

C Assignment 1

Name:

Student ID:

Discussion Questions

1. (4 marks) Discuss the four steps of compiling using gcc and give the corresponding gcc options. (You need to specify what the four steps do.)
2. (3 marks) Discuss the major differences between Java and C.

Programming Questions

3. (6 marks) Write a program that finds the smallest of several integers entered by user. You can only use the following variables.

```
int number; /* number of integers to be entered */
int value; /* value input by user */
int smallest; /* smallest number */
int i; /* counter */
```

4. (6 marks) Write a program that prints the following pattern. Use `for` loops to generate the pattern. All asterisks (*) should be printed by a single `printf` statement of the form `printf(" * ")`. You can only use the following variables.

```
*
**
***
****
```

```
int row; /* row counter */
int col; /* column counter */
```

5. (6 marks) Using the `switch` statement, write a program that counts and prints the number of each different letter grade user entered. Assume we have only five different grades – “A” / “a”, “B” / “b”, “C” / “c”, “D” / “d”, “E” / “e”. You need to provide a special character to end the input (user needs to enter this character to end the input). You can only use the following variables.

```
int grade; /* current grade. You can also use char grade.
            You may use either getchar or scanf to handle the input.
            */
int aCount = 0; /* total a grades */
int bCount = 0; /* total b grades */
int cCount = 0; /* total c grades */
```

```
int dCount = 0; /* total d grades */  
int eCount = 0; /* total e grades */
```

Submission Guidelines

- a. All discussion questions need to be put in a single text or pdf file with file name “dq”.
- b. Each programming question should be a .c file. For example, the program for question 3 should be named as “q3.c”. Similarly, “q4.c” is for question 4 and “q5.c” is for question 5.
- c. You need provide appropriate comments to make your code readable. (Note that if your code is not working and there are no comments, you may loss all the marks.)