

PARUL INSTITUTE OF ENGINEERING AND TECHNOLOGY
COMPUTER SCIENCE AND ENGINEERING DEPARTMENT

Subject Name: Operating system

Subject Code: 03105202

Assignment 4

I/O Devices and Direct Memory Access (DMA):

Explain the role of device controllers in managing I/O devices. How does Direct Memory Access (DMA) improve system performance compared to programmed I/O

Principles of I/O Software:

What are the primary goals of interrupt handlers in an operating system? How do device drivers interact with device-independent I/O software?

File Management and Directory Structures:

Discuss different file allocation methods (contiguous, linked, and indexed). What are the advantages and disadvantages of each?

Free-space and Directory Management:

How is free-space managed in a file system using bit vectors, linked lists, and grouping techniques? Compare their efficiency and performance.

Disk Management and Scheduling Algorithms:

Explain the working of different disk scheduling algorithms (FCFS, SSTF, SCAN, C-SCAN). Which algorithm is best suited for minimizing seek time and why?