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NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Fundamentals of Object Oriented Programming (course)[Announcements \(announcements\)](#) [About the Course \(preview\)](#) [Q&A \(forum\)](#) [Progress \(student/home\)](#) [Mentor \(student/mentor\)](#)[Review Assignment \(assignment_review\)](#) [Course Recommendations New! \(/course_recommendations\)](#)[Click to register for
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Week 3. Assignment 3

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment.

Due on 2025-02-12, 23:59 IST.

1 point**How does an NPTEL online course work? ()****Week 0 ()****Week 1 ()****Week 2 ()****Week 3 ()**

- ☐ Access Specifiers in C++ (unit?unit=40&lesson=41)
- ☐ Inheritance: Single Inheritance (unit?unit=40&lesson=47)
- ☐ Inheritance: Multilevel Inheritance (unit?unit=40&lesson=48)
- ☐ Inheritance: Multiple, Hierarchical, and Hybrid (unit?unit=40&lesson=49)
- ☐ Inheritance and Introduction to Friend Function (unit?unit=40&lesson=50)
- ☐ **Quiz: Week 3: Assignment 3 (assessment?name=56)**
- ☐ Solution for Week 3 (unit?unit=40&lesson=95)

1) Consider the following code:

```

class A {
public:
    void display() { std::cout << "Base class A\n"; }
};

class B : public A {
public:
    void show() { std::cout << "Derived class B\n"; }
};

int main() {
    B obj;
    obj.display();
    obj.show();
    return 0;
}

```

What is the output of the above program?

- ☐ Base class A
Derived class B
- ☐ Derived class B
Base class A
- ☐ Base class A
Derived class B

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Base class A**Derived class B*

Week 4 ()**Week 5 ()****Week 6 ()****Week 7 ()****Week 8 ()****Week 9 ()****Week 10 ()****Week 11 ()****Week 12 ()****Download Videos ()****Weekly Feedback ()**

2) In C++, ambiguity occurs in multiple inheritance when:

1 point

- ☐ A derived class has a method with the same name as a method in the base class.
- ☐ Two base classes have methods with the same name, and a derived class inherits from both.
- ☐ A derived class has no constructor defined.
- ☐ A base class has a private member function.

No, the answer is incorrect.

Score: 0

Accepted Answers:

Two base classes have methods with the same name, and a derived class inherits from both.

3) In a program to demonstrate multilevel inheritance with the following requirements:

1 point

- Class A contains a method display() that prints "Class A".
- Class B inherits from A and adds a method show() that prints "Class B".
- Class C inherits from B and adds a method output() that prints "Class C".

Which of the following correctly calls all three methods from an object of C?

- ☐ C obj; obj.display(); obj.show(); obj.output();
- ☐ B obj; obj.show(); obj.output();
- ☐ A obj; obj.display(); obj.show(); obj.output();
- ☐ C obj; obj.output();

No, the answer is incorrect.

Score: 0

Accepted Answers:

C obj; obj.display(); obj.show(); obj.output();

4) Consider the following script:

1 point

```
class A {  
    void display() { System.out.println("Class A"); }  
}  
  
class B extends A {  
    void show() { System.out.println("Class B"); }  
}  
  
class C extends A {  
    void output() { System.out.println("Class C"); }  
}  
  
public class Main {  
    public static void main(String[] args) {  
        B objB = new B();  
        objB.display();  
        objB.show();  
  
        C objC = new C();  
    }  
}
```

```
objC.display();  
objC.output();  
}  
}
```

What is the output of the above program?

- ☐ Class A
- ☐ Class B
- ☐ Class A
- ☐ Class C
- ☐ Class B
- ☐ Class A
- ☐ Class C
- ☐ Class A
- ☐ Class A
- ☐ Class B
- ☐ Class C

No, the answer is incorrect.

Score: 0

Accepted Answers:

Class A
Class B
Class A
Class C

5) Which of the following is true about method overriding in Java?

1 point

- ☐ The overridden method must have a different return type.
- ☐ The overridden method must have the same name and parameters as the base class method.
- ☐ The base class method must be private.
- ☐ Overriding is not possible in Java.

No, the answer is incorrect.

Score: 0

Accepted Answers:

The overridden method must have the same name and parameters as the base class method.

6) Consider the following C++ code:

1 point

```
class Base {
public:
    virtual void display() { std::cout << "Base class\n"; }
};

class Derived : public Base {
public:
    void display() override { std::cout << "Derived class\n"; }
};

int main() {
    Base* ptr;
    Derived obj;
    ptr = &obj;
    ptr->display();
    return 0;
}
```

What is the output of the program?

- ☐ Base class
- ☐ Derived class
- ☐ Compilation error
- ☐ Undefined behavior

No, the answer is incorrect.

Score: 0

Accepted Answers:

Derived class

7) Which of the following statements about virtual functions is false?

1 point

- ☐ Virtual functions allow dynamic (runtime) polymorphism.
- ☐ A virtual function must be declared as virtual in the base class.
- ☐ A virtual function can have default arguments.
- ☐ A virtual function cannot be overridden in a derived class.

No, the answer is incorrect.

Score: 0

Accepted Answers:

A virtual function cannot be overridden in a derived class.

8) Write a C++ program to demonstrate virtual functions with the following requirements:

1 point

- Base class Shape has a virtual function area().
- Derived class Rectangle overrides area() to compute the area of a rectangle.
- Derived class Circle overrides area() to compute the area of a circle.

Which of the following correctly uses a base class pointer to call area() for both shapes?

- ☐ Shape* ptr; Rectangle rect; ptr = ▭ ptr->area();
- ☐ Shape* ptr = new Circle(); ptr->area();
- ☐ Both A and B
- ☐ None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

Both A and B

9) When a class is derived from a base class using protected inheritance, how are the public and protected members of the base class treated in the derived class?

1 point

- ☐ They both become private members in the derived class.
- ☐ They both remain public members in the derived class.
- ☐ They both become protected members in the derived class.
- ☐ They are inaccessible in the derived class.

No, the answer is incorrect.

Score: 0

Accepted Answers:

They both become protected members in the derived class.

10) Which of the following is a potential problem associated with multiple inheritance in C++?

1 point

- ☐ Ambiguity in accessing members when two base classes have members with the same name.
- ☐ Lack of runtime polymorphism.
- ☐ Inability to overload operators in derived classes.
- ☐ Restriction on the number of base classes a derived class can inherit from.

No, the answer is incorrect.

Score: 0

Accepted Answers:

Ambiguity in accessing members when two base classes have members with the same name.