R	eg.	No:								
		SIDDHAR	ΓΗ INSTITU	TE OF EN	GINEER	ING &	TECH	NOLO	DGY:: PUTTU	R
				(AU	TONOM	OUS)				
		B.Tech II	Year II Sem	ester Sup	plementa	ary Ex	aminati	ons F	ebruary-2022	2
			FUNDA	MENTALS	S OF OPE	ERATI	NG SYS	TEM	S	
		2.1	(Compu	ter Science	& Inform	ation T	echnolog	gy)		1 60
11	me:	3 hours		North States					Max. Ma	irks: 60
			()	an all tha O	PART-A	- 2 - 1	10 Montro	.)		
1		Explain the w	(Answ	er all the Q	le with on	$\mathbf{x} \mathbf{Z} = \mathbf{J}$	lo for on	s)		214
I	a	What is mean	t by the state of	f the proces	a^2	examp	ole for ea	CII.		
	D C	Give the cond	ition necessar	v for a dead	ss: llock situa	tion to	arice			21VI 2M
	d	What is the us	se of Valid-Inv	y lor a dead	Paging?		ar 150.			2M
	e	What are the o	operations that	t can be per	formed or	a Dire	ctory?			2M
	•		operations and]	PART-B		every v			
			(Ansv	ver all Five	Units 5 x	10 = 50	0 Marks))		
			10.1-0 (îv) bi	10-54C-0.1	UNIT-I		12, 12, (6)			
2	a	Describe in de	etail about cor	nputing env	ironments	s with r	eat diag	ram.		5M
	b	Write a short	note on system	n boot.			0			5M
					OR					
3	a	a Explain in detail about open source operating systems.								5M
	b	Discuss about	t User and Ope	erating Syst	em Interfa	ace.				5M
					UNIT-II					
4	a	Consider the t	following five	processes,	with the le	ength o	f CPU b	urst tir	ne given below:	
		Process	Burs	t Time		Priori	tv	7		
		P1	8	e i fille	4	1 11011		-		
		P2	6		1					
		P3	1		2		~	_		8M
		P4 P5	3		3			_		
		Consider a	Gantt chart	illustrating	the ex	recution	of th	lese i	ob using FCF	25
		RR(quantum=	=1) non preen	notive prior	itv& SIF	CPUs	chedulin	g. Cal	culate the avera	ge
		waiting time a	and average tu	rnaround ti	me for eac	ch of th	e above	Sched	uling algorithm.	0
	b	What does PC	CB contain?						6 6	2M.
					OR					
5	a	Discuss the di	ifferent multit	hreading mo	odels alon	g with	their Issu	ies.		7M

R18

3M

5M

5M

b What is the sequence of operation by which a process utilizes a resource?

UNIT-III

- 6 a Describe the banker's algorithm.
 - **b** Consider the following snapshot of a system.

Process	Allocation			Max				Available					
	A	В	С	D	Α	В	С	D	Α	В	С	D	
PO	0	0	1	2	0	0	1	2	1	5	2	0	
P1	1	0	0	0	1	7	5	0					
P2	1	3	5	4	2	3	5	6					
P3	0	6	3	2	0	6	5	2					
P4	0	0	1	4	0	6	5	6					

Answer the following questions using banker's algorithm: (i) What is the content of the matrix used? (ii) Is the system in a safe state?

OR

Q.J	P. Code: 18CI0601	18
7	a What is Process synchronization? Explain Critical-section problem with solution.	6M
	b Write the properties and limitations of semaphores.	4M
	UNIT-IV	
8	a What is Page replacement? Explain page replacement algorithms with example.	6M
	b Explain the concept of segmentation in detail.	4M
	OR	
9	a Consider the following page reference string 1,2,3,4,1,2,5,1,2,3,4,5. How many page	
	faults would occur for the following replacement algorithms, assuming 3 frames?	8M
	(i) LRU replacement (ii) FIFO replacement (iii) Optimal replacement	
	b Discuss swapping memory management?	2M
	UNIT-V	
10	a Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently	
	pending requests in EIEO order is: 86, 1470, 013, 1774, 048, 1500, 1022, 1750, 130	
	Starting from the current head position, what is the total distance (in cylinders) that the	9 M
	disk arm moves to satisfy all the pending requests for each of the following disk-	OIVI
	scheduling algorithms?	
	(i) FCFS (ii) SSTF (iii) SCAN (iv) LOOK (v) C-SCAN and (vi) C-LOOK.	
	b Explain File access methods in detail.	2M
	OR	
11	a Discuss about directory structures with examples.	5M
	b What is Directory? Explain Directory implementation.	5M

END