

# ECE 265

## Homework #2

### Problems:

- The M68HC11 is executing a program. If the contents of the registers are: A=\$B3, B=\$4D, CCR=\$05, and PC=\$E000, then fill in the table below for the contents after execution of the individual TBA, CLRB, or ABA instruction. Use Appendix B of the text to understand the details of each of the three instructions. Also, determine the number of bytes for each instruction, and the number of clock cycles required for its execution. Note: start with the initial contents of the registers each time before considering execution of the individual instruction.

	A	B	CCR	PC	Memory Loc. \$E000	# Bytes	# Cycles
Initial Values:	\$B3	\$4D	\$05	\$E000			
TBA							
CLRB							
ABA							

- Give the register transfers involved in each clock cycle of the fetch and execute phases of the TBA, CLRB, and ABA instructions. For this problem, you need not concern yourself with the CCR.
- Suppose that the contents of the registers in the M68HC11 are: A=\$5D, B=\$23, and CCR=\$01.
  - If the contents of A and B are considered to be unsigned positive numbers,

what will be the contents of A, B, and CCR after execution of the ABA instruction? Did overflow occur?

- b) If the contents of A and B are considered to be signed, 2's complement numbers, what will be the contents of A, B, and CCR after execution of the ABA instruction? Did overflow occur?

Note: for both parts of this problem, give the final contents of the A and B registers in both hexadecimal and decimal.

4. Suppose that the initial contents of the registers in the M68HC11 are SP=\$00FF, A=\$B3, B=\$4D, CCR= \$0E, and X=\$ABCD. Also, assume that memory location \$00FE has an initial value of \$7F. For the following *program*, give the contents of the SP, A, B, CCR, & X registers and memory location \$00FE after execution of each instruction.

PSHX  
 PULA  
 PULB

	SP	A	B	CCR	X	Memory Loc. \$00FE
Initial Values:	\$00FF	\$B3	\$4D	\$0E	\$ABCD	\$7F
PSHX PULA PULB						