

**Program: Diploma in Computer Engineering/
Information Technology**

Full Marks: 80

Year/Part: II/II (2022)

Pass Marks: 32

Subject: Microprocessor and Computer Architecture

Time: 3 hrs.

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt any FIVE questions.

1. a. Define microprocessor Explain the bus organization of 8085 μ p. [2+6]
b. Write down the data transfer instruction set and logical instruction set used in 8085 μ p with their short description. [4+4]
2. a. Explain internal architecture of 8085 microprocessor with clear diagram. [8]
b. What do you mean by timing diagram? Draw only a timing diagram of memory read and I/O write machine cycle. [2+3+3]
3. a. What are the addressing modes used in 8085-microprocessor? Explain in detail with suitable example. [6]
b. Multiply $(+9) \times (+4)$ using Booth's multiplication. [5]
c. Define DMA. Explain how it is different from IOP. [2+3]
4. a. Define arithmetic operation. Write down the arithmetic instruction used in 8085 microprocessor with their explanation. [2+6]
b. Write 8085 assembly language program to divide two 8-bits numbers stored in memory location 2000H and 2001H. Store the result in 2002H. [8]
5. a. Differentiate between computer architecture & computer organization and RISC Vs CISC. [4+4]
b. Define pipelining. Explain its types in brief. [2+6]

6. Write short notes on: (any FOUR)

[4×4]

- a. Memory hierarchy
- b. Resister organization in CPU
- c. Pin diagram of 8085 microprocessor
- d. Asynchronous data transfer
- e. Stack organization
- f. Mapping of instruction

Good Luck !



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Attempt any TEN questions.

1. Define bus. What are the different types of bus in microprocessor? Explain them. **[2+6]**
2. What is addressing mode? Explain the addressing modes of 8085 with suitable example. **[2+6]**
3. a. WAP to add the contents of memory location 4500H and 4501H and store the sum at memory location 4502H. **[4]**
b. WAP to find the 2's complement of the number stored at memory location 4200H and store the complemented number at memory location 4300H. **[4]**
4. Write an assembly language to multiply two 8 bit numbers 8EH and 2FH. Store the result in memory location C000H and C001H. Also, exchange the result to register C to register B from the accumulator. **[8]**
5. What are the limitations of 8085-microprocessor? Draw the timing diagram of 8085 OP code fetch cycle. **[4+4]**
6. Define computer architecture and computer organization. Explain memory hierarchy with a diagram. **[8]**
7. Differentiate between RISC and CISC. **[8]**
8. What are different modes of data transfer in computer architecture? Explain. **[8]**
9. What do you mean by pipeline processing? Explain arithmetic and instruction pipeline. **[2+6]**
10. Multiply $(-6) \times (-4)$ using booth algorithm and show its flowchart. **[8]**

11. Define symbolic and binary microprogram. Explain the microprogram sequencer. **[2+6]**

12. Write shot notes on: (any TWO) **[2×4]**

- a. 8085 architecture
- b. 8085 addressing mode
- c. DMA

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Attempt any FIVE questions.

1. a. Draw the internal architecture of 8085-microprocessor. Explain each block briefly. [10]
b. Explain the bus organization in 8085 microprocessor with clear diagram. [6]
2. a. Define machine cycle. Draw the timing diagram of opcode fetch and explain it. [2+6]
b. Write an ALP to multiply two 8-bits numbers and store the result in memory location 2023H. [8]
3. a. Define computer architecture. Explain about instruction codes and instruction types in brief. [2+3+3]
b. Define address sequencing. Explain about general register organization in CPU briefly. [3+5]
4. a. Define addressing mode. Explain different types of addressing modes used in 8085 μ p with suitable example. [8]
b. Explain the multiplication process of signed magnitude data with suitable example. [8]
5. a. Define asynchronous data transfer. Explain different types of modes of transfer in brief. [2+6]
b. Define pipelining. Explain about vector processing with vector operation. [2+6]
6. a. Write short notes on: (any FOUR) [4×4]
 - a. Direct memory access
 - b. RISC Vs CISC
 - c. Flag register
 - d. Machine language instruction format
 - e. Memory hierarchy
 - f. Subroutines

Good Luck !

Office of the Controller of Examinations

Sanothimi, Bhaktapur

Back Exam-2080, Bhadra

Program: Diploma in IT Engineering

Full Marks: 80

Year/Part: II/I (2016)

Pass Marks: 32

Subject: Computer Architecture

Time: 3 hrs.

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt Any Eight questions.

1. Define computer architecture and computer organization. List the types of instruction and briefly explain about any one. **[4+6]**
2. Illustrate common bus system with diagram. **[10]**
3. What is control unit? Explain design of control unit. **[2+8]**
4. What do you mean by addressing mode? Explain any five types of addressing modes with example. **[2+8]**
5. Explain booth multiplication algorithm with its flowchart. **[10]**
6. Write down the characteristics of RISC and CISC computers ? **[5+5]**
7. Define mapping. Explain different types of mapping. **[1+9]**
8. What is pipelining? Explain RISC pipeline and four segment instruction pipeline. **[2+8]**
9. Write short notes on: (Any Two) **[2×5=10]**
 - a) Associative memory
 - b) SIMD Array processor
 - c) Status bit conditions

Good Luck!

Office of the Controller of Examinations

Sanothimi, Bhaktapur

Regular/Back Exam-2079 Chaitra/2080 Baishakh

Program: Diploma in Computer Engineering

Full Marks: 80

Year/Part: II/II (2018)

Pass Marks: 32

Subject: Computer Architecture

Time: 3 hrs.

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt any EIGHT questions.

1. What is computer organization? Explain about memory hierarchy with diagram. [3+7]
2. Define micro program control unit. Differentiate it from hardware control unit. [3+7]
3. Explain common bus system with diagram. [10]
4. What do you mean by addressing modes? Explain the various types of addressing modes. [2+8]
5. What are the characteristics of multiprocessor? Explain four segment instruction pipeline. [4+6]
6. Explain Booth's multiplication algorithm with an example. [6+4]
7. What do you mean by memory mapping? Explain any two types of memory mapping techniques. [2+4+4]
8. What is program interrupt? Write the difference between RISC and CISC. [2+8]
9. Write short notes on: (any TWO) [2x5]
 - a. Virtual Memory
 - b. Control Word
 - c. Cache Memory
 - d. Instruction Format

Good Luck!

Office of the Controller of Examinations

Sanothimi, Bhaktapur

Regular/Back Exam-2078/2079, Chaitra/Baishakh

Program: Diploma in Computer Engineering

Full Marks: 80

Year/Part: II/II (2018 New)

Pass Marks: 32

Subject: Computer Architecture

Time: 3 hrs.

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt Any Eight Questions.

1. Define the term fetch and decode. Explain different types of instruction. **[4+6]**
2. Explain the common bus system with diagram. **[10]**
3. Describe about instruction cycle. Explain briefly about Micro-program sequencer. **[5+5]**
4. Differentiate between RISC and CISC architecture. **[10]**
5. Write down the different types of interrupt. Describe about data manipulation instructions. **[6+4]**
6. Write down Booth Multiplication Algorithm. **[10]**
7. Define main memory and auxiliary memory. Discuss briefly on address mapping using pages. **[4+6]**
8. What is pipelining? Explain the terms delayed load and delayed branch. **[2+8]**
9. Write short notes on : (Any Two) **[2x5=10]**
 - a) Arithmetic and Instruction pipeline
 - b) Signed 2's complement
 - c) Control memory

Good Luck !

Office of the Controller of Examinations

Sanothimi, Bhaktapur

Regular/Back Exam-2077, Chaitra

Program: Diploma in Computer/IT Engineering

Full Marks: 80

Year/Part: II/II (2018 New Course)

Pass Marks: 32

Subject: Computer Architecture

Time: 3 hrs.

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt Any Eight questions.

1. Define instruction with its format. How can you find direct or indirect addressing in memory? Describe with suitable diagram. [3+7]
2. Illustrate common bus system with diagram in brief. [10]
3. Define microinstruction with its format. Describe about binary and symbolic microprogram with examples. [3+7]
4. What do you mean by sub-routine? Differentiate between Microprogrammed and hardwired control unit with its major properties. [3+7]
5. Define control word. Enlist the various types of addressing mode. Explain any two of them. [3+7]
6. Differentiate between RISC and CISC architecture. [10]
7. Write down hardware algorithm and implementation of addition and subtraction. [10]
8. Define mapping. Explain any two types of mapping. [2+8]
9. What is pipelining? Mention about four segment instruction pipeline. [3+7]
10. Write short notes on : (Any Two) [2x5=10]
 - a) Program Interrupt
 - b) Characteristics of multiprocessors
 - c) Data Dependency
 - d) Cache Memory

Good Luck!