SECOND SEMESTER B.C.A. DEGREE EXAMINATION, MAY 2014

(U.G.—CCSS)

Core Course

CA 2B 02—PROGRAMMING IN C++ AND DATA STRUCTURES

Time : Three Hours Maximum : 30 Weightage

I. Answer all *twelve* questions :

1 _____ is the equivalent expression using short hand assignment operator for the expression a = $a*10$.

2 _____ is an example for a ternary operator in C++.

3 A constructor with no arguments is called a _____ constructor.

4 In C++ a function contained within a class is called _____

5 In _____ inheritance the derived class acts as the base class for further inheritance.

6 In private mode of inheritance, the protected data becomes _____

7 _____ function is an example for runtime polymorphism.

8 _____ bytes in memory is allocated for an integer array of size 20.

9 _____ is an example of non-linear data structure.

10 The number of nodes connected to a particular node in the tree is called _____

11 If the last node of a list points to the first node, then list is called _____

In a tree, the nodes that have zero degree are called _____

(12 x ¼ = 3 weightage)

II. Answer all *nine* questions :

13 Write short note on identifiers with example.

14 What is the basic concept of structured programming ? What is its drawback ?

15 What is the importance of friend functions in C++.

16 What is a copy constructor ? What is its use ?

17 What is meant by destructor ?

18 Define template.

19 Explain, how push operation is performed in a stack ?

Turn over

20 Write an algorithm selection sort.

21 Define binary tree and draw a binary tree with 5 nodes.

(9 x 1 = 9 weightage)

III. Answer any *five* questions :

22 Explain logical and relational operators in C++.

23 Write C++ program to find the product of *two* matrices using operator overloading.

24 Write a short note on argument passing mechanisms in C++.

25 Write a short note on exception handling.

26 Write a C++ program to implement linear queue.

27 Write and explain quick sort algorithm.

28 Represent the expression (a − b)/(c * d) + e) by means of a binary tree.

(5 x 2 = 10 weightage)

IV. Answer any *two* questions :-

29 (a) Explain the important characteristics of object oriented programming.

   (b) Explain the shift operators in C++.

30 (a) What is meant by operator overloading ? What are the important points to be considered when we overload operators.

   (b) Write C++ program to evaluate a postfix expression.

31 (a) Write a function to insert a new node in binary search tree.

   (b) Write a C++ program to implement a queue using linked list.

(2 x 4 = 8 weightage)