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Week 6 : Assignment 6

The due date for submitting this assignment has passed.

Due on 2023-03-08, 23:59 IST.

Assignment submitted on 2023-02-28, 20:20 IST

Videos ()

Books ()

Transcripts ()

Problem Solving Session ()

1) Consider the following code segment. **2 points**

```
#include<iostream>
using namespace std;
class Base{
    public:
        void fun1() { cout << "1" ; }
        virtual void fun2() { cout << "3" ; }
};
class Derived : public Base{
    public:
        virtual void fun1() { cout << "2" ; }
        void fun2() { cout << "4" ; }
};
int main(){
    Base *t = new Derived();
    t->fun1();
    t->fun2();
    return 0;
}
```

What will be the output?

a) 13

b) 14

c) 23

d) 24

- a)
- b)
- c)
- d)

Yes, the answer is correct.
Score: 2

Accepted Answers:
b)

2) Consider the following code segment. **2 points**

```
#include<iostream>
using namespace std;
int x = 0;
class ClassA{
    public:
        ClassA(){ x = x+2; }
        ~ClassA() { x = x-1; }
};
class ClassB : public ClassA{
    public:
        ClassB(){ x = x+3; }
        ~ClassB(){ x = x-2; }
};
void fun(){
    ClassB t;
    ClassA *t1 = new ClassB();
    cout << x << " ";
    delete t1;
}
int main(){
    fun();
    cout << x;
    return 0;
}
```

What will be the output/error?

a) 10 6

b) 10 4

c) 8 6

d) 8 4

- (●) a)
- ( ) b)
- ( ) c)
- ( ) d)

Yes, the answer is correct.
Score: 2

Accepted Answers:
a)

3) Consider the following code segment. **2 points**

```
#include<iostream>
using namespace std;
class A{
    public:
        A() { cout<<"A "; }
        ~A() { cout<<"~A "; }
};
class B : public A{
    public:
        B() { cout<<"B "; }
        virtual ~B() { cout<<"~B "; }
};
class C : public B{
    public:
        C() { cout<<"C "; }
        ~C() { cout<<"~C "; }
};
int main(){
    A *t1 = new C;
    delete t1;
    return 0;
}
```

What will be the output?

a) A B C ~C ~B ~A

b) A B C ~C ~B

c) A B C ~B ~A

d) A B C ~A

- a)
- b)
- c)
- d)

Yes, the answer is correct.
Score: 2

Accepted Answers:
d)

4) Consider the following code segment. **2 points**

```
#include <iostream>
using namespace std;
class Virtual {
    public:
        virtual void fun() = 0;    //LINE-1
};
void Virtual::fun() {
    cout << "Pure virtual function";
}
int main() {
    Virtual m; // LINE-2
    Virtual *p = new Virtual(); // LINE-3
    p->fun(); // LINE-4
    return 0;
}
```

Which line/s will give you error?

a) LINE-1

b) LINE-2

c) LINE-3

d) LINE-4

- [ ] a)
- [x] b)
- [x] c)
- [ ] d)

Yes, the answer is correct.
Score: 2

Accepted Answers:
b)
c)

5) Consider the following code segment. **2 points**

```
#include<iostream>
using namespace std;
class Base{
    public:
        virtual void fun() { }
};
class Derived : public Base{
    public:
        void fun(double i) { }
};
int main(){
    Derived t1;
    Base *t2 = new Derived();
    t1.fun();           //LINE-1
    t1.fun(3.14);       //LINE-2
    t2->fun();          //LINE-3
    t2->fun(3.14);      //LINE-4
    return 0;
}
```

Which line/s will give you error?

a) LINE-1

b) LINE-2

c) LINE-3

d) LINE-4

- [x] a)
- [ ] b)
- [ ] c)
- [x] d)

Yes, the answer is correct.
Score: 2

Accepted Answers:
a)
d)

6) **2 points**

Consider the following code segment.

```
#include<iostream>
using namespace std;
class classA{
    public:
        virtual void f(){ cout << "A::f() "; }
        void g(){ cout << "A::g() "; }
        void h(){ cout << "A::h() "; }
};
class classB : public classA{
    public:
        void f(){ cout << "B::f() "; }
        virtual void g(){ cout << "B::g() "; }
        void h(){ cout << "B::h() "; }
};
class classC : public classB{
    public:
        void f(){ cout << "C::f() "; }
        void g(){ cout << "C::g() "; }
        virtual void h(){ cout << "C::h() "; }
};
int main(){
    classC cb;
    classB &bb = cb;
    bb.f();
    bb.g();
    bb.h();
    return 0;
}
```

What will be the output?

a) `A::f() B::g() C::h()`

b) `C::f() C::g() B::h()`

c) `C::f() B::g() B::h()`

d) `C::f() C::g() C::h()`

- a)
- b)
- c)
- d)

Yes, the answer is correct.

Score: 2

Accepted Answers:

b)

7) **2 points**

Consider the following code segment.

```
#include<iostream>
using namespace std;
class A{
    public:
        virtual void fun(){ cout << "1 "; }
};
class B : public A{
    public:
        void fun(){ cout << "2 "; }
};
class C : public B{
    public:
        void fun(){ cout << "3 "; }
};
int main(){
    C *cb = new C;
    ________________; //LINE-1
    return 0;
}
```

Fill in the blank at LINE-1 so that the program will print 2.

a) `cb->B::fun()`

b) `B::fun()`

c) `B::cb->fun()`

d) `cb->fun()`

- a)
- b)
- c)
- d)

Yes, the answer is correct.
Score: 2

Accepted Answers:

a)

8) Consider the following code segment. **2 points**

```
#include<iostream>
using namespace std;
class Vehicle{
    public:
        virtual void run() = 0;
        virtual void stop() = 0;
};
class Car : public Vehicle{
};
class MotorCycle : public Vehicle{
    public:
        void run(){}
        void stop(){}
};
class Truck : public Car{
    public:
        void run(){}
        void stop(){}
};
class SportsCar : public Car{
    public:
        void run(){}
        virtual void nitro() = 0;
        void stop(){}
};
void SportsCar::nitro(){}
class SUV : public Car{
    public:
        void run(){}
};
```

Identify the abstract classes.

a) Vehicle, Car, MotorCycle

b) Vehicle, Car, SUV

c) Vehicle, Car

d) Vehicle, Car, SportsCar, SUV

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
d)

9) **2 points**

Consider the following code segment.

```
#include<iostream>
using namespace std;
class B{
    int b;
public:
    B(int i) : b(i) {}
    virtual void f(B *t) { cout << t->b << endl; }
};
class D : public B{
    int d;
public:
    D(int i=0, int j=0) : B(i), d(j) { }
    void f(D *t) { cout << t->d << endl; }
};
int main(){
    B *t1 = new D(1,2);
    t1->f(new D); //Line-1
    return 0;
}
```

What will be the output?

a) 0

b) 1

c) 2

d) Garbage

- a)
- b)
- c)
- d)

Yes, the answer is correct.
Score: 2

Accepted Answers:
a)