

Student Name: \_\_\_\_\_ Student ID: \_\_\_\_\_

**Problem 1**

Write the equivalent C code for the assembly below using only one control structure. Assume *first*, *second* and *third* are local variables and that the X register is a stack frame pointer. Parentheses are the hard part here.

```
        ldaa first,X
        cmpa #$00
        bne inner
        ldaa second,X
        cmpa #$10
        blt done
        ldaa third, X
        cmpa #$FF
        beq done
inner:   jsr   do_something
done:   jsr   do_something_else
```

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**Problem 2**

Write a configuration subroutine that will configure and enable the A2D to take continuous 8 bit samples on channels 2 and 3. No timing requirements included.

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**Problem 3**

Below is the code for a simple subroutine that uses the stack. Given the initialized values in the table, fill in the rest of the table describing the registers and memory locations at different times during the execution of the function. Only enter cells that have changed from their previous values.

```

endian_fix:  pshd
             xgdy
             psha
             pshb
             puly
             puld
             rts
    
```

Location	Just prior to jsr	After xgdy	After pshb	After puly	After rts
A	12				
B	34				
D					
X	2000				
Y	5678				
SP	3C00				
Mem 3BF5	00				
Mem 3BF6	00				
Mem 3BF7	00				
Mem 3BF8	00				
Mem 3BF9	00				
Mem 3BFA	00				
Mem 3BFB	55				
Mem 3BFC	55				
Mem 3BFD	00				
Mem 3BFE	00				
Mem 3BFF	FF				
Mem 3C00	FF				
Mem 3C01	FF				

5 point bonus: What does this function do (in three words or less)?