Trent University

Computer Science 1020H

Sample Midterm

Instructor: Dr. Richard Hurley Duration: 50 minutes

OPEN BOOK – Course Notes/Textbook Only

In the space provided, answer the following 8 questions. The test is marked out of 35.

1) [5 marks] Answer the following questions either True (T) or False (F):

a) The *do-while* and *for* loops are pre-test loops. _____

b) C# statements are not permitted to span multiple lines. _____

c) Identifier in C# may contain letters, numbers, and any punctations marks. _____

d) int x = (9.0 % 5); would result in x being assigned 4 _____

e) "R" is stored the same as 'R' in C#. _____

f) All *switch* statements require a *default* case. _____

g) The default floating point constant data type is *double*. _____

h) The left hand side of an assignment statement must be a variable. _____

i) Because the || operator performs short-circuit evaluation, your Boolean expression will be evaluated faster if the sub-expression that is most likely to be true is on the left. _____

j) It is not permissible to alter the value of the counter-control variable in a *for* l oop. _____

2) [6 marks] Multiple Choice: for each question, circle the best answer.

i) A variable is ____ to a method when it is declared within that method.

a. local c. global
b. related d. attached

ii) When you use a(n) ____ parameter in a method header, the method receives a copy of the value passed to it.

a. reference c. input
b. output d. value

iii) Arguments within a method call (or invocation) are referred to as ____ parameters.

a. formal c. global
b. local d. actual

iv) ____ describe(s) a situation in which the compiler cannot determine which method to use.

a. Overloading c. Ambiguous
b. Polymorphism d. Confusion

v) A method's name and parameter list constitute the method's ____.

a. return type c. signature
b. stamp d. type

vi) On occasion, you might want a method to be able to alter a value you pass to it. In that case, you can use a(n) ____ parameter.

a. value c. optional
b. reference d. global

3) [4 marks] Convert the following *for* loop into a *while* loop.

```
for( int x = 1, y = 10 ; x < y; x++, y--)
{
   Console.WriteLine("x = {0}, y = {1}", x, y);
}
```

4) [4 marks] What is the output of the following program?

```
using System;
public class Simple
{
    public static void Main()
    {
       int x, y;
       x = Convert.ToInt32(Console.ReadLine());
       y = Convert.ToInt32(Console.ReadLine());
       if((2 * x) > y)
                if(y > x)
                   Console.WriteLine("Loc 1");
                else if(x < 0)
                   Console.WriteLine("Loc 2");
                else
                   Console.WriteLine("Loc 3");
       else
                Console.WriteLine("Loc 4");
    }
}
```

Assume the following input is used (program is re-run for each set of input)

a) 3, 4	c) -2, 5
b) 6, 3	d) -1, -3

5) [5 marks] What is the output of the following program?

```
using System;
public class Quest3
{
    public static void Main()
    {
        Console.Write("H");
        F3();
        Console.WriteLine("U");
        Console.ReadLine();
    }

    public static void F1()
    {
        F2(0);
        Console.Write("R");
    }

    public static void F2(int x)
    {
        if (x > 1)
            Console.Write("L");
        else
            {
            Console.Write("E");
            F2(2);
            }
    }

    public static void F3()
    {
        Console.Write("Y");
        F1();
    }
}
```

ANSWER

6) [6 marks] Write a C# method called **`RegFee`** to compute the registration fee for automobiles. The **`RegFee`** method is to take two formal value parameters: *year* (`int`) and *weight* (`double`) and then compute (and return) a registration fee (`double`) based on the following table:

Model Year	Weight	Registration Fee
2000 or earlier	less than 1000 kg	$34.50
	greater than or equal to 1000 kg	$58.75
Greater than 2000	less than or equal to1500 kg	$45.25
	greater than 1500 kg	$75.00

Please note that you are only being asked to write the method, not the entire program (i.e. `Main()`). Your method should **NOT** be doing any `Console.ReadLine`s or `Console.WriteLine`s.

The method header should look like:

```
public static double RegFee(int year, double weight)
```

7) [5 marks] Write a C# program that uses (invokes) a user-defined method called **`RegFee`** that computes the registration cost for an automobile with a given year and weight. Your `Main()` method should prompt and input the values for the year (use the variable `int` *carYear)* and the weight (use the variable `double` *carWeight*). Be sure to use `do-while` loops to validate that *carYear* is greater than or equal to 1900 and *carWeight* is greater than 0. Your program is then to call **`RegFee`** and ouput the results in a professional manner. Please note that you are not required to write the **`RegFee`** method, just use it. You can assume the method header for RegFee is as follows:

```
public static double RegFee(int year, double weight)
```

```
using System;
public static class CarRegistration
{
    public static void Main()
    {




    }
```