

PGDCA-05 Computer Organization and Architecture

Unit 1: Input-Output Organization

Accessing Input/Output devices; Interrupts; Data transfer schemes - programmed I/O and DMA transfer; data transfer schemes for microprocessors.

Unit 2: Memory Unit

Memory Hierarchy; Primary memory, Secondary Memory : Magnetic Tape, Magnetic Disk, Optical disk, Magneto-Optical Disk; Concepts of auxiliary, Associative, Cache And Virtual Memory, DMA, DMA Transfer modes , sequential access, direct access storage devices.

Unit 3: CPU Organization

CPU Building Blocks, CPU Registers and BUS Characteristics, Registers and System Bus Characteristics; Instruction Format; Addressing Modes; Interrupts: Concepts and types; Instruction and Execution Interrupt cycle; Hardwired and Micro Program control; Introduction to RISC and CISC

Unit 4: Multi-Processor Organization

Parallel Processing, Concept and Block Diagram, Types (SISD, SIMD, Interconnect network, MIMD, MISD), Future Directions for Parallel Processors, Performance of Processors

Unit 5: Pipelining

Data Path, Time Space Diagram, Hazards. Instruction Pipelining, Arithmetic Pipelining

Suggested Readings:

1. Computer System Architecture- M.Moris Mano (PHI publication)
2. Computer Organisation and architecture- Pal Chaudhary
3. Structured computer organization- Tanenbaum