

Problem 3 Task 2

	s0	s1	OUT0 (0x40)	OUT1 (0x20)	MEM(0x80)
before INIT	C3	20	00	00	XX
after iteration 1	D3	40	00	C3	XX
after iteration 2	E3	80	D3	C3	XX
after iteration 3	F3	00	D3	C3	E3
after FETCH	F3	F3	D3	C3	E3
after INPUT	C3	F3	D3	C3	E3

An interrupt generated during the execution of

LOOP:

JUMP LOOP

After the interrupt:

Stack:

00C <= TOS (address of the next instruction during interrupt request)

00A (address of the current instruction during CALL LOOP)

Preserved C = 1 , Preserved Z=1 (generated by SL0 at the end of iteration 3, not changed by the following instructions, until an interrupt request)

During ISR:

	s2	s3	C (Carry)
after INPUT	1110 0011		
after LOAD		1010 1010	
after OR		1010 1110	0
after XOR		1000 1110	0
after SLA		0001 1100	1
after ADDCY	0000 0000		1

At the time of execution of RETURNI DISABLE

C=1, Z=1 (after ADDCY s2, s3)

Answers:

1. **PC = 106**
2. **Stack:**
00C <= TOS
00A
3. **I=0, Preserved C=1, Preserved Z=1**
4. **OUT0 (0x40) = D3, OUT1 (0x20) = C3, MEM(0x80) = E3**
5. **s0=C3, s1=F3, s2=00, s3=1C**
6. **C=1, Z=1**