

4. The condition code register is modified by every instruction. **T** or **F** (3 points)
5. For each of the following questions, choose the correct HC12 instruction from the following list. An instruction may be used more than once. The correct instruction will be found in the list. Assume the program is executed in the order that is given, i.e. the pointer register is initialized pointing to data memory and then accumulator A is loaded from that data memory etc. (14 points)

BGE	LOOP	CMPA	#DATA1	LDAA	0,X	LDX	DATA1
BGT	LOOP	CMPA	DATA1	LDAB	#DATA1	LDY	DATA1
BHI	LOOP	JMP	SWI	LDAB	0,+X	LDY	DATA1+1
BHS	LOOP	JSR	STOP	LDAB	DATA1	SWI	
BNE	LOOP	LDAA	#DATA1	LDX	#DATA1		
CMPA	#\$82						

- a. ; Initialize a pointer register pointing to data memory DATA1.
LDX #DATA1
- b. ; Load accumulator A from data memory location DATA1
LDAA 0,X
- c. ; Load accumulator B from data memory location DATA1+1
Should be LDAB 1,+X
- d. ; Load index register Y from DATA1:DATA1+1
LDY DATA1
- e. ; Compare what is A with what is data memory location DATA1
CMPA DATA1
- f. : Branch to LOOP if the data in A is bigger than the data in DATA1
(Assume the information in A and DATA1 are encoded using 8-bit unsigned binary code)
BHI LOOP
- g. ; Stop the program and return to the monitor
SWI

6. Complete the following sentences to describe the operation of the bits in the Condition Code Register: (8 points)

- a. The N bit is set when the most significant bit of the result is 1
- b. The Z bit is set when all bits of the result are 0.

- c. The V bit is set when 2's complement overflow occurs.
- d. The C bit is set when carry out or borrow out occurs.