

## **Paper-III : Computer Organization**

### **UNIT - I**

Instruction codes : Introduction , Stored program organization , Indirect address, computer registers , common bus system.

Register transfer language , register transfer, Bus and memory transfer, Three state bus buffer. Arithmetic Micro operations, Logic micro operations, Shift micro operation. Binary Adder, Binary Incrementer , Arithmetic circuits.

### **UNIT -II**

Computer instructions : Basic computer Instructions ,Instruction set completeness , Timing and Control. Instruction Cycle : Fetch and Decode, Type of instructions , Register- Reference Instructions, Memory - Reference Instructions , Input-Output Instructions. Interrupt Cycle.

### **UNIT - III**

CPU : Introduction, General Register organization, control word ,Example of micro operations , Stack Organization , register stack, memory stack , Instruction Formats : Three-address Instructions, Two-address Instructions ,one-address Instructions, Zero-address Instructions.

Addressing modes : Implied, Immediate , Register , Register Indirect ,Auto increment or Auto decrement , Direct Address , Indirect Address , Relative Address , Indexed Addressing ,Base Register Addressing Mode.

### **UNIT - IV**

Asynchronous Data Transfer , Handshaking Asynchronous Serial Transfer, Modes of Transfer : DMA Transfer.

Main memory : RAM and ROM chips, Auxiliary Memory : Magnetic Disk , Associative Memory , Cache memory , Direct mapping Scheme.

### **UNIT - V**

Microprocessor Architecture :Introduction to Microprocessor 8085 , ALU , Timing and Control Unit, Registers , Data and Address Bus.

Instruction Set of intel 8085 : Data Transfer Group , Arithmetic Group , Logic Group , branch control Group , Input/ Output and Machine Control Group.

### **Recommended Book :**

1. **Computer Organisation :- Mano M.M.**
2. **Fundamentals of microprocessors and Microcomputers :- B.Ram**