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CS304

Final Term Examination – Spring 2006

Time Allowed: 150 Minutes

Question No. 1 **Marks : 1**

What is the name of the function that overloads the + operator for the ***complex*** class?

1. add
2. *complex* add
3. +
4. operator +
5. operator

Question No. 2 **Marks : 3**

Within a member function, the expression *this always refers to

1. the objects passes as an argument to the function
2. the address of an object
3. a temporary object created within the function
4. the object that called the function
5. the object that will be returned from the function

Question No. 3 **Marks : 3**

Write two classes **Customer** and **Account.** Declare **Account** as a friend class of **Customer**.

Private data members of **Customer** class are:

i. cusName
ii. cusAddress
iii. cusbalance

Private data members of **Account** class are:

i. AccTitle
ii. AccBalance

a) Write parameterized constructors for both classes i. **Customer** and **Account,** to initialize their data members. For **Customer** class initialize cusbalance to zero.

b) Write a member function of **Account** class, named **setBalance ( )** to assign AccBalance to cusbalance, which is a data member of **Customer** class.

Write a member function for the **Customer** class, named **displaytData ( )** to display the values of **Customer's** cusName, cusAddress and cusbalance.

Question No. 4 **Marks : 1**

Given below is a code snippet:

```
Class YourClass
{
 private:
  YourClass();
  // other private methods
public:
 // public members
}
void main()
{
  YourClass *Yclass;
   Yclass = new YourClass[3];
}
```

Do you see any problem with the code above?

1. The class name is invalid
2. The public members should be declared above the private members in the class
3. The constructor is declared private so an array is being created in the function main, therefore, the statement will result in an error
4. The array creating syntax is incorrect
5. Return type of main () is not int

Question No. 5 **Marks : 1**

a) Write a C++ program which creates a class **Employee** with the following attribute

1. name

This class should have a **parameterized constructor** and **destructor** the getter/setter functions and virtual member function called **pay ()** that returns the salary of the **Employee**

b) Create a class named as **Salaried** that inherits from class **Employee** A Salaried object has the following attribute

1. salary

This class should also have **parameterized constructor** and **default destructor**, setter/getter functions and a **pay ()** member function.

c) Similarly, develop a class named as **Hourly** that inherits from class **Employee** An **Hourly** object is distinguished by the following attributes

1. hours
2. rate

This class should also have a **parameterized constructor**, **default destructor**, setter/getter functions and a **pay ()** member function.
Your program should create objects of **Salaried** and **Hourly** classes and then invoke the pay () function of these classes polymorphicly (through Employee Object)

Question No. 6 **Marks : 1**

The code for an *inline* function

1. is inserted into the program in the place of each function call
2. is not generated by the compiler itself, but by the preprocessor
3. takes extra memory
4. occurs only once in the program
5. is merely symbolic; it is not actually executed

Question No. 7 **Marks : 1**

Write a C++ program to determine the **area** and **perimeter** of **rectangle** according to the **length** and **width** entered by the user. Your code should include a **template <class T>.**

Your **rectangle** class has the following data member.

1: length
2: width

The **area** and **perimeter** should be calculated for each **int, float** and **double** type data member. Hence data member of the **class rectangle** should be of type **Template** as well.

Your program should have following **member functions** of a **template <class T>**

1: area ();
This member function will calculate the **area of the rectangle**. The **area** of a rectangle can be calculated by the following formula:

Area = length * width

2: perimeter ();

This member function will calculate the **perimeter of the rectangle** where the formula for perimeter of rectangle is

Perimeter = 2 *(length + width)

Area() and **perimeter()** member functions should return **the same type** on which the data is manipulating. For example
If the **area** is calculating for **a rectangle of int type length** and **width**, then this member function **should return an integer number** and vice versa.

Take three instances of one of each type of data **int, float, and double** for **the class rectangle** in **main ()**. members'

Also write **setter** and **getter** for the data member of the **class rectangle**

Question No. 8 **Marks : 1**

There is a class Student, Which one of the following is a valid destructor for this class

1. Student();
2. Student(int);
3. ~ Student();
4. int~ Student();
5. ~ Student(int);

Question No. 9 **Marks : 1**

Is there any difference between abstract and base class? If yes, then what is it?

Question No. 10 **Marks : 3**

Question No. 11 **Marks : 3**

Question No. 12 **Marks : 10**

Question No. 13 **Marks : 1**

Question No. 14 **Marks : 1**

Question No. 15 **Marks : 1**

Question No. 16 **Marks : 1**

Question No. 17 **Marks : 1**

Question No. 18 **Marks : 10**

Question No. 19 **Marks : 1**

Question No. 20 **Marks : 1**

Question No. 21 **Marks : 1**

Question No. 22 **Marks : 1**

Question No. 23 **Marks : 1**

Question No. 24 **Marks : 1**

Question No. 25 **Marks : 3**

Question No. 26 **Marks : 1**

Question No. 27 **Marks : 1**

Question No. 28 **Marks : 1**

Question No. 29 **Marks : 1**

Question No. 30 **Marks : 1**

Question No. 31 **Marks :1**

Question No. 32 **Marks : 1**