INTERNATIONAL CENTRE FOR APPLIED SCIENCES
(Manipal University)
I SEMESTER B.S. DEGREE EXAMINATION – APRIL / MAY 2017
SUBJECT: INTRODUCTION TO COMPUTERS AND PROGRAMMING (CS 111)
(BRANCH: COMMON TO ALL)
Friday, 12 April 2017

Time: 3 Hours   **Max. Marks: 100**

- ✓ **Answer ANY FIVE full Questions.**
- ✓ **Missing data, if any, may be suitably assumed**

1A. Write an Algorithm and Flowchart Count the no of digits of a number
1B. Explain the properties of an algorithm
1C. Differentiate between RAM and ROM   **(10+5+5)**

2A. List out the rules for valid variable names (*identifiers*)
2B. Differentiate between entry controlled loop and exit controlled loop
2C. Explain Bitwise Logical Operators and Bitwise Shift Operators with help of examples
2D. Explain the conditional operator (? :) and write a C++ program to find the greatest of
        two numbers using conditional operator.   **(5+5+5+5)**

3A. Explain and give the value of 'ans' in the following expressions
(i)
```
int  i=1;
int  j=2;
int  k=3;
ans = i++ * j - --k;
```
(ii)
```
int  i=1;
int  j=2;
int  k=3;
ans = ++i * j - k--;
```
3B. What do you mean by a namespace? Explain
3C. Explain the following four functions with help of examples   **(5+5+10)**
strlen ()
strcpy ()
strcmp ()
 strcat ()
cin.get()

4A Write a C++ program for Sorting n names in alphabetical order.
4B Explain with help of examples Pass by value (call by value) and Pass by reference (call by
reference)
4C. Write a recursive function to calculate factorial of a number   **(5+10+5)**

5A. Create a student record with name, rollno, marks of 3 subjects (m1, m2, m3). Compute the average of marks for 3 students and display the names of the students in ascending order of their average marks.

5B. Explain the concept of pointers and the operations that are possible on pointers

5C. Explain the role of reference and dereference operators in pointers with help of examples

(10+5+5)

6A. Differentiate between Object Oriented Programming and Procedure Oriented Programing

6B. Write short notes on

(i) Data Encapsulation

(ii) Data Abstraction

(iii) Inheritance **(5+15)**

7A. Explain what do you mean by a friend function in C++. Explain with help of an sample program.

7B. What is virtual function? Why it is required? What are the basic rules to create a virtual function? write down a program in C++ for virtual function. **(10+10)**

8A. What do you mean by function overloading? Explain with help of a sample program

8B. Differentiate between Class and an Object

8C. Write a C++ program to multiply two integer matrices **(5+5+10)**

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