CPA Chapter 5 Practice Quiz

C++ Institute Volunteer Program 2015

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AUTHOR'S BIO:	I am working as a C/C++ programmer at Siemens	

Chapter: 5	Object Programming essentials		
Section: 1,3,4,5			
C++ Associate (CPA)	Chapter: 5	Section: 1,3,4,5	Question type: Single-choice

Subject: Object Programming Essentials	Question Number: 1

Question: What is the output of the following code fragment in C++? (assumption: all #include and the rest of the code are correct)

```cpp
class MyClass{
public:
    static int i;
    MyClass(){
        i++;
    }
    MyClass(int){}
    ~MyClass(){
        i--;
    }
};
int MyClass::i =0;
int main(int argc, char** argv) {
    MyClass *var1,*var2,*var3, var4, var5;
    var1 = new MyClass();
    var2 = new MyClass(2);
    delete(var2);
    cout<<MyClass::i<<endl;
    delete(var1);
    return 0;
};
```

Answers:

A) 1
B) 2
C) 3
D) 4

Chapter: 5	Object Programming essentials		
Section: 1,3			
C++ Associate (CPA)	Chapter: 5	Section: 1,3	Question type: Single-choice
Subject: Object Programming Essentials			Question Number: 2

Question: What is the output of the following code fragment in C++? (assumption: all #include and the rest of the code are correct)

```cpp
class MyClass{
public:
   MyClass(){}
   MyClass (const MyClass &myClass){
      cout<<"*";
   }
   MyClass& operator= (const MyClass &myClass){
      cout<<"#";
   }
};
int main()
{
   MyClass var1, var2;
   MyClass var3 = var2 = var1;
   MyClass var4(var3 = var2 = var1);
}
```

Answers:

A) **##*
B) ##*##
C) #*##*
D) **#**

Question: Which lines you should comment for the program to run and generate a MyClass object? (assumption: all #include and the rest of the code are correct)

```cpp
              // CL (comment line) line that can be commented
              class MyClass{
                 static MyClass *instance;
                 static bool isSet;
                 MyClass(){};
              public:
                 static MyClass* GetInstance(){
                     if ( !!!(isSet)){
                     instance = new MyClass();
                     isSet = true;
                     }
                     return instance;
                  }
                  ~MyClass(){
                     delete instance;
                  }
              };
              bool MyClass::isSet = false;                // CL1
              MyClass* MyClass:: instance = NULL;         // CL2
              static bool MyClass::isSet = false;         // CL3
              static MyClass* MyClass:: instance = NULL;  // CL4
              int main(){
                 MyClass c0;                              // CL5
                 MyClass *c1, *c2;                        // CL6
                 c1 =MyClass::GetInstance();              // CL7
                 c2 =new MyClass();                       // CL8
                 return 0;
              }
```

Answers:

A) CL3 and CL4 because only the declaration of a static variable must contain the "static" keyword
B) CL1 and CL2 because the definition of a static variable must contain the "static" keyword
C) CL5, CL6, and CL8 because the constructor is private
D) CL5, CL8 because the constructor is private
E) CL7 because you didn't allocate memory for the object
F) CL1, CL2, CL3 and CL4 because the static variables should be initialized at definition

Chapter: 5	Object Programming essentials		
Section: 1,3,5			
C++ Associate (CPA)	Chapter: 5	Section: 1,3,5	Question type: Single-choice
Subject: Object Programming Essentials			Question Number: 4

Question: What will be the output after running the following code? (assumption: all #include and the rest of the code are correct)

```cpp
class PointerClass{
public:
   int *val;
   int count;
   PointerClass(int *val = NULL){ this->val = val;}
 };
int main(int argc, char** argv) {
   int i =6;
   PointerClass *c1, *c2;
   c1 = new PointerClass(&i);
   c2 =c1;
   i++;
   *(c2->val) += 1 ;
   delete c2;
   cout<<*(c1->val);
   return 0;
}
```

Answers:

A) 8
B) 6
C) 5
D) None of the above

Subject: Object Programming Essentials	Question Number: 5

Question: What will be the output after running the following code? (assumption: all #include and the rest of the code are correct)

```cpp
class MyClass{
public:
    int val;
    MyClass() {val = 3.14256;}
    static int valS;
    MyClass& f1(){ val++; return *this;}
    MyClass& f1(int) {valS%=2; val--; return *this;}
    MyClass& f2(){val/= 2; return *this;}
    MyClass& f2(int){val*=3; return *this;} };
 int MyClass::valS =5;

int main(){
    MyClass inst;
    inst.f1(inst.valS).f2(MyClass::valS).f1().f1(inst.val).f2().f1(inst.val);
    cout<<inst.val<<inst.valS;
    return 0;
}
```

Answers:

A) 22
B) 12
C) 21
D) 11

Chapter: 5	Object Programming essentials		
Section: 1,3			
C++ Associate (CPA)	Chapter: 5	Section: 1,3	Question type: Single-choice
Subject: Object Programming Essentials			Question Number: 6

Question: What will be the output after running the following code?

```cpp
class MyClass{
private:
    int val;
public:
    MyClass(int val = 0)
    :val(2){ this->val = val;}
    int GetSet (int value=0){
        val = (value != 0)? value : val;
        return val+1;
    }
};
int main(){
    MyClass ins1, ins2(3);
    MyClass ins3(ins1.GetSet(ins2.GetSet()));
    cout<<ins1.GetSet()<<ins2.GetSet()<<ins3.GetSet();

    return 0;
}
```

Answers:

A) 546
B) 456
C) 654
D) 665

Chapter: 5	Object Programming essentials		
Section: 1,3,5			
C++ Associate (CPA)	Chapter: 5	Section: 1,3,5	Question type: Multiple-choice
Subject: Object Programming Essentials			Question Number: 7

Question: Which of the following statements generate a compiler error? (assumption: all #include and the rest of the code are correct)

```cpp
class B{
public:
   A *a;
   B(){a = new A();}
   void Method(){}
};
int main()
{
   B *inst;
   inst = new B();
   //...
   return 0;
}
```

Answers:

A) (*inst).a->Method();
B) (*inst)->a->Method();
C) (*inst).(*a).Method();
D) (*(*inst).a).Method();
E) (*(inst->a)).Method();
F)   inst.a->Method();

Correct answers:
Q1 - B

Explanation: B is correct because:
When "var3", "var4" and "var5" are declared the implicit constructor is called so "i = 3".
When "var1" is created "i" is increased but when "var2" is created the constructor with one parameter is called (this does not increase the value of "i"), but when "var2" destructor is called "I" is decreased so the outputted value of "i" will be 2

Correct answers:
Q2 - C

Explanation: C is correct because:
MyClass var3 = var2 =var1;// first the assignment operator is called "var2 = var1", then a new object is created var3 so the copy constructor is called (instead of the assignment operator)
MyClass var4(var3 = var2 = var1); // first the assign operator is called twice in the expression "var3 = var2 = var1" and the copy constructor is called to create var4

Correct answers:
Q3 - A, D

Explanation: -

Correct answers:
Q4 - D

Explanation: Both variables point to the same memory zone (Shallow copy). So when you call "delete c2" you delete the shared memory zone of the two variables.

Correct answers:
Q5 - C

Explanation: Each function returns a reference to the current object (this allows as to realize the function chaining)

Correct answers:
Q6 - A

Explanation:
MyClass ins1, ins2(3) ;// ins1.val = 0; ins2.val =3;
MyClass ins3(ins1.GetSet(ins2.GetSet()));// ins2.GetSet() = 4, inst1.GetSet(3) = 5 (ins1.val is set to 4), ins3(4) => ins3.val = 5

Correct answers:
Q7 - B, C, F

Explanation: The "inst->a" operator is equivalent to " (*inst).a"

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Chapter: 5	Object programming essentials		
Section: 1	Basic concepts of object programming		
C++ Associate (CPA)	Chapter: 5	Section: 1	Question type: single-choice
Subject: Constructors			Question Number: 1

Question: Which of the following is not a type of constructor?

A) Copy Constructor
B) Friend Constructor
C) Default Constructor
D) Parameterized Constructor

Chapter: 5, 6	Object programming essentials		
Section:			
C++ Associate (CPA)	Chapter: 5, 6	Section:	Question type: single-choice
Subject: Miscellaneous concepts			Question Number: 2

Question: Which of the following is not the member of class?

A) Static function
B) Friend function
C) Const function
D) Virtual function

Chapter: 5	Object programming essentials		
Section: 1	Basic concepts of object programming		
C++ Associate (CPA)	Chapter: 5	Section: 1	Question type: single-choice
Subject: Basic concepts of object programming			Question Number: 3

Question: Which of the following concepts of OOPS means exposing only necessary information to client?

A) Data hiding
B) Abstraction
C) Data binding
D) Encapsulation

Chapter: 5	Object programming essentials		
Section: 1	Basic concepts of object programming		
C++ Associate (CPA)	Chapter: 5	Section: 1	Question type: single-choice
Subject: Constructors in C++			Question Number: 4

Question: Which of the following statement is correct?

A) A constructor is called at the time of declaration of an object.

B) A constructor is called at the time of use of an object.

C) A constructor is called at the time of declaration of a class.

D) A constructor is called at the time of use of a class.

Chapter: 5	Object programming essentials		
Section: 1	Basic concepts of object programming		
C++ Associate (CPA)	Chapter: 5	Section: 1	Question type: single-choice
Subject: Constructors in C++			Question Number: 5

Question: A constructor that accepts _____ parameter(s) is called a default constructor.

   A)   One
   B)   Two
   C)   Zero
   D)   Three

Chapter: 5	Object programming essentials		
Section: 1	Basic concepts of object programming		
C++ Associate (CPA)	Chapter: 5	Section: 1	Question type: single-choice

Subject: Constructors and destructors in C++	Question Number: 6

Question: Destructor has the same name as the constructor and it is preceded by _____.

A) !
B) ?
C) ~
D) $

Chapter: 5	Object programming essentials		
Section: 3	Anatomy of the class		
C++ Associate (CPA)	Chapter: 5	Section: 3	Question type: single-choice
Subject: Default access specifiers for class			Question Number: 7

Question: Which of the following access specifiers is used in a class definition by default?

- A) Protected
- B) Public
- C) Private
- D) Friend

Chapter: 5	Object programming essentials		
Section: 1	Basic concepts of object programming		
C++ Associate (CPA)	Chapter: 5	Section: 1	Question type: single-choice
Subject: Constructors in C++			Question Number: 8

Question: If X is the name of the class, what is the correct way to declare copy constructor of X?

A) X(X arg)

B) X(X* arg)

C) X(const X* arg)

D) X(const X& arg)

Chapter: 5	Object programming essentials		
Section: 3	Anatomy of the class		
C++ Associate (CPA)	Chapter: 5	Section:3	Question type: single-choice
Subject: Access specifiers			Question Number: 9

Question: The default access level assigned to members of a class is _____.

- A) Private
- B) Public
- C) Protected
- D) Needs to be assigned

Correct answers:
Q1 - B

Explanation: no explanation

Correct answers:
Q2 - B

Explanation: no explanation

Correct answers:
Q3 - A

Explanation: no explanation

Correct answers:
Q4 - A

Explanation: no explanation

Correct answers:
Q5 - C

Explanation: no explanation

Correct answers:
Q6 - C

Explanation: no explanation

Correct answers:
Q7 - C

Explanation: no explanation

Correct answers:
Q8 - D

Explanation: no explanation

Correct answers:
Q9 - A

Explanation: no explanation

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Chapter: [5]	Object programming essentials		
Section:[3]	Anatomy of the class		
C++ Certified Associate Programmer (CPA)	Chapter: [5]	Section:[3]	Question type: [Multiple-choice]
Subject: [mutable variables]			Question Number: [1]

Question: What is the output of the following program?

```cpp
#include<iostream>

class Call
{
        int i;
        mutable int k;
public:
        Call(int is = 0, int ks = 0) :i(is), k(ks){}
         void func()const
        {

                k++;  //changing value of k
                std::cout << k <<" "<< i;
        }
};
int main()

{
        Call b(5,5);
        b.func();
}
```

Answers:

A. 6 5.
B. 5 5 .
C. k cannot be modified error.
D. 5 6.

Correct answers:
Q1 - A.

Explanation: -