

Due **Wed** March 27 at the beginning of class.

1. a) What is a stack pointer?
 b) Where should the stack pointer be initialized?
 c) Write the ASM instruction to initialize the stack pointer when you want the stack to be within addresses \$6D00 to \$6DFF.

2. Given the initial CPU register values below, specify
 - a) the contents and addresses for the stack and
 - b) the final value of all CPU registers after execution of:

PSHY
 PSHA
 PULB
 PULA

Initial CPU register values

A	B	X	Y	PC	SP
6E	7C	05A0	AEB5	40E8	9400

3. If a subroutine will overwrite IX, IY, accA, and the CCR, what instructions (in the correct order) should be executed a) at the beginning and b) at the end of the subroutine to ensure the values in those registers are restored before returning from the subroutine.

4. The table to the right represents the stack contents at an instant in time for each of the *independent* scenarios below.
 - a. If the main program just jumped to a subroutine, what is the subroutine return address (i.e., where will it return after the subroutine is complete)?
 - b. If the subroutine currently being executed has pushed accA and iX to the stack but nothing else, what is the subroutine return address?
 - c. If iX, accA, accB were pushed to the stack (in that order) before calling the subroutine that is currently being executed, what was the value in iX?

SP →	61
	D9
	42
	83
	2E
	CB
	18
	30
	55
	74
bottom of stack	

5. Subroutine techniques:
 - a) Why should subroutine parameters not be stored in specific memory locations?
 - b) Describe two good methods to pass parameters to a subroutine.
 - c) Describe two rules to follow for writing good subroutines.
6. From PC Lab 3, submit the completed check-off sheet and .LST files for Exercise 1, 2, 3 & 4.