



UNIVERSITY OF RUHUNA

Faculty of Engineering

End-Semester 1, Examination in Engineering - Part II, August 2015

Module No: EE1102 Module Name: Introduction to Programming

[1 hour and 30 minutes]

[Answer all questions. Each question carries 10 marks]

Q1. Consider the loop

```
for(i=0, s=10;i<10;++i) s+=i;
```

- Describe the sequence of execution of the above for loop with the aid of a flowchart. [2 Marks]
- What would be the value of s after the execution of the loop? [2 Marks]
- Write the equivalent while loop. [2 Marks]
- Modify the code such that s would contain the sum of even numbers between (and including) 1000 and 10000. [2 Marks]
- If we list all the natural numbers below 10 that are multiples of 3 or 5, we get 3, 5, 6 and 9. The sum of these multiples is 23. Write code fragment using only for loop(s) to display the sum of all the multiples of 3 or 5 below 1000. [2 Marks]

Q2. a) What does the following code do?

```
double [ ] stuMarks;  
stuMarks = new double [75];
```

 [2 Marks]

- Show code fragment for obtaining appropriate values from the user of a program and store in stuMarks[5] by using the functions of following prototypes. Give the declaration of the used variables.

```
string Console.ReadLine()  
double Convert.ToDouble(string value)
```

 [2 Marks]

- Show how to obtain 75 numbers from the user and store in stuMarks[] by using a for loop. [2 Marks]
- Write down the steps of programming tasks (algorithm) to find and display the minimum and maximum values in stuMarks.
Note: Do not use any in-build methods such as stuMarks.Max(). [2 Marks]

- Write down the steps of programming tasks (algorithm) to find and display the values in stuMarks in descending order (i.e. from maximum to minimum).
Note: Do not use any in-build methods such as stuMarks.Max(). [2 Marks]

Q3. a) Consider the definition of the method given below.

```
static double f2c(double f)
{
    double c;
    c = 5.0 * (f - 32.0) / 9.0;
    return c;
}
```

- i. What is the name of the method?
- ii. What is the input parameter of the method?
- iii. What is the return parameter of the method?
- iv. What is the type of return parameter?
- v. what is the local variable of the method?
- vi. If the method is called as
x=f2c(5);
then what would be the value assigned to x?
- vii. Give the definition of method named f2cRange() which would display values converted by f2c() in a given *range* at given *step*. The range and the step are given as input parameters to f2cRange().

[7 Marks]

b) Consider the switch format given below.

```
switch(int x)
{
    case a: StatementsA; break;
    case b: StatementsB; break;
    case c: StatementsC; break;
    ..
    default: StatementsX; break;
}
```

- i. How does switch statement work? You may explain by using a flowchart.
- ii. Give an example to illustrate the typical application of switch.
- iii. Write the same example by using the control statement if-else if-else.

[3 Marks]