

Important questions of microprocessor

**(Unit 1 & 2)**

What is microprocessor? Application, features/characteristics

Components of CPU / Microprocessor

Microprocessor vs microcontroller, microcomputer

Stored program concept, Von-Neumann & Harvard Architecture, Difference, figure

System bus & its types

Draw the block diagram of the microprocessor-based system?

Microprocessor system with bus organization

History of microprocessor

8085 MP features/characteristics,

8085 pin diagram

8085 internal architecture

Explanation of each pin of pin diagram / signals of 8085 MP

Explanation of each component, registers,

How data flows between memory & processor

Flag register, interrupts

Features of 8086 microprocessor, briefly explain

Timing & Control Signal,

Control & status signal

List the different non-vectored and vectored interrupts?

Why addressing mode is needed?

List the different timing and control signals generated by the 8085 microprocessors.

Write major differences between address and data bus.

What do you mean by a 32-bit microprocessor?

Control Unit, its types & differences [bcanepaltu.com](http://bcanepaltu.com)

What do you mean by data transfer instruction of 8085?

Define the purpose of LDAX, STAX, MOV A, M etc instruction with examples.

How many general-purpose registers are there in 8085 and what are they?

Define the term fetch cycle and execute cycle.

What is memory Fetch operation?

Why ALE is initially high?

What is an opcode? What is the size of opcode, and an instruction of 8085 microprocessor?

Explain the working of CMP instruction with examples.

What is the specialty of Accumulator and HL pair over other register pairs?

What is Instruction?

Instruction word size

Instruction set

Addressing mode,

Timing diagram,

Instruction cycle, machine cycle & T states

List out the machine cycles of 8085 and explain them.

Time delay & counter

Write a program

i) Assume that before the execution of any instruction we have (A) = 65 H, (B) = B2 H, (H) = F9 H, (L) = 50 H, CY flag = 1, and the content of memory location F950 H is 20H. What is the value of register A and the value of different flags after the execution of each of the following?

a) ADD L

b) ADC B

c) SUI 13 H

### **Unit 3**

What is computer architecture?

What is computer organization?

Differences between computer architecture & organization. Examples

History of computer architecture

Explain memory hierarchy, cache memory(components)

Explain the internal structure of Hard Disk.

Explain stored program organization in basic computer

Direct & indirect access/Direct & indirect addressing of memory

What are computer registers? Explain types of computer registers.

Explain common bus system with diagram

What are computer instructions?(Instruction set) Explain types of computer instructions (Memory, I/O reference, Register) with example

What is instruction set completeness?

Draw the timing and control unit of basic computer and explain.

Explain instruction cycle of basic computer with example.

Explain the instruction cycle with state diagram.

Define accumulator.

Draw and explain the design of accumulator logic of basic computer.

### **Unit 4**

Draw and explain ALU organization.

What is control memory, control word, micro instruction, micro program, control address register, control data register?

Block diagram of Micro-programmed control unit organization/ How Next address is generated in micro program CU.

How address sequencing is executed/done in microprogram CU? / Explain the address sequencing procedure.

Explain the conditional branching mechanism.

What do you mean by mapping of instructions? Explain the procedure for mapping from instruction code to microinstruction address.

How subroutine is fetched in control address register?

Define Microprogram. Differentiate between Symbolic and Binary microprogram with example.

Explain micro instruction format of microprogrammed CU.

Explain different components of micro instruction.

Describe binary & symbolic micro program of instruction FETCH routine.

Draw and explain basic design of control unit.

Explain the organization of micro program sequencer for control memory with suitable example.

### **Unit 5**

Define CPU. What the elements of CPU?

How general register organization works in CPU/ Define general register organization

Briefly explain control word of general register organization.bcanepaltu.com

How stack organization works in CPU/ Define stack organization.

Explain register stack and memory stack in stack organization

What is interrupt, software interrupt, hardware interrupt? How interrupt is handled by processor?

Discuss types of interrupt. How ISR (Interrupt Sub Routine) works?  
Instruction format of general/basic computer, its types with example.  
Addressing modes of basic computer, its types with example.  
Discuss the Data transfer instructions, Data manipulation instructions, Program control instructions of basic computer.  
Explain Status Bit Conditions of basic computer.  
How Subroutine Call and Return works in basic computer architecture.  
Differentiate between RISC & CISC architecture.

## **Unit 6**

What is parallel processing? Explain the benefits of parallel processing.  
Explain the classifications of parallel processing by M. J. Flynn.  
What is pipelining? Explain the role of pipelining in computing with example.  
Draw Space-time diagram for 4 segment pipeline.  
Define arithmetic pipeline. Explain arithmetic pipeline with an example.  
Define instruction pipeline. Explain the four segment instruction pipeline.  
Explain the different pipeline hazards (conflicts)?  
What are the Data Dependency Solutions in pipelining?  
How to handle the branch instruction in pipeline? Explain.bcanepaltu.com  
How data dependency problem is solved in pipelining. Explain with example.  
How pipeline hazards are handled using delayed load and delayed branch.  
Define vector processing. Explain the application areas of vector processing.  
Explain Matrix Multiplication using pipelining concept.  
Explain the characteristics of multiprocessor system.  
Explain the interconnection structure of multiprocessor system.  
Write short notes on: Arithmetic pipeline, vector operations, matrix multiplications.bcanepaltu.com