19CSE303: Embedded Systems

LABSHEET 1: INTRODUCTION TO 8085 MICROPROCESSORS

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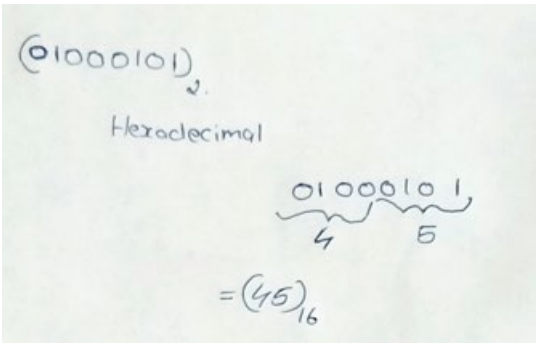
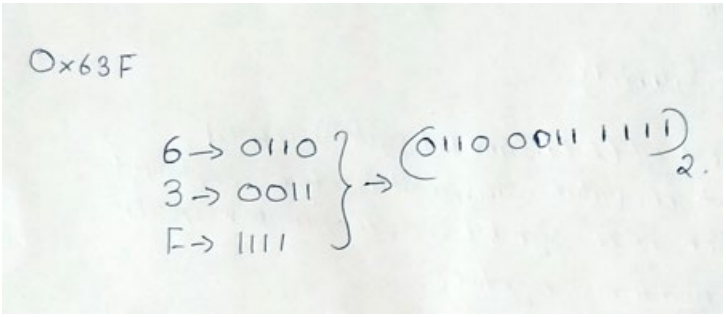
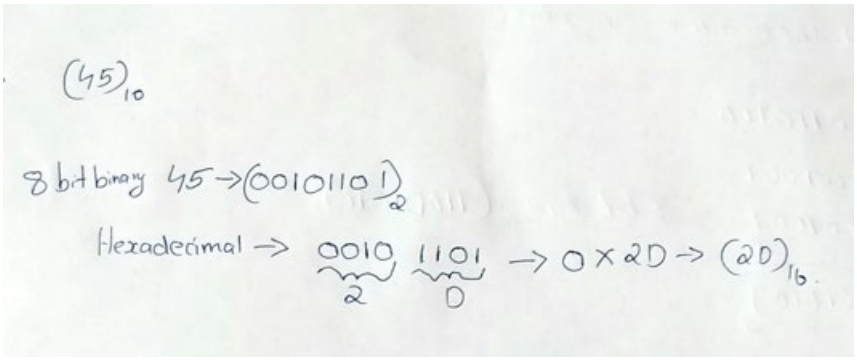
1. Convert the binary number 01000101 to hexadecimal.



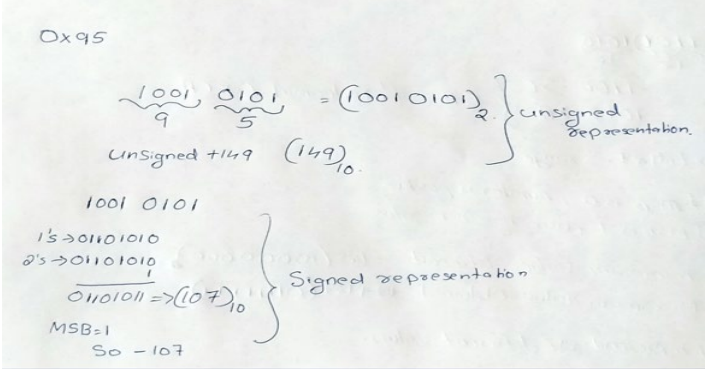
2. Convert the hex number 0x63F to binary.



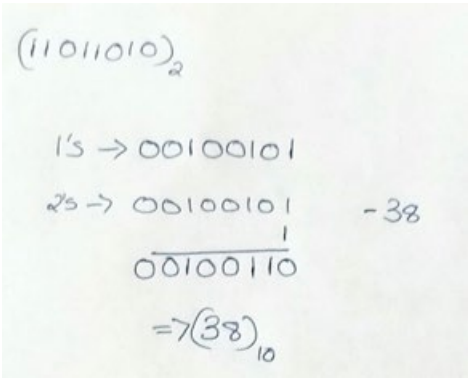
3. Give the signed representations of the decimal 45 in 8-bit binary and hexadecimal.



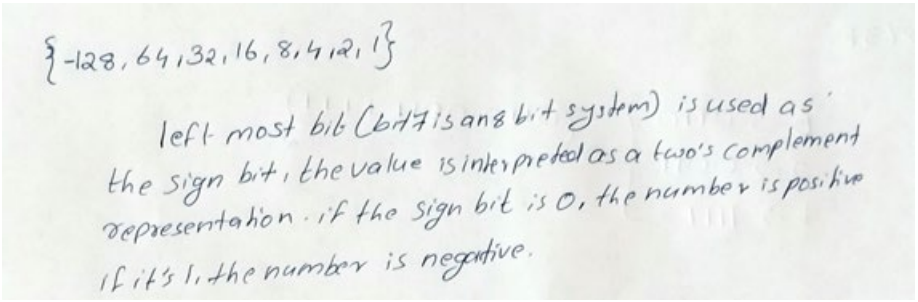
4. Specify the signed and unsigned decimal representations of the 8-bit hex number 0x95.



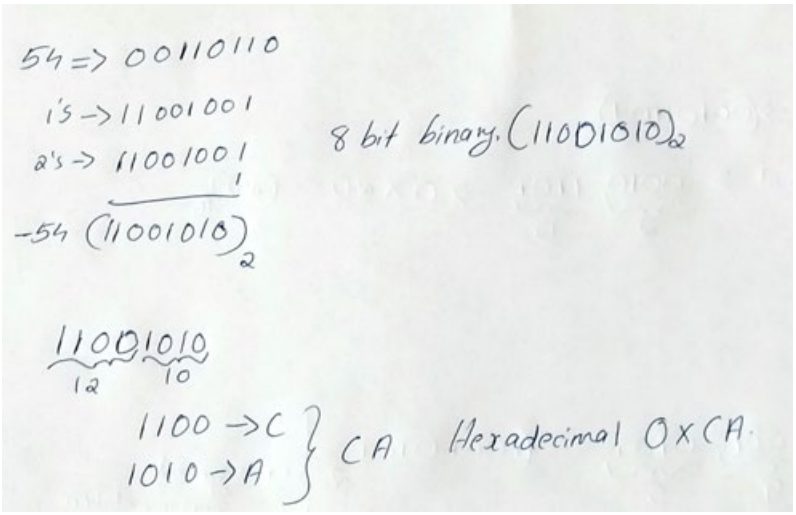
5. Convert the signed binary number $(11011010)_2$ to signed decimal.



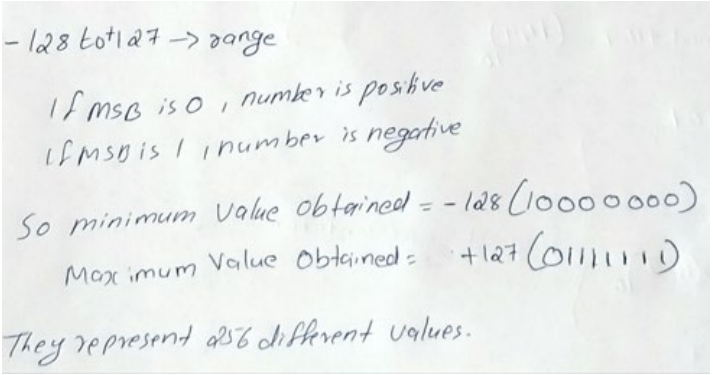
6. For the unsigned 8-bit number system, the basis elements are {128,64,32,16,8,4,2,1}. What are the basis elements of signed 8-bit number system?



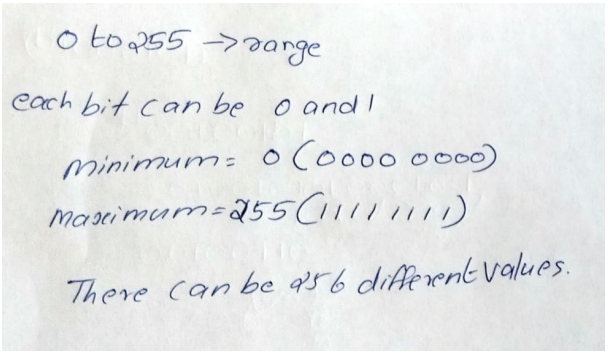
7. Give the representations of -54 in 8-bit binary and hexadecimal.



8. What are the possible values of 8-bit signed numbers?



9. What are the possible values of 8-bit unsigned numbers?\



10. Download a simulator for simple 8-bit processor 8085 in the below link
    https://gnusim8085.github.io/
11. 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	2 bytes	4200	0011 1110 0011 0010	3E 32
MVI B, 48H	2 bytes	4202	0000 0110 0100 1000	06 48
ADD B	1 byte	4204	1000 0000	80
OUT 01H	2 bytes	4205	1101 0011 0000 0001	D3 01
HLT	1 bytes	4207	0111 0110	76
Code2:				
MVI A,01H	2 bytes	4200	0110 1110 0000 0001	3E 01
STA 4500H	3 bytes	4202	0011 0010 0000 0000 0100 0101	32 00 045
HLT	1 byte	4205	0111 0110	76

Code 3:				
LDA 1000H	3bytes	4200	0011 1010 0000 0000 0001 0000	3A 00 010
MOV B, A	1 byte	4203	0100 0111	47
LDA 2000H	3 bytes	4204	0011 1010 0000 0000 0010 0000	3A 00 020
STA 1000H	3 bytes	4207	0011 0010 0000 0000 0001 0000	32 00 010
MOV A, B	1 byte	420A	0111 1000	78
STA 2000H	3 bytes	420B	0011 0010 0000 0000 0010 0000	32 00 020
HLT	1 byte	420E	0111 0110	76
Code 4:				
MVI A,55H	2 bytes	4200	0011 1110 0101 0101	3E 55
CMA	1 byte	4202	0010 1111	2F
STA 1001H	3 bytes	4203	0011 0010 0000 0001 0001 0000	32 01 010
MVI A,00H	2 bytes	4206	0011 1110 0000 0000	3E 00
HLT	1 byte	4208	0111 0110	76