

62701

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Name..... 30

Reg. No.....

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

(12 × 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 × 1 = 9 weight)

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 × 2 = 10 weight)

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 × 4 = 8 weight)