**Lab 4**

**Submitted by:** Mahamudul Islam (500963051)

**Lab Section:** 032(Fri: 10-12)  
  
Here are my written answers. I have attached the screenshots of my codes separately.

**Program A:**  
  
Q1:  
In the current code the value stored in A is A in hexadecimal, but it only transfers 10 FCBs whereas it should transfer 11 FCBs. To fix that I need to change LDA #$A to LDA #$B.

Besides, the loop is on the wrong line. Because of this the address 300 is changing to 301 and vice versa. So, the program not working. To fix that I need to start LOOP one line down so that it transfers all of them.  
  
Q2:   
Please Check the Screenshots of fixed codes.

A21(To see the value of address 200 and so)

A23(To see the value of address 300 and so after transferring)

Q3:  
Please check the screenshot A3

**Program B**

Q1:

Date those are in LIST will be sorted. They are 11,3,8,7,1,9, -3,4,5.  
These will be sorted when the program is executed and will be available in LIST.  
  
Q2:

Reserved Memory Bytes are known as RMB. In this code LSTEND and NVAL are RMBs.

It’s purpose to leave the mentioned bytes in the code. It skips that number of bytes ahead.

Q3:

This program has two loops. These are LOOP1 and LOOP2.  
LOOP 1 starts at LOOP1 label and ends at the line “BNE loop1” depending upon the value if it is equal to zero or not.  
LOOP2 starts at LOOP2 label and ends at the line “BLO loop2” depending upon value after the execution of above line CMPX which compare x to lstend.

Q4:

The counters in each loop are established by x and y registers.  
Y register is for LOOP1 and X register is for LOOP2.  
Register Y is used to track the number of values to be sorted and register X is used to sort adjacent datas and switching between them.

Q5:  
There are two loops. Loop2 ends if it can not branch to loop2 after the execution of “BLO loop2” line. If the compared value of x and lstend is not lower, then it will not branch so that will exit the loop.

Loop1 ends at “BNE loop1” line. If the value is zero, then it will exit that loop.

Q6:

By passing through the inner loop once it compares two adjacent elements and sort them if it is necessary