UNCC, Department of Electrical and Computer Engineering
ECGR4101/5101, Spring 2010, Homework #4

You will need to refer to the M16C/20/60 Software Manual, the M16C62 Hardware Manual and M16C C Language Programming Manual to complete this assignment. They are available online through the Documentation contained in the SKP16C62P (QSK62P) directories link on the course home page.

1. (10 points) Clean up the following C function (for converting temperature to Celsius from Fahrenheit) to meet the "Coding Style Guidelines" of Lecture Notes 9. Assume that valid values of i range from -40 to 250. If this value is not valid, return the value TEMP_ERROR. Make sure the code is correct!

```
int fc(int i) {
    int r;
    r = (i-32)*9.0/5.0;
    return r;
    }
```

   a. Is the code correct? Why or why not?
   b. Change(s) needed to meet 1.1:
   c. Change(s) needed to meet 1.2:
   d. Change(s) needed to meet 8.1:
   e. Change(s) needed to meet 5.1:

2. (4 points) Write the lines of C code needed to configure port 6 so the even-numbered bits are inputs and the odd-numbered bits are outputs (no pull-up resistors are needed). Use the symbols defined in sfr62p.h, which are slightly different from the ones in the Hardware Manual. Start with:

```
#include "sfr62p.h"
```

3. (2 points) Write pseudocode to describe how capitalize all the lower-case vowels (not including y) in a string S and convert spaces to dashes. Do not use any function calls.

4. (4 points) Write a C function to implement the pseudocode of the previous question. Assume:

```
char S[80]; /* the string */
```