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Question Paper Code : R 3638

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Fourth Semester

Computer Science and Engineering

CS 237 — OBJECT ORIENTED PROGRAMMING

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A -- (10 × 2 = 20 marks)

1. What do you mean by binding of data and functions?
2. What are the differences between a copy constructor and assignment operator? Give examples.
3. How and why is the scope resolution operator :: used in class definitions?
4. What does * this always refer to?
5. What is the difference between "overloading" and "overriding"?
6. Why should the stream operators <<and>> be overloaded as friend functions?
7. What is a pure virtual function?
8. What is the difference between a function template and template function?
9. What is the difference between an Abstract class and Interface?
10. What is final and finally?

PART B — (5 × 16 = 80 marks)

11. (a) List and explain the Object Oriented concepts. (16)

Or

- (b) Explain the merits and demerits of procedural programming and modular programming. (16)

12. (a) (i) Implement a Sting class. Each object of this class will represent a character string. Data members are the length of the string and the actual character string. In addition to constructors, destructor, access functions and a print function, include a "subscript" function. (8)

- (ii) Explain static data members and static member functions. (8)

Or

- (b) (i) Explain "passing by value", "passing by pointer" and "passing by reference". Give suitable examples. (8)

- (ii) Write a function that returns through is reference parameters both the largest and second largest values stored in an array. (8)

13. (a) (i) Write a C++ program to implement a class hierarchy of Shape, Two Dimensional, Triangle, Rectangle, Circle, Three dimensional, Cylinder, Sphere. Write a driver program that instantiates and displays objects of each of these classes. (8)

- (ii) Explain with an example how dynamic binding is achieved. (8)

Or

- (b) Write a C++ program to implement a Ratio class with a overloaded assignment operator, arithmetic operators and comparison operators. (16)

14. (a) (i) Write a test program that instantiates a function template that returns the minimum of two values. (8)

- (ii) Write a C++ program to explain exception handling. (8)

Or

- (b) Write a C++ program to implement a template for generating Stack classes with limited operations of push, pop and display. (16)

15. (a) (i) Describe the structure of a typical Java program. (8)

(16) (ii) How can a subclass call a method or a constructor defined in a superclass? Illustrate with an example program. (8)

Or

(b) (i) Write a Java program that adds a class or an interface to a package. (8)

(ii) What is the purpose of garbage collection in Java, and when is it used? (8)

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