

Tribhuvan University
Institute of Science and Technology
2065
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Bachelor Level/ First Year/ Second Semester/ Science
Computer Science and Information Technology (CSc. 153)
(Microprocessor)

Full Marks: 60
Pass Marks: 24
Time: 3 hours.

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

Section A

Attempt any TWO questions:

(10x2=20)

1. Draw the block diagram of basic microprocessor and explain it. Which block design is simple and explain it?
2. Why addressing modes are required in microprocessor? Discuss different types of addressing modes with suitable examples.
3. Write a program in 8-bit Microprocessor to multiply two 16 bits numbers and store in the memory location starting from 3500h. Save the carry bits in the location starting from 3600h.

Section B

Attempt any EIGHT questions:

(8x5=40)

4. Differentiate between PUSH and POP operations. Write a program to illustrate the use of PUSH operations.
5. Write an assembly language program to subtract two 16-bit numbers
6. What do you understand by address decoding in the case of memory interfacing? Explain address decoding using 3 to 8 Decoder.
7. Which I/O interface is used in the 8-bit microprocessor? Explain different types of I/O instructions.
8. Why interrupt is required? Draw the block diagram of interrupt handler and explain it.
9. Explain the basic DMA Operation with required timing diagram.
10. How can you interface 8086 microprocessor?
11. How can you achieve pipelining in the basic microprocessor? Explain any type of basic pipelining with suitable diagram.
12. Draw the timing diagram for ADD C and explain it.
13. Write an assembly language to display a string "Assembly language coding is difficult" using 16 bit microprocessor code. Assume any necessary data.

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Section A

Attempt any TWO questions.

(10x2=20)

1. Explain the SAP I architecture with suitable block diagram. Compare it with SAP 2 architecture.
2. Explain the application of flags in the microprocessor. Discuss different types of flags with suitable examples.
3. Write a program in 8-bit Microprocessor to store 60h, BAh, 7Ch and 10h in the memory location starting from 2000h. add these data and store the result in 3000h and carry flag in 5001h. explain all the steps.

Section B

Attempt any EIGHT questions.

(8x5=40)

4. Explain about fetch operation and timing diagram.
5. Write an assembly language program to multiply 05h and 06h. Explain all the steps.
6. What is a macro assemblers? Explain it.
7. What are the functions of I/O interface? Explain it with suitable example.
8. What do you mean by interrupt? Explain in detail about software interrupt.
9. Explain the Basic DMA Operation with required timing diagram. What are the uses of the DMA transfers?
10. Explain about RS 232 interface with suitable example.
11. Write an assembly language to display a string "I want to know more about microprocessor" using 16 bit microprocessor code. Assume any necessary data.
12. Why parallel communication is required? Explain with reference to 8-bit system.
13. Differentiate between PUSH and POP operations with suitable example.

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Section A

Attempt any two questions.

(10x2=20)

1. Draw the block diagram of SAP2 architecture and explain it. Compare it with SAP1 architecture.
2. Explain the importance of addressing modes in the microprocessor? Discuss the different types of addressing modes with suitable examples
3. Write a program in 8-bit Microprocessor to multiply two 16 bit numbers (ABCDh and 1234h) and store in the memory location starting from 3000h.

Section B

Attempt any eight questions.

(8x5=40)

4. Explain execute operation and timing diagram with suitable example.
5. Write an assembly language program to add two 16-bit numbers (3467h and ACDCh).
6. Differentiate between data and address bus with suitable example.
7. Explain different types of I/O instructions used in 8-bit microprocessor.
8. Why interrupt is required? Draw the block diagram of interrupt handler and explain it.
9. Explain the basic DMA Operation with required timing diagram.
10. Explain three types of flags with suitable examples.
11. Why do we require serial communication? Explain with suitable example.
12. Explain about Keyboard and display controller.
13. Write an assembly language program to display a string "I like programming in the assembly language" using 16 bit microprocessor code. Assume any necessary data.