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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
MCA II Year I Semester (R16) Regular Examinations November 2017
OPERATING SYSTEMS

Time: 3 hours

Max. Marks: 60

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

UNIT-I

- 1 Define system calls. Explain about different types of system calls provided by an operating system. 12M

OR

- 2 a Write short notes on : Simple Batch systems, Multi-Programmed systems, Time-Shared systems 6M
 b Explain the services provided by an operating system. 6M

UNIT-II

- 3 a Discuss FCFS CPU scheduling algorithms in detail with suitable examples 5M
 b Explain the process control block (PCB) of a process in detail. 7M

OR

- 4 a What is critical section? What requirements are to be satisfied while solving the critical section problem? 7M
 b Consider the following set of processes, with the length of the CPU burst given in milliseconds:

| Process | Burst time |
|----------------|------------|
| P ₁ | 6 |
| P ₂ | 8 |
| P ₃ | 7 |
| P ₄ | 3 |

Draw Gantt chart that illustrate the execution of these processes using the SJF and find the average waiting time of these processes using SJF scheduling algorithm. 5M

UNIT-III

- 5 a Explain Segmentation technique in brief. 6M
 b Write a short note for the following 6M
 i) Fragmentation ii) Thrashing

OR

- 6 What is paging? Explain Paging technique in detail with suitable example. 12M

UNIT-IV

- 7 a Explain free space management in brief. 4M
 b Discuss about SCAN & C-SCAN disk scheduling in detail with example 8M

OR

- 8 Explain Single level directory structure, Two level directory structure and Tree-Structure directories in detail. 12M

UNIT-V

- 9 Define Safe and Unsafe Sate. Explain Bankers Algorithm for Deadlock avoidance in detail. 12M

OR

- 10 a Define the deadlock problem. Write deadlock characterization or conditions for deadlock. 6M
 b Explain different Security Violations of the system 6M

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