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EE661

Sixth Semester B.E. Degree Examination, Dec 08 / Jan 09
Object Oriented Programming with C++

Time: 3 hrs. Max. Marks:100

Note : ***Answer any FIVE full questions.***

1 a. What are pre – processor directives? What is their function? Give atleast six examples of pre-processor directives. **(07 Marks)**

b. What is a qualifier in C++? Explain with syntax, 'const' qualifier and 'icolatile' qualifier. **(06 Marks)**

c. Write an interactive C++ program to find the root mean square (rms) of a given set of 'n' numbers. $rms = \left[\frac{1}{n}\sum_{i=1}^{n} x_i^2\right]^{1/2}$ **(07 Marks)**

2 a. Explain with syntax, the terms 'functions prototype' and 'function definition'. Write separate function prototypes for the following: **(10 Marks)**

i) Functions that return a double and receives a reference float and reference integer.

ii) Function that receives an integer pointer and a float reference and returns nothing.

b. Write a C++ program showing the function definition and function call to swap the contents of two integer variables using "passing parameters using reference with reference arguments". **(10 Marks)**

3 a. Describe the three – step overload resolution as related to function overloading in C++. **(09 Marks)**

b. Write an interactive C++ program to illustrate function overloading to compute the cube of a number using different data types. **(06 Marks)**

c. With the help of a general syntax, explain the 'Generic Function'. **(05 Marks)**

4 a. With the help of general syntax, describe a class, class members and class visibility modifiers. **(08 Marks)**

b. What is a union? How does it differ from structure and class? **(04 Marks)**

c. When the member of a class is made static? Give the syntax for declaring the class members as static. State the characteristic features of static member variable. **(08 Marks)**

5 a. Write a C++ program to add two complex numbers to demonstrate passing of objects as arguments and returning of objects. **(10 Marks)**

b. What are constructors and destructors? List at least two differences between a constructor and a member function. **(06 Marks)**

c. Explain the use and need of 'this' pointer. **(04 Marks)**

6 a. What is operator overloading? Explain the process of operator overloading with the help of general syntax. List the operators that cannot be overloaded. **(10 Marks)**

b. Describe how a friend function can be used to overload the operators. List the operators that cannot be overloaded by friend function. **(06 Marks)**

c. Create a class INCREMENT. Write a C++ program to increment the class objects by overloading '—' operator using friend function. **(04 Marks)**

7 a. What is Inheritance in C++? With the help of block diagram representation, give the descriptive classification of Inheritance. **(12 Marks)**

b. With regard to the use of constructors in derived classes, what are implications of the following definitions? i) Class A : Public B. ii) Class A : Public B, Public C. iii) Class A : Public C, Public B. iv) Class A : Public B, Virtual public C. **(08 Marks)**

8 a. What are virtual functions and pure virtual functions? Explain the need for virtual functions. **(08 Marks)**

b. What does polymorphism mean in C++? Explain the terms 'early binding' and 'late binding'. **(08 Marks)**

c. Write a C++ statements to open a file 'result.dat' for writing results and 'result.in' to read data. **(04 Marks)**