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Question Paper Code : 21299

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Third Semester

Computer Science and Engineering

CS 2203/CS 35/CS 1202/10144 CS 304/080230004 — OBJECT ORIENTED PROGRAMMING

(Common to Information Technology)

(Regulation 2008/2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is an abstruct class?

2. Define polymorphism.

3. Give an example for copy constructor.

4. What is the need of destructors?

5. Write a function template that swaps the values of the two variables with which it is called?

6. What functions does terminate and unexpected handlers call?

7. When the access specifier for a baseclass is public, what the public, private and protected members of the baseclass will become in the inherited class?

8. Define pure virtual functions.

9. What are the three types of I/O streams?

10. List any two containers in STL.

PART B — (5 × 16 = 80 marks)

11. (a) Describe the principles of object-oriented programming with examples.

Or

(b) (i) Is it possible for a nonmember function to access the private members of a class? Explain with proper example your validation.(8)

(ii) Write a C++ program to overload the function add() for different parameters of different types. (8)

12. (a) Explain with programs the various types of type conversions.

Or

(b) Write a C++ program which creates a class called loc which stores longitude and latitude values. Overload the + operator to add the longitude and latitude values, overload the = operator to assign the values to longitude and latitude members and overload the ++ operator to increment the longitude and latitude values.

13. (a) Write a class template to generate a class Matrix automatically for a matrix of any particular type. Using the class template definition, the program should handle the arithmetic operations (+,-,*,/) for any particular type. (such as int,float,double,char).

Or

(b) Explain the following concepts with examples

(i) try-catch-throw paradigm (8)

(ii) exception specification. (8)

14. (a) Write an inheritance hierarchy for classes Quadrilateral, Trapezoid, Parallelogram, Rectangle and Square. Use Quadrilateral as the superclass of the hierarchy. Specify the instance variables and methods for each class. The private instance variables of Quadrilateral should be the x-y coordinate pairs for the four endpoints of the Quadrilateral. Write a program that instantiates objects of your classes and outputs each object's area (except Quadrilateral).

Or

(b) Define runtime polymorphism. Explain with a neat example.

15. (a) Write a C++ program for setting and clearing the format flags. Illustrate an example for any 5 format flag values. (6+10)

Or

(b) Explain the following with examples.

(i) Random access in files (10)

(ii) Namespaces. (6)