Register Number:……………..

KUMARAGURU
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B.TECH. DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Fourth Semester

INFORMATION TECHNOLOGY

U18ITT4001: Operating Systems

COURSE OUTCOMES

CO1: Experiment with various CPU scheduling algorithms with the understanding of operating system concepts.
CO2: Apply the methods for process coordination.
CO3: Apply the various memory management strategies.
CO4: Illustrate the various file management strategies.
CO5: Apply the disk scheduling policies.

Time: Three Hours   **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	Is OS considered to be a resource manager? Justify.	CO1	[K3]
2.	In which situation, the turnaround time of a process will be equal to the burst time of a process?	CO1	[K3]
3.	List the conditions for deadlock.	CO2	[K1]
4.	State Peterson's solution with an example.	CO2	[K2]
5.	Which algorithm suffers from Belady's anomaly? When does it happen?	CO3	[K2]
6.	Differentiate between paging and segmentation.	CO3	[K2]
7.	Mention the importance of Access Control List.	CO4	[K1]
8.	How free space is managed using bit vector implementation?	CO4	[K2]
9.	Why is swap space management important?	CO5	[K2]
10.	List the components of Linux system.	CO5	[K1]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	Discuss the five criteria of CPU scheduling algorithms. Comment whether each of the five criteria should be high or low.	8	CO1 [K3]
	b)	Distinguish between short-term, medium-term and long-term scheduler.	8	CO1 [K2]
12.		Contrast between dining philosopher problem and readers writers problem and its solution.	16	CO2 [K2]
13.		Explain the concept and steps of demand paging in detail.	16	CO3 [K2]
14.	a)	Consider the reference string: 1,2,3,4,2,1,5,6,2,1,2,3,7,6,2,3,1,2,3,6. How many page faults will occur in FIFO, LRU and optimal replacement algorithms when 3 and 4 frames are considered?	12	CO3 [K3]
	b)	Differentiate between external and internal fragmentation	4	CO3 [K2]
15.	a)	Discuss the file system implementation.	8	CO4 [K3]
	b)	Explain the different types of file allocation methods in detail.	8	CO4 [K2]
16.	a)	Suppose a disk drive has 5000 cylinders 0-4999. Currently, the drive is at cylinder 143 and pending requests are given as: 86, 1470, 913, 1774, 948, 1509, 1022, 1750 and 130. What is the total distance in cylinders that is necessary to be travelled in case of I)FCFS ii) SSTF iii) SCAN iv) LOOK	8	CO5 [K3]
	b)	Bring out the concepts of disk structure by explaining about tracks, sectors, seek time and rotational latency.	8	CO5 [K2]

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