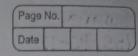
Devanshy S 10322107	Surana 55, PC-12	Page No.		
	Operating System	,		
	Lab Assignment 5 milder mineral	- 7951	hort	(senA
	Titte: Process Synchronization	1- 70	300	
hatimil	reduces on idem and adds to buffer of	9 10011	boll.	-
	FAQ's.		30/8	
Ans i]	A semaphore is simply an integer variable	that	is sh	ared
mulum	between threads. This variable is used t	u solve	the	critical
	section problem and to achieve process			
	in multiprocessing environment.	0		
A		nold ove	The	
to reflect	Semaphore are of 2 types Binary Charic	ablent	akes i	0 or 1)
	and general (counting: Variable takes it	nteger	value	
i buffer	the producer can't add data into for	todle 9	Frsur	
Joseph Line	wait: Decrement value of semaphore var	riable	CP.)	
	signal: Increment value of semaphore vari	able (v)	The Market
	na Semaphares:	ieu mi	Solut	
	when a process executes wait operation			semaphor
	value not greater than a, it must wait.	Maski T	nedo in	
	Instead of process doing a busy: want	proce	13	placed
	into a waiting queue associated wi	th the	sema	phore
201.4	and cru selects another process to	execut	Ging	
la malanta	Waiting process is restarted when some of	heripr	ocess	executes
	a signal operation. Process moves from wai	ting st	ate to	ready
	state and process is placed in ready qu	leue.	57	
	For both counting and binary semaphore	s,a	queue	is used
	I hold processed waiting on semaphore.			
	The fairest policy is First-In-Hirst-Out	(H14	0):The	e process
	that has been blocked the longest is in	elease	d from	1 the
	queue.	Him	4	
	to buffer	1100	4/10	
	: Castura : Castura : Castura	1.000	3	-
	(Uu	d with		



Ans 2) Producer - Consumer problem: - One of the classic problems of synchronization - Producer produces an item and adds to buffer of limited Consumer takes out an item from buffer and consumes it Buffer is a shared resource and must be used in mutual exclusion manner by both processes. The problem: Only one producer or consumer may access the buffer at Ensure that the producer can't add data into full buffer and consumer can't remove data from an empty buffer. Solution using semaphores: Initialization char item; Il could be any data type. char buffer[n]; Semaphore full = 0; Il counting semaphore for full slots. Semaphore empty=n; 11 counting semaphore for empty slots. semaphore mutex = 1; 11 binary semaphore for mutual exclusion of Producer Process do produce an empty in next p wait (empty); wait (mutex); add next p to buffer

signal (mutex);

signal cfull); 3 while (true)

Page No.

	Monitors.
	Monitors are a synchronization construct
	They can antain data variable and procedures
	Data variables cannot be directly accessed by a process.
	Monitors allow only a single process to access the variable
	a a time. I the a second making succession
	Monitors ensures mutual exclusion; no need to program
	ins constiant emplicition tence shared data are malerta
	by placing them in monitor
	The monitor locks the shared data on process entry.
	Ars 3) Different process synchronization prechanisms are:
ļ.,	2 Stranger and Committee and C
	with the maintain poillogue of a sudgener Ar
	to halinge ad our avadgement on a pattern of
	And a second orange second to some graduerous a
	The month of the state of the s
	75
	. Tollie and
	Muter allows the programmer to hock on object of
	at the sea threat can access it.
7	to a critical section of the cast of the
	Le crantes of the lock or markex extense entering mile al
-	the makes while course the course of
	defiles besult sat the waterwestern but the flaced estricts
	muter capte only native the mater.
	motor is a tecting mechanism used to sunch soires
	. 30111131 131