No. of Printed Pages : 2

M.Sc. II Semester Degree Examination, September/October - 2022 **COMPUTER SCIENCE** 21CSC2C8L (DSC-8) : Operating System

Time : 3 Hours Maximum Ma						
truct	ion : Ans	swer <b>any five</b> o	f the following t	with question a	no. <b>1 compulsory</b> .	
(a)	How does	s system call wor	ks ? Explain wit	h neat diagram	n. Explain the types of system	7
(b)	How do y	you define operat	ing system in us	ser and system	perspective point of view ?	7
(a) (b)	<ul> <li>(a) Illustrate with a neat sketch of process control block.</li> <li>(b) Consider the following set of processes with the length of CPU burst time milliseconds</li> </ul>					
	Process	Arrival time	Burst time	Priority		
	P1	0	12	4		
	P	2	10	3		
	Pa	3	14	5		
	- 3 P4	6	16	1		
	- 4 P-	30	5	1		
	(i) Dra SJF (ii) Cor	w Gantt charts i and non-pre-emt	llustrating exect ive priority sche	ution of these eduling algorit	processes using pre-emptive hms. each process in each of the	
	(ii) sche wai	eduling algorithm ting time and tu	n in (i) and find rnaround time.	which of them	results in minimum average	
(a)	Consider the following snapshot of a system.					
		Allocation	Max			
	$P_0 P_1 P_2 P_3$	A       B       C       D         3       0       1       4         2       2       1       0         3       1       2       1         0       5       1       0	A       B       C       D         5       1       1       7         3       2       1       1         3       3       2       1         4       6       1       2			
	(a) (b) (a) (b) (a) (c)	(a) How doe calls. (b) How do y (a) Illustrate (b) Consider millisecon Process $P_1$ $P_2$ $P_3$ $P_4$ $P_5$ (i) Dra SJF (ii) Cor sche wai (a) Consider $P_1$ $P_2$ $P_3$ $P_4$ $P_5$ (i) Dra SJF (ii) Cor sche wai	Ite : 3 Hourstruction : Answer any five of(a)How does system call wor calls.(b)How do you define operate(a)Illustrate with a neat sketce(b)Consider the following set milliseconds.ProcessArrival time $P_1$ 0 $P_2$ 2 $P_3$ 3 $P_4$ 6 $P_5$ 30(i)Draw Gantt charts i SJF and non-pre-emt(ii)Compute turnarour scheduling algorithm waiting time and tur(a)Consider the following snaAllocationA $P_0$ 3 $P_1$ 2 $P_1$ 2 $P_2$ 3 $P_3$ 0 $P_3$ 1 $P_3$ 0 $P_3$ <td>et : 3 Hoursatruction : Answer any five of the following of(a) How does system call works ? Explain with calls.(b) How do you define operating system in us(a) Illustrate with a neat sketch of process condition(b) Consider the following set of processes of milliseconds.Process Arrival time Burst time<math>P_1</math>0<math>P_2</math>2<math>P_2</math>2<math>P_2</math>2<math>P_3</math>3<math>P_4</math>6<math>P_5</math>30(i) Draw Gantt charts illustrating exertsSJF and non-pre-emtive priority sched(ii) Compute turnaround time and wat scheduling algorithm in (i) and find waiting time and turnaround time.(a) Consider the following snapshot of a system(a) Consider the following snapshot of a system<math>A B C D</math><math>A B C D</math><math>P_0</math>3&lt;0</td> $P_1$ 2 $P_2$ 3 $P_2$ 3 $P_3$ 0 $P_3$ 0 $P_3$ 0 $P_3$ 0 $P_3$ 0 $P_1$ 2 $P_1$ 2 $P_2$ 3 $P_3$ 0 $P_3$ 0 $P_3$ 0 $P_3$ 0 $P_3$ 0 $P_1$ 2 $P_2$ 1 $P_3$ 0 $P_1$ 2 $P_2$ 1 $P_3$ 0 $P_3$ 0 $P_1$ 2 $P_2$ 1 $P_3$ 0 $P_1$ 2 $P_2$ </td <td>Reference is a Hourstruction : Answer any five of the following with question and the following is the following with neat diagram calls.(a)How does system call works ? Explain with neat diagram calls.(b)How do you define operating system in user and system(a)Illustrate with a neat sketch of process control block.(b)Consider the following set of process control block.(b)Consider the following set of processes with the length milliseconds.ProcessArrival timeBurst timePrincessArrival timePa2103P33145P46161P53051(i)Draw Gantt charts illustrating execution of these SJF and non-pre-emtive priority scheduling algorit(ii)Compute turnaround time and waiting time for scheduling algorithm in (i) and find which of them waiting time and turnaround time.(a)Consider the following snapshot of a system.A B C DA B C DP030P122P231P30591293211P2312103211P3051111111111111<td>e : 3 Hours       Maximum Marks :         thruction : Answer any five of the following with question no. 1 compulsory.         (a) How does system call works ? Explain with neat diagram. Explain the types of system calls.         (b) How do you define operating system in user and system perspective point of view ?         (a) Illustrate with a neat sketch of process control block.         (b) Consider the following set of processes with the length of CPU burst time given in milliseconds.         Process Arrival time Burst time Priority         <math>P_1</math>       0         <math>P_2</math>       2         <math>P_3</math>       3         <math>P_4</math>       6         <math>P_5</math>       30         <math>P_5</math>       30         <math>P_5</math>       30         <math>P_5</math>       30         <math>P_6</math>       16         <math>P_5</math>       16         <math>P_5</math>       16         <math>P_5</math>       30         <math>P_6</math>       16         <math>P_5</math>       30         <math>P_6</math>       16         <math>P_6</math>       3         <math>P_6</math>       16         <math>P_6</math>       16         <math>P_6</math>       3         <math>P_7</math>       10         <math>P_8</math>       10         <math>P_8</math>       10         <math>P_</math></td></td>	et : 3 Hoursatruction : Answer any five of the following of(a) How does system call works ? 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 $P_4$ 4 2 1 2 6 3 2 5 Using the banker's algorithm, determine whether or not each of the following states is unsafe. If the state is safe, illustrate the order in which the processes may compute. Otherwise, illustrate why the state is unsafe.

Available = (0, 3, 01)(i)

- (ii) Available = (1, 0, 0, 2)
- What is semaphore and explain its problems with necessary modification of PV (b) 7 operations ?

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P.T.O.

Sl. No.

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4.	(a)	Explain the paging hardware with TLB.	7						
	(b)	What will be the EAT if hit ratio is 70%, time for TLB is 30 ns and access to main memory is 90 ns ?							
5.	(a)	For the following page reference string :	7						
		7 0 1 2 0 3 0 4 2 3 0 7 1							
		Calculate the page faults using FIFO and LRU for memory with 3 and 4 frames.							
	(b)	Explain the concept of thrashing and enlist the cause & of thrashing.							
6.	(a)	erentiate between threads and processes.							
	(b)	) With a neat diagram, explain resource allocation graph.							
7.	(a)	Explain swapping process with a neat diagram.							
	(b)	Explain various page replacement algorithms with an example.							
8.	(a)	Explain the file concept and enlist the common file attributes irrespective of any operat system.							
	(b)	Write a short notes on address binding.							
	(c)	Draw a neat sketch of process state diagram.	4						

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