		or synchronization (10 Marks) (10 Marks)
	a.	What is Bounded Buffer problem? Explain how in this problem. What is a deadlock? Explain how can it be preve Explain Banker's algorithm for deadlock avoidan OR Given a system with total resources A(3) ;	sema nted. nce. B(14) and	1 C(12		or synchronization (10 Marks) (10 Marks) (10 Marks)
5	a. b.	What is Bounded Buffer problem? Explain how in this problem. <u>Module-3</u> What is a deadlock? Explain how can it be preve Explain Banker's algorithm for deadlock avoidan <u>OR</u> Given a system with total resources A(3) ; following system is in safe state or not using Bar	sema nted. nce. B(14) and algor	I C(12 rithm.), deter	or synchronization (10 Marks) (10 Marks) (10 Marks)
5	a. b.	What is Bounded Buffer problem? Explain how in this problem. Module-3 What is a deadlock? Explain how can it be preve Explain Banker's algorithm for deadlock avoidan OR Given a system with total resources A(3) ; following system is in safe state or not using Ban Allocation Max	sema nted. nce. B(14 nker's) and algor Ava	l C(12 rithm. ilabilit), deter	or synchronization (10 Marks) (10 Marks) (10 Marks)
5	a. b.	What is Bounded Buffer problem? Explain how in this problem.Module-3What is a deadlock? Explain how can it be preve Explain Banker's algorithm for deadlock avoidatORGiven a system with total resources $A(3)$; following system is in safe state or not using BarAllocation MaxA B C A B	sema nted. nce. B(14 nker's) and algor Ava A	l C(12 rithm. ilabilit B C), deter	or synchronization (10 Marks) (10 Marks) (10 Marks)
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5	a. b.	What is Bounded Buffer problem? Explain how in this problem.Module-3What is a deadlock? Explain how can it be preve Explain Banker's algorithm for deadlock avoidatORGiven a system with total resources A(3) ; following system is in safe state or not using BanAllocation MaxA B C A B P0 0 0 1 0 0 P1 1 0 0 1 7	sema nted. nce. B(14 nker's C 1 5) and algor Ava A	l C(12 rithm. ilabilit B C), deter	or synchronization (10 Marks) (10 Marks) (10 Marks)
5	a. b.	What is Bounded Buffer problem? Explain how in this problem. <u>Module-3</u> What is a deadlock? Explain how can it be preve Explain Banker's algorithm for deadlock avoidatORGiven a system with total resources A(3) ; following system is in safe state or not using BankAllocation Max $A \ B \ C \ A \ B$ $P_0 \ 0 \ 0 \ 1 \ 0 \ 0$ $P_1 \ 1 \ 0 \ 0 \ 1 \ 7$ $P_2 \ 1 \ 3 \ 5 \ 2 \ 3$	sema nted. nce. B(14 nker's) and algor Ava A	l C(12 rithm. ilabilit B C), deter	or synchronization (10 Marks) (10 Marks) (10 Marks)
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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-4

- 7 a. What is demand paging? Explain the steps in handling a page fault with a neat diagram. (10 Marks)
 - b. Consider the following page reference stream,
 7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1
 How many page faults would occur for LRU and FIFO page replacement algorithms assuming 3 Frames? What is Belady's anomaly? (10 Marks)

OR

8 a. Explain the two structures used to implement file systems. (10 Marks)
b. List the different methods of disk allocation and explain any one.
c. List the different free space management approaches and explain any two. (05 Marks)

Module-5

9 a. Explain access matrix and list its implementation.(10 Marks)b. Explain various disk scheduling algorithms with an example.(10 Marks)

OR

10 a. Explain the various components of the Linux system.(10 Marks)b. Explain disk formatting, boot block and bad block.(10 Marks)