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Name.....

Reg. No..... 17

**SECOND SEMESTER B.C.A. DEGREE EXAMINATION, MAY 2015**

(CUCBCSS-UG)

Core Course

**BCA 2B 02—OBJECT ORIENTED PROGRAMMING WITH C++**

Time : Three Hours

Maximum : 80 Marks

**Part A**

*Answer all questions.  
Each question carries 1 mark.*

1. The property of OOPS which enables creation of new classes from existing ones is known as \_\_\_\_\_.
2. The equivalent short hand assignment expression for the statement  $a = a*b$  is \_\_\_\_\_.
3. The library function \_\_\_\_\_ in C++ allows a variable to be raised to another variable.
4. The principle of \_\_\_\_\_ allows more than one data item to be read from the standard input device using a single cin statement.
5. The \_\_\_\_\_ operator is of immense help when we want to define member functions outside the class definition.
6. A class which is defined inside the body of another class is called \_\_\_\_\_ class.
7. A constructor having reference to an instance of its own class as argument is known as \_\_\_\_\_ constructor.
8. The principle of OOPs which gives additional meaning to an operator, without affecting its natural meaning is called \_\_\_\_\_.
9. The member function of ios class used to specify the character to be displayed in unused portions of a displayed item is \_\_\_\_\_.
10. In opening a file in CPP. The mode which supports addition of data at the end of an existing file is called \_\_\_\_\_ mode.

(10 × 1 = 10 marks)

**Part B**

*Answer all questions.  
2 marks each for all the questions.*

1. Define the terms class and objects. Give examples.
2. Explain how data security is implemented in C++.
3. Explain the importance of function prototyping.

**Turn over**

14. Explain friend functions and their use.
15. What is a destructor ? Explain the importance.

(5 × 2 = 10 marks)

### Part C

Answer any **five** questions.  
Each question carries 4 marks.

16. Explain the basic principle of object orientation.
17. Explain the use and working of switch statements in C++.
18. Explain how we deal with private data in C++, how the private data can be made inheritable.
19. Write a C++ program using the concept of array of objects to find the batting average of a set of players, given their name, country, total runs scored, number of innings played and number of not outs.  
*[hint: batting average = total runs / (innings played – not outs)]*
20. Write a C++ program to overload – operator to find the time elapsed between two given times (in hours, minutes and seconds) t2 and t1.
21. Explain the visibility modes of data. How visibility modes help in public and private derivations.
22. Explain I/O manipulators in C++, explain the working of any two input and output manipulators of C++.
23. Explain the concept of command line arguments. Give examples on how command line arguments are useful in programs.

(5 × 4 = 20 marks)

### Part D

Answer any **five** questions.  
Each question carries 8 marks.

24. Write short notes on various data types available in C++.
25. Explain the concept of classes and objects. Explain how memory is allocated to classes and objects.
26. What do you mean by constructors ? Explain various types and properties of constructors. What is constructor overloading ?
27. Write a C++ program to illustrate the concept and working of function overloading to find the volume of a cube (given its side), a cylinder (given the radius and height) and a rectangular prism (given the length, breadth and height).
28. Explain the concept of multi-level inheritance. Write a program to find total marks and grade of a student using multi-level inheritance, given the base class **student**, an **exam** class which derives some details of the student from the base class and a derived class **performance** which inherits details from the exam class.
29. Write a detailed note on files. What are the possible methods of opening a file ? Explain read and write() operations on files. How eof() conditions are handled in C++.

30. What do you mean by class templates? Explain how class templates can be used declared and how they are instantiated. Explain the concept of class templates with multiple parameters,

31. Write short notes on :

- (a) Set precision() and showpoint().
- (b) Set width() and set fill().
- (c) Seekg() seekp() tellg() and tellp().
- (d) Command line arguments in C++.

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(5 × 8 = 40 marks)