Section: B

Quiz 9

Roll number: _____

Q1. Which access specifier allows members of the same class and derived classes to access the data, but prevents access from any other class?

A) Friend
B) Protected
C) Private
D) Both B & C

Q2. Which of the following is true about friend functions?

A) Must be a member of the class it is a friend of.
B) Can be a global function not associated with any class.
C) Is automatically a member of every class in the program.
D) All of the above are true.

Q3. When a class uses objects of another class as its members, this OOP concept is known as:

A) Encapsulation
B)Polymorphism
C) Composition
D) Inheritance

Q4. If class C is composed of class D and class E, which of the following statements is correct?

A) C is a base class for D and E.
B) C contains objects of D and E within it.
C) D and E are derived classes of C.
D) Composition relationship cannot be determined.

Q5. Which OOP concept enables a class to acquire properties and methods from another class?

A) Encapsulation
B) Inheritance
C) Abstraction
D) Composition

Q6. Given the following code structure in C++, which inheritance type is being used?

```
class A {};
class B : public A {};
class C : public B {};
```

A) Multiple Inheritance
B) Hierarchical inheritance
C) Multilevel Inheritance
D) None of these

Q7. Which of the following statements is true about operator overloading in C++?

A) Operators ::, ., ., and ?: cannot be overloaded.*
B) The = operator can be overloaded to prevent an object from being copied.
C) Operator overloading can change the precedence of operators.
D) All operators in C++ can be overloaded.

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Q8. What is the correct way to declare a friend function that allows it to access private members of 'class foo'?

A) `public friend void accessFunction(foo&);`
B) `void friend accessFunction(foo&);`
C) `friend void accessFunction(foo&);`
D) `private friend void accessFunction(foo&);`

Q9. Given a class Derived that inherits (public) from Base, and Base has a protected member int value;. Which of the following is a valid way for Derived to access value?

A) `cout << value;` *inside a member function of Derived.*
B) `cout << Base::value;` *inside a main function.*
C) `cout << Derived::value;` *inside a friend function of Base.*
D) `Base b; cout << b.value;` *inside a member function of Derived.*

Q10.Analyze the following C++ classes:

```
class Engine {
public:
    void start() { cout << "Engine starts." << endl; }
};

class Car {
    Engine engine;
public:
    Car() {}
    void startCar() {
        engine.start();
    }
};
```

A) The Car class encapsulates the Engine class, demonstrating inheritance.
B) The Car class has an Engine object as a member, illustrating composition.
C) The Engine class inherits functionalities of the Car class, showing polymorphism.
D) The Engine class is a friend of the Car class, allowing access to private members.