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B.E/B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2008.

Fourth Semester

Electrical and Electronics Engineering

CS 1261 — OBJECT ORIENTED PROGRAMMING

(Common to Instrumentation and Control and Electronics and Instrumentation Engineering)

(Regulation 2004)

Time : Three hours　　　　Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What do you mean by dynamic initialization of a variable? Give an example.

2. How does an inline function differ from a preprocessor macro?

3. When do we declare a member of a class static?

4. What is a parameterized constructor? Give an example.

5. Why is it necessary to overload an operator?

6. What is the use of this pointer?

7. How does a String class differ from the StringBuffer class?

8. When do we declare a method or class abstract?

9. What is a finally block? When and how is it used? Give a suitable example.

10. Why do applet classes need to be declared as public?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the basic concepts of Object oriented programming. (8)

(ii) Write a C++ program that will ask for a temperature in Fahrenheit and display it. (8)

Or

(b) (i) Write a function using reference variables as arguments to swap the values of a pair of integers. (8)

(ii) Write a function power() to raise a number *m* to a power *n*. Write two functions having the same name but with different signatures. Write a main that calls both the functions. Use the concept of function overloading. (8)

12. (a) Create two classes DM and DB which store the value of distances. DM stores distances in metres and centimeters and DB in feet and inches. Write a program that can read values for the class objects and add one object of DM with another object of DB.

Use a friend function to carry out the addition operation. The object that stores the results may be a DM object or DB object, depending on the units in which the results are required.

The display should be in the format of feet and inches or metres and centimeters depending on the object on display. (16)

Or

(b) Define a class String that could work as a user-defined string type. Include constructors that will enable us to create an uninitialized string

String S1; // string with length 0

and also to initialize an object with a string constant at the time of creation like

String S2 ("Well done!");

Include a function that adds two strings to make a third string. Note that the statement.

S2 = S1;

will be perfectly reasonable expression to copy one string to another.

Write a complete program to test your class to see that it does the following tasks:

(i) Create uninitialized string objects.

(ii) Creates objects with string constants.

(iii) Concatenates two strings properly.

(iv) Displays a desired string object. (16)

13. (a) Create a class FLOAT that contains one float data member. Overload all the four arithmetic operators so that they operate on the objects of FLOAT. (16)

Or

(b) Explain the concept of virtual base classes and virtual functions with an example C++ program. Write necessary member functions and a main program. (16)

14. (a) (i) Describe different forms of inheritance with an example Java program for each. (8)

(ii) Explain how wrapper classes are useful. (8)

Or

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

(ii) Explain the significance of final and finalize() in Java with suitable examples. (8)

15. (a) (i) Describe the various forms of implementing interfaces. Give examples of Java code for each case. (8)

(ii) Discuss the steps involved in developing and running a local applet. (8)

Or

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

(ii) Develop a simple real life application program to illustrate the use of multithreads. (8)

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