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Reg No.:	Name:

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY FOURTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), MAY 2019

Course Code: CS204

	C	Course Name: OPERA	ATING SYSTEMS (CS)		
Max. I	Marks: 100			Duration: 3 I	Hours
1			RT A Each carries 3 marks. erating System?		3
2	How does the hardware find the Operating System kernel after system switch-on?				
3	The long term so	heduler directly affects	sthe system performance.	Explain how.	3
4	Differentiate three	ead from a process.			3
			RT B stions. Each carries 9 ma	rks.	
5	Explain the Kern	el data structures with	suitable example.		9
6	With the help of	a diagram explain the	different states of a proces	SS.	9
7	A writer process	like to send some bul	k information to a reader	process. Explain	9
	the IPC mechani	sm that can be used for	the purpose.		
			RT C ons. Each carries 3 mark	s.	
8	What is the diffe	rence between counting	g and binary semaphores?	•	3
9	Explain the synta	ax of a monitor.			3
10	What is preempt	ive scheduling? Give o	ne disadvantage of preem	ptive scheduling.	3
11	What are the nec	essary conditions that	cause deadlock in a syster	n?	3
			RT D		
12			ns. Each carries 9 marks. critical-section requireme		9
13	<u> </u>		age turnaround time for the	•	9
13			neduling algorithm ii) Pr	1	,
		ow using i) SKI sci	neduling algorithm ii) F	nonty scheduling	
	algorithm	A	CDII Danier Time (mar)	D.::::4	
	Process P1	Arrival Time (ms)	CPU Burst Time (ms) 5	Priority 3	
	P2	2	4	1	
	P3	3	1	2	
	D4	5	2	1	

Process	Arrival Time (ms)	CPU Burst Time (ms)	Priority
P1	0	5	3
P2	2	4	1
P3	3	1	2
P4	5	2	4



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14 Consider the following snapshot of a system with five processes P1, P2, P3, P4, 9 P5 and four resources A,B,C,D. Using Bankers Algorithm check whether the system is in safe state or not.

	Allocation			
	A	В	C	D
P1	1	0	2	2
P2	0	2	1	2
P3	2	4	5	0
P4	3	0	0	0
P5	4	2	1	3

Max			
A	В	С	D
3	2	5	2
3	4	1	2
2	7	7	3
5	5	0	7
6	2	1	4
DADTE			

Available			
Α	В	C	D
3	0	0	1

Answer any four questions. Each carries 10 marks.

- Differentiate logical address and physical address with an example. 4 15
 - b) What is dynamic storage-allocation problem with respect to contiguous memory allocation? Discuss the three strategies that act as a common solution to this problem.
- 16 a) What is demand paging? What are its advantages? 4
 - b) Consider the reference string: 8 4 6 4 3 5 8 4 3 2 3 5 8. Assuming demand paging with four frames, how many page faults would occur for:
 - i) FIFO replacement algorithm
 - ii) Optimal replacement algorithm
- With the help of an example explain the paging concept. 17 a) 6
 - b) Does paging suffer from fragmentation? Explain.
- 18 Compare sequential access and direct access methods of storage devices. 4 a)
 - b) What is the significance of access rights associated with each file in a system? 6
- 19 a) How can we make a new magnetic disk ready for use (to store files)? 5
 - 5 What is swap space? How is it managed in Linux system?
- 20 Explain FCFS, SSTF and SCAN disk scheduling algorithms, using the given disk queue of requests: - 20, 89, 130, 45 and 180. Assume that, the disk has 200 platters ranging from 0 to 199 and the current position of head is at cylinder 100.

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