

Due Mon March 18 at the beginning of class.

1. Explain (in words/sentences) what the following program segment does. Be sure to state what values are stored in accA and accB when at the end of the program segment.

```

LDAB    #$AF
STAB    $64F0
AGN    DEC    $64F0
        BRCLR  $64F0    $0F    STP
        BRA    AGN
STP    LDAA   $64F0

```

2. Types of memory:
- What does it mean if memory is non-volatile?
  - What is the key difference between RAM and ROM?
  - What is the key difference between ROM and EEPROM?
  - What is the key difference between RAM and EEPROM?
  - Comparing SRAM and DRAM, describe one advantage of each relative to the other.
3. A memory system contains 32 data lines and 20 address lines. Specify:
- the number of addressable memory locations
  - the width of the memory
  - the length of the memory
  - the size of the memory in bytes
  - the size of the memory in bits
4. Following examples from lecture, construct and diagram a memory interface using the HCS12 MCU and external 1k-byte x 8-bit RAM chips (like the figure below). Show how an external 4k X 16 RAM could be generated. Show all the necessary address, data, and control signals.

