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Paper III- Computer Organization

Unit I

Basic Computer Organization: Instruction codes, direct and indirect address, timing and control signal generation, instruction cycle, memory reference instructions, input output instructions.

Register Transfer and Micro Operations: Bus and memory transfers, three state bus buffers, binary adder, binary incrementer, arithmetic circuit, logic and shift micro operations, ALU.

Unit II

Central Processing Unit: General register organization, memory stack, one address, two address instructions, data transfer, arithmetic, logical and shift instructions, software and hardware interrupts (only brief introduction), arithmetic and instruction pipelines.

Unit III

Computer Arithmetic: Addition and subtraction with signed magnitude data, multiplication algorithms, hardware algorithm and booth algorithm, division algorithm.

Input Output Organization: Asynchronous data transfer- handshaking, asynchronous serial transfer, interrupt initiated I/O, DMA transfer, interfacing, peripherals with CPU (introduction), keyboard, mouse, printer, scanner, network card.

Unit IV

Memory Organization: ROM, RAM, hard disk, CD-ROM, Cache memory- direct mapping scheme, virtual memory concept.

Unit V

Assembly language Programming: 8085 assembly instructions and assembly language programming.

Suggested Book

1. Mano M., Computer System Architecture, Pearson Education.