Group 2

Exercise L7 Assembly

1. List the hexadecimal code for the following program (hand assemble it).

Hex Address	Label	Instruction
100		Load A
101		Add One
102		Jump S1
103	S2,	Add One
104		Store A
105		Halt
106	S1,	Add A
107		Jump S2
108	A,	HEX 0023
109	One,	HEX 0001

Hexadecimal codes

1108
3109
9106
2109
2108
7000
3108
9103
0023
0001

2. What are the contents of the symbol table for the preceding program?

1	A
2	One
7	000

A	108
One	109

Symbol table

3. Given the instruction set for MARIE in this chapter, decipher the following MARIE machine language instructions. (Write the assembly language equivalent.)

a) 0010000000000111 → 2007 → Store 7

b) 1001000000001011 → 900B → Jump B

c) 0011000000001001 → 3009 → Add 9

4. Write the following code segment in MARIE's assembly language:
ifX>1then Y=X+X;
X=0; endif;
Y=Y+1;

Adress		Instructions	Comments
100		Load X	Load X to AC
101		Skipcond 800	Check if AC > 1
102		Jump 107	If AC <= 1, Jump to 107
103		Add X	Add X to AC, since AC has X previously, adding another X to get X+X
104		Store Y	Store the result to Y
105		Load 0	AC = 0
106		Store X	X = AC
107		Load Y	AC = Y
108		Add 1	Plus 1 to AC
109		Store Y	Y = AC