

BCA/MAP

501 (O)

2025

(5th Semester)



BACHELOR OF COMPUTER APPLICATIONS

Paper No. : MAP-501 (Old Course)

(Microprocessor Architecture and Programming)

Full Marks : 70

Pass Marks : 45%

Time : 3 hours

(PART : B—DESCRIPTIVE)

(Marks : 45)

*The figures in the margin indicate full marks
for the questions*

1. (a) With the help of a block diagram,
explain ALU in detail. 4

(b) Draw the architecture of 8085
microprocessor. 5

Or

(c) Draw the pin diagram of 8085
microprocessor and explain. 6

(d) Draw and explain the timing diagrams
of memory read and memory write
operations. 3

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(Turn Over)

2. (a) Explain in detail the classification of 8085 instruction sets with example. 7
- (b) Write a short note on opcode and operand. 2

Or

- (c) What is instruction word size? Explain each in detail. 3
- (d) Explain the following with examples : 6
- (i) Direct addressing
 - (ii) Indirect addressing
 - (iii) Immediate addressing
3. (a) Write a program to count continuously from FFH to 00H using register C with delay count 8CH between each count and display the number at one of the output ports. 5
- (b) Draw the flowcharts for counter and time delay. 4

Or

- (c) What is subroutine? Explain the advantage of using a subroutine in a program. 4
- (d) What is stack? Explain the operation of memory stack with a neat diagram. 5

4. (a) Write an ALP to arrange a number in ascending order. 5
- (b) Write an ALP to perform two 8-bit additions. 2
- (c) Write an ALP to perform two 8-bit subtractions. 2

Or

- (d) Differentiate between compiler and interpreter. 4
- (e) Write an ALP to convert BCD to binary conversion. 5

5. (a) Draw the pin diagram of Intel 8086 microprocessor. 5
- (b) Explain in detail the interrupt of Intel 8086. 4

Or

- (c) Explain in detail with example the addressing mode of 8086 microprocessor. 5
- (d) List out five differences between 8085 microprocessor and 8086 microprocessor. 4

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(5th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper No. : MAP-501 (Old Course)

(Microprocessor Architecture and Programming)

(PART : A—OBJECTIVE)

(Marks : 25)

The figures in the margin indicate full marks for the questions

1. Choose the most appropriate answer from the given options by putting a Tick (✓) mark in the brackets provided : 1×10=10

(a) SID is available at pin

(i) 2 ()

(ii) 3 ()

(iii) 4 ()

(iv) 5 ()

(b) The number of register pair in 8085 is

(i) 1 ()

(ii) 2 ()

(iii) 3 ()

(iv) 4 ()

(c) _____ occupies the sixth bit of the flag register.

(i) Sing ()

(ii) Zero ()

(iii) Both (i) and (ii) ()

(iv) None of the above ()

(d) Memory read operation requires how many T-states?

(i) 2 ()

(ii) 3 ()

(iii) 4 ()

(iv) 1 ()

(e) Which addressing mode does not require any operand?

- (i) Implied addressing mode ()
- (ii) Register addressing mode ()
- (iii) Direct addressing mode ()
- (iv) Indirect addressing mode ()

(f) The result of operation is stored in

- (i) accumulator ()
- (ii) shifter ()
- (iii) status register ()
- (iv) All of the above ()

(g) Opcode RP explanation

- (i) returns from the subroutine if sign flag is 0 ()
- (ii) returns from the subroutine if sign flag is 1 ()
- (iii) Both (i) and (ii) ()
- (iv) None of the above ()

(h) The example of data transfer instruction is

- (i) MOV ()
- (ii) ADD ()
- (iii) SUB ()
- (iv) None of the above ()

(i) RIM stands for

- (i) Ready in Memory ()
- (ii) Reduce Instruction Memory ()
- (iii) Read Interrupt Mask ()
- (iv) None of the above ()

(j) Exclusive OR register or memory with the accumulator is

- (i) XRI ()
- (ii) XRA ()
- (iii) ORI ()
- (iv) ORA ()

2. State whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark : 1×5=5

(a) RAR; rotate the accumulator right through carry.

(T / F)

(b) JZ; jump on no zero.

(T / F)

(c) CNZ; call on zero.

(T / F)

(d) STA 8000H; store the contents of the accumulator in the location 8000H.

(T / F)

(e) NOP; no operation is performed, i.e., the instruction is fetched and decoded only.

(T / F)

3. Answer the following questions in short : $2 \times 5 = 10$

- (a) Write two differences between unconditional call instruction and conditional call instruction.

(b) What is return instruction?

(c) Explain in brief with example about 3-byte instructions.

(d) What is interrupt?

(e) List out the types of addressing mode in Intel 8086.

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