Reality Check: Week 4

Word Problem (Question #1)

View the following C++ programming code and generate its output:

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

class Count
{
     friend void setX(Count &, int);         // Global
Function declared as friend of Count Class.
     int x;
public:
     Count()        // Default Constructor of Count Class
Defined.
     {
          x = 0;
     }
     void print() const       // Member Function of Count
Class Defined.
     {
          cout << "X = " << x << endl << endl;
     }
};

void setX(Count &obj, int val)          // Global Function
Defined.
{
     obj.x = val;
}

void main()
{
     Count objCounter;
     cout << "objCounter.x after instantiation: ";
     objCounter.print();
     cout << "objCounter.x after call to setX Friend
Function: ";
     setX(objCounter, 8);
     objCounter.print();
     cout << endl << endl;
}
```

Word Problem (Question #2)

View the following C++ programming code and generate its output:

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

class Square;  //Class Declaration

class Rectangle
{
     int width, height;
public:
     Rectangle()    // Default Constructor Defined
     {
          width = height = 0;
     }

     Rectangle(int x, int y)  //Parameterized Constructor
Defined
     {
          width = x, height = y;
     }

     int area()     // Member Function of Rectangle Class
Defined
     {
          return width * height;
     }

     void convert(Square obj);     // Member Function of
Rectangle Class Declared

};        // End of Rectangle Class

class Square             // Square Class Defined
{
     friend class Rectangle;  // Rectangle Class declared
as Friend of Square Class.
     int side;
public:
     Square (int a) : side(a)      // Parameterized
Constructor of Square Class Defined.
     {}
};
```

```
void Rectangle::convert(Square obj)          // Member
Function of Rectangle Class Defined.
{
     width = obj.side;
     height = obj.side;
}

void main()
{
     Rectangle objRect(6,3);       // Object of Rectangle
Class created.
     cout << "The area of a Rectanle is: ";
     cout << objRect.area();
     cout << endl;
     Square objSqr(4);             // Object of Square
Class created.
     objRect.convert(objSqr);
     cout << "The area of a Square is: ";
     cout << objRect.area();
     cout << endl << endl;
}
```

Word Problem (Question #3)

View the following C++ programming code and generate its output:

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

class Outside
{
private:
     int a, b, c;
public:
     Outside()      //Constructor of Outside Class.
     {
          a = 2, b = 4, c = 6;
     }

     void show()
     {
          cout << "The Values of Outside Class are: " <<
endl;
          cout << "A = " << a << "\t" << "B = " << b <<
"\t" << "C = " << c << endl << endl;
     }

     class Nested
     {
     private:
          int x, y, z;
     public:
          Nested()
          {
               x = 5, y = 7, z = 9;
          }

          void show()
          {
               cout << "The values of Nested Class are: "
<< endl;
               cout << "X = " << x << "\t" << "Y = " << y
<< "\t" << "Z = " << z << endl << endl;
          }
     };   //Nested Class End.

};        // Outside Class End.

void main()
{
```

```
     //Create Object of Outside Class.
     Outside objOut = Outside();
     objOut.show();      //Calling Member Function of
Outside Class.

     //Create Object of Nested Class.
     Outside::Nested objNest;
     objNest.show();          //Calling Member Function of
Nested Class.
}
```

Word Problem (Question #4)

View the following C++ programming code and generate its output:

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

class One
{
     int a;
public:
     One()
     {
          cout << " Enter the value in A: " << endl;
          cin >> a;
     }
     void display()
     {
          cout << "The value of A is: " << a << endl <<
endl;
     }
};

One objA;  // Global Object declared.

void main()
{
     class Two       // Local Class Defined.
     {
          int b;
     public:
          Two()
          {
               cout << "Enter the values in B: " << endl;
               cin >> b;
          }

          void display()
          {
               cout << "The value of B is: " << b << endl;
          }
     };
     Two objB;  // Local Object Declared.

     //Calling the member functions of respective classes.
     objA.display();
     objB.display();
}
```

Word Problem (Question #5)

View the following C++ programming code and generate its output:

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

class account
{
private:
     int accno;
     double balance;
     static double rate; // static data member declared

public:
     account()
     {
          cout << "Enter the Account number" << endl;
          cin >> accno;
          cout << "Enter Balance: " << endl;
          cin >> balance;
          cout << endl;
     }
     void display();
     void rateCalculate();
     static void modifyRate(double); // static member
function declared
};

void account::display()
{
     cout << "\n Account number is : " << accno << endl;
     cout << "\n Interest is : " << rate << endl;
     cout << "\n Balance is : " << balance << endl << endl;
}

void account::rateCalculate()
{
     double interest = (balance * rate * 0.25) / 100;
     balance += interest;
}

void account::modifyRate(double increment)  // static
member function defined.
{
     rate += increment;
     cout << "Modified Rate of Interest: " << rate << endl;
```

```
}

double account::rate = 0.05;  // static data member
initialized.

void main()
{
     // creating object one of class account.
     account oneAccount = account();
     account::modifyRate(0.01);
     oneAccount.rateCalculate();
     oneAccount.display();

     // creating object two of class Account.
     account twoAccount = account();
     twoAccount.rateCalculate();
     twoAccount.display();
}
```