

CPE 390: Microprocessor Systems

HW3

Due: 3/1/18

1. If you were going to write a loop to copy a table from one memory location to another, which addressing mode would you use? Why?
2. Write a program starting at \$4000 to copy locations \$4600~\$46FF to \$5600~\$56FF. Use the X and Y index registers as pointers.
3. Write a sequence of logic instructions to toggle (complement) the even-numbered bits of memory location \$5000 and clear the three least significant bits of memory location \$5002. (*bit0 is the LSbit, bit7 is the MSbit*)
4. Find the values of accumulator A and the condition flags N, Z and C in the CCR register after executing each of the following instructions given that the initial values of the condition codes are N=Z=0 and C=1. Check your result by loading the program into the simulator and single stepping.

```
ldaa  #$30
lsla
suba  #$60
adca  #$90
adca  #$90
adca  #$90
lsla
rola
asra
```

5. An array of 24 16-bit signed integers has been stored in memory starting at location \$5000. Write a program starting at \$4000 to count the number of these integers that are both greater than -1000 and less than +2000 and store the result in memory location \$5100.