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11 OCT 2014

EASTERN UNIVERSITY, SRI LANKA
DEPARTMENT OF MATHEMATICS
FIRST EXAMINATION IN SCIENCE (2011/2012)
FIRST SEMESTER (Dec/Jan,2013/2014)
**CS103 - INTRODUCTION TO PROGRAM DESIGN
AND PROGRAMMING**

ANSWER ALL QUESTIONS

TIME: TWO HOURS

1)

- a. What do you mean by an “Algorithm” and define the “properties of an Algorithm”?
- b. Define the following terms:
 - I. Programme;
 - II. Programming;
 - III. Programmer;
 - IV. Flow chart;
 - V. Pseudocode.
- c. Represent the following problems using “Flow chart” and “Pseudocode”:
 - I. To find the sum of two (02) numbers;
 - II. To find the average of three (03) numbers;
 - III. To determine a given integer is “odd” or “even”;
 - IV. To find the maximum of two(02) numbers.

2)

- a. What do you mean by the following terms?:
 - I. Data;
 - II. Primitive Data Type.
- b. Briefly explain three types of programming errors.
- c. Write the output for the following code segments:
 - I.

```
void main()
{
    int m=5;
    cout<<m;
    cout<<m--;
    cout<<m++;
    cout<<++m;
    cout<<--m;
    cout<<m%3; }

```

```

II. void main()
    {   int var=25;
        int *ptr;
        int **pptr;
        pptr=&ptr;
        ptr=&var;
        cout<<var<<"\t"<<*ptr<<"\t"<<**pptr<<"\n";
        **pptr=365;
        cout<<var<<"\n";
        *ptr=30;
        cout<<var<<"\n";
    }

```

- d. Write a C++ program to read a character and check whether the given character is "vowel" or "non-vowel".
- e. Write the Syntax for the switch statement and write an example for that.
- 3)
- a. By giving a suitable example, explain the difference between the "do-while" and "while" loop.
- b. Write a C++ program to find the sum of the given series using do-while loop:
 $1, 1/2, 1/3, 1/4, 1/5, 1/6, 1/7, \dots, 1/n$, where n is a natural number.
- c. Write a C++ program to find the factorial of a positive integer.
 Eg: $3! = 3 * 2 * 1 = 6$
- d. Write a C++ program to print the following output:

```

*
**
***
****
*****

```

4)

- a. What is the difference between the two jump statements “break” and “continue”?
- b. Write a C++ program to read six (06) marks from the user, calculate the total marks, and print six (06) marks with total marks.
- c. What is the difference between the two parameter passing techniques “passing by value” and “passing by reference”?
- d. Write a function to swap values of two variables.
void swap(int a, int b)
- e. Write a function to count the number of words in a string.
void count(char S[])

***** End *****