Student Name: _____ Student ID: _____

ENG236 Computer Programming
Solution to **bonus** Quiz 14 (26 November 2009)

Instructions: open book, 40 minutes

1. (250 marks) Consider the following C++ program that allows a user to enter multiple command line options in the command prompt. For example, when a user types (assuming that the project's name is Quiz14)

```
Quiz14 bbb  jjjjjjjjj  jjj  k
```

The program output will show:

```
c:\Users\RockyChang\Documents\Visual Studio 2008\Projects\Quiz14\Debug>Quiz14 bbb  jjjjjjjjj  jjj  k
k
jjj
bbb
jjjjjjjjj
```

That is, the program stores all the command options and print out the option with the shortest string length and then the option with the second shortest string length and so on. In the case of a tie, the order is not important. Fill in the missing codes for section A (200 marks) and section B (50 marks). Each option consists of at most 80 characters, and at most 10 options will be entered.

```
#include <iostream>
using namespace std;

// swap string1 with string2
void swapStrings(char *string1, char *string2);

int main(int argc, char *argv[])
{
    char string[10][81]; // can store at most 10 options

    // copy the string in argv[i+1] to string[i].
    for (int i=0; i<argc-1; i++)
        strncpy(string[i], argv[i+1], 80);

    // Section A: "Sort" the options stored in string[][]
    // according to their string lengths using swapStrings().

    for (int i=0; i<argc-1; i++)
    {
        int curMin = i;
        for (int j=i; j<argc-1; j++)
        {
            if (strlen(string[j]) < strlen(string[curMin]))
               curMin = j;
        }
        swapStrings(string[i], string[curMin]);
    }
```

```
    // Print out the argc-1 command options.
    for (int i=0; i<argc-1; i++)
        cout << string[i] << endl;

    return 0;

}

void swapStrings(char *string1, char *string2)
{

    // Section B: Implement this function.
    char tempString[81];

    strncpy(tempString, string1, 80);
    strncpy(string1, string2, 80);
    strncpy(string2, tempString, 80);

    return;
}
```