**LABSHEET 1: INTRODUCTION TO 8085 MICROPROCESSORS**

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**Name: Roll Number:**

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1. Convert the binary number 01000101 to hexadecimal.

45

1. Convert the hex number 0x63F to binary.

011000111111

1. Give the signed representations of the decimal 45 in 8-bit binary and hexadecimal.
2. Specify the signed and unsigned decimal representations of the 8-bit hex number 0x95.
3. Convert the signed binary number (11011010)2 to signed decimal.
4. For the unsigned 8-bit number system, the basis elements are {128,64,32,16,8,4,2,1}.

What are the basis elements of signed 8-bit number system?

1. Give the representations of -54 in 8-bit binary and hexadecimal.
2. What are the possible values of 8-bit signed numbers?
3. What are the possible values of 8-bit unsigned numbers?
4. Download a simulator for simple 8-bit processor 8085 in the below link

<https://gnusim8085.github.io/>

1. Fill the machine code for the following assembly program

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Assembly** | **Instruction size** | **Memory Address** | **Object Binary Code** | | **Object Code in Hex** |
| **Code1:**  MVI A, 32H  MVI B, 48H  ADD B  OUT 01H  HLT | 2  2  1  2  1 | 4200h  4202h  4204h  4205h  4207h | 00111110  00000110  10000000  11010101  01110110 | | 3E  06  80  D3  76 |
| **Code2:**  MVI A,01H  STA 4500H  HLT | 2  3  1 | 4200h  4202h  4205h | 00111110  00110010  01110110 | 3E  32  76 | |
| **Code 3:**  LDA 1000H  MOV B, A  LDA 2000H  STA 1000H  MOV A, B  STA 2000H  HLT | 3  1  3  3  1  3  1 | 4200h  4203h  4204h  4207h  420Ah  420Bh  420Eh | 00111010  01000111  00111010  00110010  01111000  00110010  01110110 | 3A  47  3A  32  78  32  76 | |
| **Code 4:**  MVI A,55H  CMA  STA 1001H  MVI A,00H  HLT | 2  1  3  2  1 | 4200h  4202h  4203h  4206h  4208h | 00111110  00101111  00110010  00111110  01110110 | 3E  2F  32  3E  76 | |