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CS-72

15072

BACHELOR IN COMPUTER APPLICATIONS

Term-End Examination

June, 2010

CS-72 : C++ AND OBJECT ORIENTED PROGRAMMING

Time : 2 hours *Maximum Marks : 60*

Note : *Question number **1** is **compulsory.** Attempt **any three** questions from the rest. All examples must be in C++ programming language only.*

1. (a) What is an object ? Explain its significance with the help of an example. Explain any three basic characteristics of any object oriented programming language. **5**

(b) Write a program in C++ to overload the '+' operator to concatenate two string variables using the simple expression **7**

$x3 = x1 + x2$

Where $x1$, $x2$ and $x3$ are three string objects. Make suitable assumptions, if any.

(c) What are Templates ? How are templates defined ? Differentiate between class and function templates with the help of an example of each. **6**

(d) Explain the following with the help of an example each : 12

(i) Scope Resolution Operator

(ii) Protected inheritance

(iii) Private and public member functions

2. (a) What are Bitwise operators ? Explain the working of any one bitwise operator giving suitable examples. 4

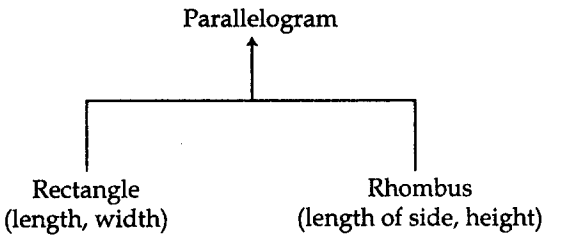
(b) What is the difference between arguments passed by value or passed as reference ? Explain the difference with the help of an example. 6

3. (a) Define the terms constructor and destructor. Give an example of each. What is copy constructor ? Give an example to illustrate its use. 6

(b) Explain the purpose of macros in C++ with the help of an example. 4

4. (a) What is Dynamism ? Explain any three kinds of dynamism for object-oriented design with an example for each. 4

(b) Consider the following class hierarchy. 6



Create the class hierarchy using C++, having at least one constructor for each class. Assuming that all parallelograms are either rectangles or rhombuses, write a polymorphic function to calculate the areas of the figures.

5. (a) How is exception Handling implemented in C++ ? Write a program in C++ that raises an exception when a number is divided by zero and prints a suitable error message. 6

(b) What are friend functions ? Explain the utility of friend functions with the help of an example. 4