What is the difference between a class and an instance of the class? -
A class describes a data type.

An instance of a class is an object of the data type that exists in memory.

What is the difference between the following Person structure and Person class?

```
struct Person
{
 string name;
 int age;
};
------------------------------
class Person
{
 string name;
 int age;
};
```

Main difference between struct and classes: Default declaration attributes are structures taken as public, classes are taken as private. Attributes name and age declarations public is used for Person structure, private members for Person class.

What is the default access specification of class members -
Private

Look at the following function header for a member function.

```
void Circle::getRadius()
```

What is the name of the function?

What class is the function a member of? -
getRadi is the function

Circle

A contractor uses a blueprint to build a set of identical houses. Are classes analogous to the blueprint or the houses? -
Blueprint -> Classes
Houses -> Objects

Long Answer: Classes are analogous to the blueprint where the objects created from the blueprints. The blueprint itself is a detailed description.

What is a mutator function? -
Mutator Function: When a member function that stores a value in a member variable or a changes the value of member variable in some way then it is known as a mutator function.

What is an Accessor function? -
Accessor Function: When a member function that gets a value from a class's member variable but does not change then it is known as an accessor function.

Is it a good idea to make member variables private? why or why not? -
Yes, it protects variables from being directly manipulated by code outside of the class, and prevents them from receiving invalid data.

Can you think of a good reason to avoid writing statements in class member function that use cout or cin? -
Member functions are used to retrieve a set data for class there is not a need to have cin or cout states in function.

Under what circumstances should a member function be private? -
When the function is needed for internal processing, but not useful to the program outside of the class.

In some cases a class may have member functions that initialize member variables or destroy their contents. Those functions should not be accessible by external parts of the program because they may be called at a wrong time.

What is a constructor? -
Constructor is a member function that has the same name of the class and is automatically invoked when an object is created in memory or instantiated.

What is a de-constructor? -
Destructor is a member function of the class that has same name of the class but preceded with a tilde (~) and is used to destroy the objects.

Is it possible to have more than one onstructor? -
Yes, it's called Constructor Overloading.

Is it possible to have more than one destructor? -
No, a class can have any number of constructors but only one destructor.

If a class object is dynamically allocated in memory, does its constructor execute? If so, when? -
Yes, executes when the object is created.

When defining an array of class objects, how do you pass arguments to the constructor for each object in the array? -
Call a constructor that requires arguments we must specify the arguments for each object individually in an initializer list such as:

InventoryItem inventory[3] = {"Hammer", "Wrench", "Pliers"};

What are a class's responsibilities? -
The class is responsible for knowing the action that the class is responsible for doing.

How do you identify the classes in a problem domain description? -
1. Get a written description of the problem domain.

2. Identify all the nouns in the description. Each of these are called potential.

3. Refine the list to include only the classes that are relevant to the problem.

The two common programming methods in practice today are _____ and _____. - Procedural Programming and Object-Oriented Programming

_____ programming is centered around functions or procedures. - Procedural

_____ programming is centered around objects. - Object-Oriented

_____ is an object's ability to contain and manipulate its own data. - Encapsulation

In C++ the _____ is the construct primarily used to create objects. - Class

A class is very similar to a _____ - Structure

A _____ is a key word inside a class declaration that establishes a member's accessibility. - Access specifier

Defining a class object is often called the _____ of a class. - Instance

Members of a class object may be accessed through a pointer to the object by using the _____ operator. -
->

If you were writing the declaration of a class named Canine, what would you name the file it was stored in? _____ -
Canine.h

If you were writing the external definitions of the Canine class's member functions, you would save them in a file named? _____ -
Canine.cpp

When a member function's body is written inside a class declaration, the function is _____. -
Inline

A _____ is automatically called when an object is created. -
Constructor

A _____ is a member function with the same name as the class. -
Destructor

_____ are useful for performing initialization or setup routines in a class object. -
Constructors

Constructors cannot have a _____ type. -
Return

A _____ constructor is one that requires no arguments. -
Default

A _____ is a member function that is automatically called when an object is destroyed. -
Destructor

A destructor has the same name as the class, but is preceded by a _____ character. - tilde (~)

Like constructors, destructors cannot have a _____ type. -
return

A constructor whose arguments all have default values is a _____ constructor. -
Default

A class may have more than one constructor, as long as each has a different _____. -
Parameter

A class may only have one default _____ and one _____ -
Constructor and one Destructor

A _____ may be used to pass arguments to the constructors of elements in an object array. -
String Object

True or False!
Private members must be declared before public members. -
F

True or False!
Class members are private by default. -
T

True or False!
Member of a struct are private by default -
F

True or False!
Classes and structures in C++ are very similar -
T

True or False!
All private members of a class must be declared together. -
F

True or False!
All public members of a class must be declared together. -
F

True or False!
It is legal to define a pointer to a class object. -
T

True or False!
You can use the new operator to dynamically allocate an instance of a class. -
T

True or False!
A private member function may be called from a statement outside the class, as long as the statement is in the same program as the class declaration. -
F

True or False!

Constructors do not have to have the same name as the class -
F

True or False!
Constructors may not have a return type. -
T

True or False!
Constructors cannot take arguments. -
F

True or False!
Destructors cannot take arguments. -
T

True or False!
Destructors may return a value. -
F

True or False!
Constructors may have default arguments. -
T

True or False!
Member functions may be overloaded. -
T

True or False!
Constructors may not be overloaded. -
F

True or False!
A class may not have a constructor with no parameter list, and a constructor whose arguments all have default values. -
F

True or False!
A class may only have on destructor. -
T

True or False!
When an array of objects is defined, the constructor is only called for the first element. -
F

True or False!
To find the classes needed for an object-oriented application, you identify all of the verbs in a description of the problem domain. -
F

True or False!
A class's responsibilities are the things the class is responsible for knowing, and actions the class must perform. -
T