COSC 221: Computer Organization I

Using LC-3 ML Operate instructions

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1. Take the complement of the value stored in register 1 and store result in register 1: *Opcode = NOT = 1001* *DR = R1 = 001* *SR = R1 = 001* *0x927f*															
1	0	0	1	0	0	1	0	0	1	1	1	1	1	1	1
2. Add the decimal number -10 to register 2: *Opcode =ADD = 0001* *DR = R2 = 010* *SR1 = R2 = 010* *Immed5 = 10110* *0x14B6*															
0	0	0	1	0	1	0	0	1	0	1	1	0	1	1	0
2. Decrement the value stored in register 4: *Opcode = ADD = 0001* *DR = R4 = 100* *SR1 = R4 = 100* *Immed5 = 11111*															

0x193f

0	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**

3. *Add the contents of registers 3 & 4 and store the result in register 3:*

   Opcode = ADD = 0001

   DR = R3 = 011

   SR1 = R3 = 011

   SR2 = R4 = 100

   0x16c4

0	**0**	**0**	**1**	**0**	**1**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**

4. *Clear the contents of register 7:*

   R7 = R7 AND x0000

0	**1**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**

5. *Set the contents of register 7 to -1:*

   R7 = XFFFF =-1

   R7 = 0

   R7 = R7 + (-1)

0	**1**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**
0	**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**