

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**B.Tech II Year I Semester Regular & Supplementary Examinations December-2023**  
**OPERATING SYSTEMS**

(Common to CSE, CSM, CAD, CAI, CCC & CIC)

**Time: 3 Hours**

**Max. Marks: 60**

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 a Define System call, List different types of system calls. CO1 L1 6M  
b Evaluate different types of system calls in operating system. CO1 L5 6M

**OR**

- 2 a Differentiate monolithic kernel and microkernel. CO1 L4 6M  
b Justify layered structure of an OS. CO1 L6 6M

**UNIT-II**

- 3 a Compute the average waiting time for the processes using non preemptive SJF scheduling algorithm. CO2 L3 6M

Process	Arrival Time	Brust Time
P1	0	7
P2	2	4
P3	4	1
P4	5	4
P5	3	4

- b Give below Processes table, calculate the average waiting time for the algorithms:First Come First Serve (FCFS) CO2 L2 6M

Process	Arrival Time	Brust Time
P1	0	7
P2	2	4
P3	4	1
P4	5	4
P5	3	4

**OR**

- 4 a Explain the Structure of user level thread and kernel level thread. CO2 L4 6M  
b List the Advantages of ULT and KLT. CO2 L1 6M

**UNIT-III**

- 5 a Summarize between Deadlock Detection and Recovery. CO4 L2 6M  
b Explain Banker's Algorithm. CO4 L2 6M

**OR**

- 6 a Construct Dining Philosophers Problem. CO4 L6 6M  
b Develop Readers Writer Problem. CO4 L6 6M

**UNIT-IV**

- 7 a List different types of page replacement algorithms with examples. CO5 L1 6M  
b Consider the following reference string CO5 L5 6M  
7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1. Assume there are three frames.  
Apply LRU replacement algorithm to the referencing above and find  
out how many page faults are produced. Illustrate the LRU page  
replacement algorithm in detail and also two feasible implementations of  
the LRU algorithm.

**OR**

- 8 a Explain about contiguous memory allocation in memory management. CO5 L2 8M  
b Write short notes on paging. CO5 L1 4M

**UNIT-V**

- 9 Justify free space management in Operating System. CO6 L6 12M
- OR**
- 10 a Define Authentication. explain types of authentications. CO6 L1 6M  
b What is a password, explain about its types. CO6 L1 6M

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