QUIZ-04;02-01-2023; TIME:20MINUTES; MARKS:20

NAME:_____ID:_____

Q1: Mark the following statements as true or false. (3pts)

a. **The constructor of a derived class can specify a call to the constructor of the base class in the heading of the function definition. (TRUE / FALSE)**

b. **The constructor of a derived class can specify a call to the constructor of the base class using the name of the class. (TRUE / FALSE)**

c. **Suppose that x and y are classes, one of the member variables of x is an object of type y, and both classes have constructors. The constructor of x specifies a call to the constructor of y by using the object name of type y. (TRUE / FALSE)**

Q2: Consider the following statements: (2pts)

class pigeon: public bird
{
//code…
};

a. In this declaration, which class is the base class and which class is the derived class? _____

b. What is the type of this inheritance? _____

Q3: What is difference between overriding and overloading a member function of a base class in a derived class. (3pts)

Q4: Consider the following code. (2pts)

Consider the following class definitions:

```
class smart
{
public:
   void print() const;
   void set(int, int);
   int sum();
   smart();
   smart(int, int);
private:
   int x;
   int y;
   int secret();
};
```

```
class superSmart: public smart
{
public:
   void print() const;
   void set(int, int, int);
   int manipulate();
   superSmart();
   superSmart(int, int, int);
private:
   int z;
};
```

a. Which `private` members, if any, of `smart` are `public` members of `superSmart`?

b. Which members, functions, and/or data of the `class` **`smart`** are directly accessible in `class` **`superSmart`**?

Q5: Discuss the ways in which inheritance promotes software reuse, saves time during program development and helps prevent errors. (2 pts)

Q6: Distinguish between static binding and dynamic binding. (2pts)

Q7: Distinguish between virtual functions and pure virtual functions. (2pts)

Q8: Mark True or False. (4pts)

a) All virtual functions in an abstract base class must be declared as pure virtual functions. (TRUE / FALSE)

b) Referring to a derived-class object with a base-class handle is dangerous. (TRUE / FALSE)

c) A class is made abstract by declaring that class virtual. (TRUE / FALSE)

d) If a base class declares a pure virtual function, a derived class must implement that function to become a concrete class. **(TRUE / FALSE)**