X

Unit 7 - Week 5

Assignment 5

The due date for submitting this assignment has passed. **Due on 2020-10-21, 23:59 IST.**

Assignment submitted on 2020-10-21, 11:48 IST

1) ***2 points***

Consider the program below.

```
#include <iostream>
using namespace std;

class base {
    static int x1;
    int x2 = 5;
public:
    void f1() { cout << "f1" << endl; }
};

class derived : public base {
    int d1 = 10;
};

int base::x1 = 0;

int main() {
    derived d;

    cout << sizeof(d) << endl;

    return 0;
}
```

What will be the output of the above code (consider `sizeof(int) = 4`)?

- a) 12
- b) 8
- c) 4
- d) 1

Yes, the answer is correct.
Score: 2

Accepted Answers:
b) 8

2) Consider the following program. **2 points**

```
#include <iostream>
using namespace std;

class base {
public:
    void f1() { cout << "base.f1" << endl; }
};

class derived : public base {
public:
    void f1(int a) { cout << "derived.f1" << endl; }
};

int main() {
    derived d;

    d.f1();                // LINE-1

    return 0;
}
```

What will be the output/error?

- a) base.f1
- b) derived.f1
- c) base.f1
  derived.f1
- d) Compilation error at LINE-1: no matching function for call derived.f1()

Yes, the answer is correct.
Score: 2

Accepted Answers:
d) Compilation error at LINE-1: no matching function for call derived.f1()

3) Consider the following program. **2 points**

```
#include <iostream>
using namespace std;

class A {
public:
    void print() { cout << "Class A" << endl; }
};

class B : public A {
public:
    void print() { cout << "Class B" << endl; }
};

int main() {
    A *a1 = new A();
    A *b1 = new B();

    a1->print();
    b1->print();

    return 0;
}
```

What will be the output?

- a) Class A
  Class B
- b) Class A
  Class A
- c) Class B
  Class A
- d) Class B
  Class B

Yes, the answer is correct.
Score: 2

Accepted Answers:
b) Class A
Class A

4) Consider the following program. **2 points**

```
#include <iostream>
#include <string>
using namespace std;

class A {
    string s1 = "Hello";
public:
    string get_str() { return s1; }
};

class B : public A {
    string s2 = "Hi";
};

void print(A &a) {
    cout << a.get_str() << endl;
}

int main() {
    A t1;
    B t2;

    print(t1);      // LINE-1
    print(t2);        // LINE-2

    return 0;
}
```

What will be the output/error?

- a) Hello
  Hello
- b) Hello
  Hi
- c) Hi
  Hello
- d) Compilation error at LINE-1: argument mismatch.

Yes, the answer is correct.
Score: 2

Accepted Answers:
a) Hello
Hello

5) Consider the program below. **2 points**

```
#include <iostream>
using namespace std;

class myClassA {
public:
    int a;
    myClassA(int x) : a(x) { }
};

class myClassB : private myClassA {
    int b;
public:
    myClassB(int x, int y) : b(y), myClassA(x) { }
};

int main() {
    myClassB t1(1, 2);
    myClassA t2(5);

    cout << t1.a;        // LINE-1
    cout << t2.a;        // LINE-2

    return 0;
}
```

Which line will give compilation error in the `main()` function?

- a) LINE-1
- b) LINE-2
- c) Both LINE-1 and LINE-2
- d) No Compilation Error

No, the answer is incorrect.
Score: 0

Accepted Answers:

a) LINE-1

6) Consider the following code snippet. **2 points**

```
#include <iostream>
using namespace std;

class A {
public:
    A() { cout << "A "; }
    ~A() { cout << "~A "; }
};

class B : public A {
public:
    B() { cout << "B "; }
    ~B() { cout << "~B "; }
};

class C : public A {
    B b;
public:
    C() { cout << "C "; }
    ~C() { cout << "~C "; }
};

int main() {
    C t1;

    return 0;
}
```

What will be the output?

- a) A B C ~C ~B ~A
- b) A C ~C ~A
- c) A A B C ~C ~B ~A ~A
- d) A A B C ~A ~A ~B ~C

Yes, the answer is correct.
Score: 2

Accepted Answers:
c) A A B C ~C ~B ~A ~A

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

```
#include <iostream>
using namespace std;

class A {
public:
    void print() { cout << "Function print" << endl; }
};

class B : private A {
public:
    B() { _____ }   // LINE-1
};

int main() {
    B t1;

    return 0;
}
```

Fill in the blank at `LINE-1` so that it will print: `Function print`.

- [x] a) `print();`
- [ ] b) `A::print;`
- [ ] c) `A.print();`
- [x] d) `A::print();`

Yes, the answer is correct.
Score: 2

Accepted Answers:
a) `print();`
d) `A::print();`

8) Consider the following program. **2 points**

```
#include <iostream>
using namespace std;

class A {
public:
    A(int i) { cout << "A::" << i << " "; }
    ~A() { cout << "~A "; }
};

class B : public A {
public:
    B(int i) : A(i++) { cout << "B::" << i << " "; }
    ~B() { cout << "~B "; }
};

class C : public B {
public:
    C(int i) : B(i++) { cout << "C::" << i << " "; }
    ~C() { cout << "~C "; }
};

void f() {
    static C c(0);
}

int main() {
    f();

    C c(5);

    return 0;
}
```

What will be the output?

- a) A::0 B::1 C::1 A::5 B::6 C::6 ~C ~B ~A ~C ~B ~A
- b) A::0 B::1 C::2 ~C ~B ~A A::5 B::6 C::7 ~C ~B ~A
- c) A::0 B::1 C::1 ~C ~B ~A A::5 B::6 C::6 ~C ~B ~A
- d) A::0 B::1 C::2 A::5 B::6 C::7 ~C ~B ~A ~C ~B ~A

Yes, the answer is correct.
Score: 2

Accepted Answers:

a) A::0 B::1 C::1 A::5 B::6 C::6 ~C ~B ~A ~C ~B ~A

9) **2 points**

Consider the following program.

```
#include <iostream>
using namespace std;

class Base {
protected:
    int X;
public:
    Base(int i = 0) : X(i) { }
};

class Derived : public Base {
    Base b;
public:
    Derived(Base b1, int i = 0) : Base(i), b(b1) { }
    void print1() { cout << X << endl; }          // LINE-1
    void print2() { cout << b.X << endl; }        // LINE-2
};

int main() {
    Base b(5);
    Derived d(b, 10);

    d.print1();
    d.print2();

    return 0;
}
```

What will be the output/error?

- a) 10 5
- b) 5 10
- c) Compilation error at LINE-1
- d) Compilation error at LINE-2

Yes, the answer is correct.
Score: 2

Accepted Answers:
d) Compilation error at LINE-2