COMP – 3-2 (RC)

S.E. (Comp.) (Semester – III) (RC) Examination, November/December 2010
BASICS OF C++

Duration : 3 Hours Total Marks : 100

Instructions: *i) Answer **any five** questions selecting atleast **one** from **each** Module.*

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

Module – I

1. a) Describe the basic steps in designing and building a software. **5**

1. b) Explain the term "operator precedence". How do you classify operators in C++ ? Give the precedence for different operators available in C++. **7**

1. c) What is the difference between while and do-loops with respect to the number of times the loop is executed. Explain with suitable examples. **4**

1. d) Write a C++ program to print the following output using for loops. **4**

```
1
2  2
3  3  3
4  4  4  4
5  5  5  5  5
```

2. a) Differentiate between C and C++. **4**

2. b) Explain the working of cin and cout statements. Comment on the insertion and extraction operator give examples. **4**

2. c) Differentiate between : **6**

   a) for-loop and while-loop

   b) continue and break.

P.T.O.

2. d) If a four digit number is input through the keyboard, write a C++ program to obtain the sum of the first and last digits of this number. **4**

2. e) What will be the output of the following expression ? Assume 'a' to be an iteger **2**

a = b * c / 2 + 3 / 2 * c + 2 + d

(b = 3, c = 2, d = 3.2)

Module – II

3. a) Explain the following pointer declarations in C++ **3**

i) &i ii) *(&j) iii) *j

3. b) Write a C++ function called sort ( ) to sort a given list of integers. Also include a function called swap (int and n, int and y) to exchange the contents of 2 variables called x and y of type integer. Write a C++ main program to execute the functions. **8**

3. c) Explain the basic format of a function in C++ with example. **4**

3. d) Write a program in C++ which reads a string S1 and S2 and performs the following (use in-built functions) **5**

i) find length of S1 and S2

ii) compare S1 and S2.

4. a) What is a static variable ? Explain the use of these variables in C++ program with suitable example. **4**

4. b) How are arrays declared in C++ ? How can pointers be used to manipulate array elements ? Explain. **5**

4. c) Explain giving examples the various parameter passing schemes in C++. **6**

4. d) Write a C++ program to read n elements into an array A, create odd array and even array that contains odd and even elements of A. **5**

Module – III

5. a) Use structured arrays to create a data file that contains data on a cricket tournament player (name, height, weight, team, no.-of-matches played, no.-of-runs-scored)
Tournament (Match, Player)
Match (Match No., Team 1, Team 2)
Write a function to calculate batting average for every player in the tournament. **8**

5. b) With a C++ example explain how unary operators are overloaded. **6**

5. c) What is a friend function ? Explain its use with an appropriate example. **6**

6. a) We have two classes A and B. If a is an object of class A and B an object of class B and if a = b, what type of conversion routine should be used and where ? **5**

6. b) Explain calling by reference using reference parameters illustrate with an example. **6**

6. c) What are class destructors ? How are they involved ? **4**

6. d) How are variable-length parameters provided to function calls ? Explain with an example. **5**

Module – IV

7. a) What happens if a derived class constructor is not present in a C++ program ? Explain using an appropriate example. **5**

7. b) Differentiate between public and protected access specifiers. Write a C++ program to illustrate their usage. **6**

7. c) Private base class members are never inherited true or false. Justify your answer appropriately. **4**

7. d) If class D is derived from B a ptr to B cannot be a ptr to D true or false. Justify with an example. **5**

8. a) What is dynamic memory allocation ? Explain with a C++ example. **5**

8. b) With a C++ program illustrate how memory is allocated for a 2-dimensional array using offset multiplier. **8**

8. c) What are exceptions ? With appropriate syntax write a program to generate exceptions for

i) if a number lies between 0.1 and 0.5

ii) if the number is greater than 0.8. **7**
