INTERNATIONAL CENTRE FOR APPLIED SCIENCES
(Manipal University)
I SEMESTER B.Sc. (Applied Sciences) EXAMINATION- NOV. 2017
SUBJECT: PROBLEM SOLVING USING COMPUTERS (ICS111)
Monday, 20 November 2017

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

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

1A. What is a computer? Briefly describe key characteristics of a Computer.

1B. Explain the following terms:
   i) Data   ii) Information   iii) Word   iv) Program

1C. Differentiate RAM and ROM. (At least six differences)

(4M + 8M + 6M)

2A. Write an algorithm and flowchart to find whether a given number is palindrome or not.

2B. Explain the characteristics of an algorithm.

2C. Write a flowchart to find factorial of a given number.

(6M +6M +8M)

3A. . Explain following :

   i) Symbolic Constant   ii) typedef

   iii) Reference Variable   iv)Conditional Operator

3B Explain Bitwise Logical Operators and Bitwise Shift Operators with help of examples.

3C.Differentiate between entry controlled loop and exit controlled loop.

(10M + 5M +5M)

4A. What is a string? Write a complete C++ program to sort N names in alphabetic order.

4B. What is a recursive function? Write a complete C++ program to find sum of N natural number with the help of a recursive function.

(10M + 10M)

5A. Explain with help of examples Pass by value (call by value) and Pass by reference (call by reference.

5B. Write a complete C++ program to find frequency of each digit in the given number using switch case.

(10M + 10M)

6A. Write a complete C++ program to read a list of integers into an array and reverse the array elements *without* using another array. It should not be a print effect and the array should actually be reversed. Display the array contents before and after reversing the array.

6B. Write a complete C++ program to multiply two Matrices and display the result in matrix format.

(10 M+ 10M)

7A. Give snap shots of a binary search of 105 in the array having elements 58, 62, 75, 88, 92, 105 .

7B. Explain the following with suitable examples.

    (i)   Function with no arguments/parameter but a return value

    (ii)   Function with arguments/parameter but No return values

                           (12M + 8M)

8A. List and explain any five benefits of Object Oriented Programming.
8B. What is a C++ class? With the general syntax, explain declaration of a C++ class.
8C. Explain-Abstraction and Inheritance with respect to OOPs.
8D. Differentiate between Class and an Object

                           (5M + 5M + 5M+ 5M)

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