CE320 : The Ten-Minute Paper: In Class practice

Date: Wednesday, 02/20/2019

Student Name: _____

Please write down

1. Six Push instructions and explain the operations

Assembly	Meaning	Operation
PSHA	PuSH Accumulator A onto Stack	SP=SP−1 , then copy A to Mem[SP]
PSHB	PuSH Accumulator B onto Stack	SP=SP−1, then copy B to Mem[SP]
PSHC	PuSH CCR onto Stack	SP=SP−1, copy CCR to Mem[SP]
PSHD	PuSH D register onto Stack	SP=SP−2, Mem[SP: SP+1] =D
PSHX	PuSH X register onto Stack	SP=SP−2 , Mem[SP: SP+1] =X
PSHY	PuSH Y register onto Stack	SP=SP−2, Mem[SP:SP+1] =Y

2. Six Pull instructions and explain the operations

Assembly	Meaning	Operation
PULA	PULl Accumulator A from Stack	A=Mem[SP] then SP=SP +1
PULB	PULl Accumulator B from Stack	B=Mem[SP] then SP=SP +1
PULC	PULl CCR from Stack	CCR=Mem[SP] then SP=SP +1
PULD	PULl D register from Stack	D=Mem[SP: SP+1] then SP=SP +2
PULX	PULl X register from Stack	X=Mem[SP: SP+1]then SP=SP +2
PULY	PULl Y register from Stack	Y=Mem[SP: SP+1] then SP=SP +2

3. How does the HCS12 remember where in the main program to resume when it hits a RTS?

- JSR(or BSR) instruction **pushes the address of the instruction immediately following the sub routine call instruction on the top of the stack**
- **RTS instruction pulls the return address from the stack and loads it into the PC.**