S.E. (Comp.) (Sem. – III) (RC 07-08) Examination, May 2009

BASICS OF C++

Duration: 3 Hours | Total Marks: 100

*Instructions :1) Answer **any 5** questions by selecting atleast **one** from **each** module.*

*2) Make **necessary** assumptions if required.*

MODULE – I

1. a) Explain the statement "C/C++ is a compiled language". 5
   b) Write a C++ program to swap 2 numbers without using a temporary variable. 3
   c) What are variables ? List C++ rules for variable naming. 5
   d) List the basic differences between C and C++. 3
   e) Describe the basic steps in designing and building software. 4
2. a) Explain in brief 'Johnston's Rules for programmers'. 5
   b) Write a program to print the sum of the first 15 odd numbers. 5
   c) How does a constant defined by 'const' differ from a constant defined by the preprocessor statement '# define' ? 3
   d) What does the term 'operator precedence' mean ? Give the precedence for arithmetic, relational and logical operators. 4
   e) Elaborate on the control structures available in C++. 3

MODULE – II

3. a) Explain 2 uses of pointers in detail. 5
   b) Write a C++ program to add values from 1 to N Where N is a keyboard entered number. Use functions. 5
   c) What are local, global and static variables in C++ ? Explain each in brief. 5
   d) Explain the various functions defined in string.h library using an example for each. 5

P.T.O.

4. a) Explain the address operator '&' and how it can be used with pointers. 3

   b) Write a program in C++ to implement the following : 7

   The program must have a main function, a get two numbers function and a FindBig One function. The main function calls Get Two Numbers that asks the user to enter 2 integers.

   The program then sends the 2 integers to Find Big One which returns the larger value to main. If both values are the same, it will send back either one.Incorporate a loop in the main function such that the user can keep entering 2 values as long as he/she desires.

   c) What is parameter passing ? Explain parameter passing schemes supported by C++. 6

   d) Explain the difference between calling function and called function with an example. 4

MODULE – III

5. a) What are structures ? Justify their need with an illustrative example. 5

   b) Write a C++ program for manipulating coordinates in a rectangular coordinate system. Represent paints P_1 and P_2 as objects. The clam 'point' must include 'x'and 'y' (as data members) and add ( ), sub ( ), angle ( ) etc. (as member functions) to operate on the 2 points. 8

   c) Write a C++ program to overload unary operators to perform increment and decrement operations on objects. 7

6. a) Write a short note on passing structure type variables to a function, and suitability of parameter passing schemes in different situations. 5

   b) Explain the different features of object oriented language with suitable examples. 5

   c) Write a C++ program to overload binary operator '+' for addition of 2 complex numbers. 7

   d) What are constructors ? Illustrate the differences between default and parameterised constructors with suitable example. 3

MODULE – IV

7. a) What is inheritance ? Explain the need of inheritance with suitable examples. 5

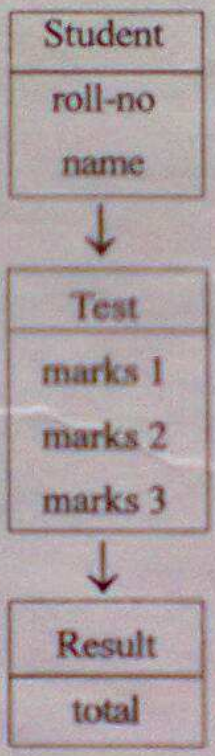
   b) Explain 2 methods by which objects are initialized using constructor functions in inheritance. Use suitable example. 5

   c) What do you mean by 'Pure Virtual Function' ? Describe its prototype. 5

   d) Explain how New and Delete are used in dynamic memory allocation. 5

8. a) How is an exception handled in C++ ? What are the advantages of using exception handling mechanism in a program ? 5

   b) Write a program in C++ to implement the following inheritance 10



   c) Explain the concept of 'polymorphism' using an example. 5