

PET5J002 COMPUTER ARCHITECTURE AND ORGANISATION**MODULE-I****1. Introduction**

Computing and Computers, Evolution of Computers, VLSI, System Design- Register Level, Processor Level, CPU Organization, Data Representation, Fixed – Point Numbers, Floating Point Numbers, Instruction Formats, Instruction Types. Addressing modes.

- Fixed Point Arithmetic, Addition, Subtraction, Multiplication and division, Combinational and Sequential ALUs, Carry look ahead adder, Robertson algorithm, booth's algorithm, non-restoring division algorithm, Floating Point Arithmetic, Coprocessor, Pipeline Processing, Pipeline Design, Modified booth's Algorithm.

MODULE-II**3. Control Design**

Hardwired Control, Micro programmed Control, Multiplier Control Unit, CPU Control Unit, Pipeline Control, Instruction Pipelines, Pipeline Performance, Superscalar Processing, Nano Programming

MODULE-III**4. System Organization**

Communication methods, Buses, Bus Control, Bus Interfacing, Bus arbitration, IO and system control, IO interface circuits, Handshaking, DMA and interrupts, vectored interrupts, PCI interrupts, pipeline interrupts, IOP organization, operation systems, multiprocessors, fault tolerance.

MODULE -IV**5. Memory Organization**

Random access memories, serial-access memories, RAM Interfaces, Magnetic Surface Recording, Optical Memories, multilevel memories, Cache & Virtual Memory, Memory Allocation, Associative Memory

Additional Module (Terminal Examination-Internal)

- System Organization:** RISC and CISC processors, Superscalar and vector processor.

Textbooks

- Computer System Architecture, M Morris, R Mano, Prentice-Hall of India, 2000
- Computer architecture and Organisation, John P. Hayes, Tata McGraw-Hill, Third edition, 1998.
- Computer Organisation, V. Carl Hamacher, Zvonko G. Varanescic and Safwat G. Zaky, Fifth edition, McGraw-Hill Inc, 1996.
- Computer architecture and Organisation, S.R Sarangi, Tata McGraw-Hill, First edition, 2015.
- Computer Organisation and Design, David A Patterson and John L Hennessy, 4th edition.

References Books

- Computer Architecture, B Parhami, Oxford University Press, BEH 2002.
- Computer Organization and Design, P. Pal Chaudhuri, 2nd edition, PHI, 2007