ITSE 1430 (DL)- Fall 2016
Quiz 3- Chapters 13-17 & Notes
Total Points: 50

Due: Monday, November 21st @ 11:59PM. Look at Syllabus/ICR on late work.

Directions: For Questions 1-25, clearly mark answers on a separate word (or notepad) document. See sample file/directions provided by your professor and submit to the appropriate location on the MyTCC (BlackBoard) site.

─ **Assume all variables are properly declared- unless otherwise mentioned.**

Multiple Choice. Mark the one best answer for each question. **(2 pts. each)**

1. An indexer
   A. is a special type of property
   B. uses the `this` keyword in its declaration
   C. lets the user of a class access an item by using an index
   D. All of the above

2. By convention, the name for a `Car` interface is:
   A. `InterfaceCar`   C. `CarI`
   B. `ICar`   D. None of the above.

3. To raise an event, you code
   A. the name of the delegate along with its arguments
   B. the name of the event handler
   C. the name of the event along with its arguments
   D. None of the above

4. Which of the following can you not code in a subclass?
   A. A method that overrides a virtual method in the base class
   B. A call to a constructor of the base class
   C. A new method that's not defined by the base class
   D. A call to a private method of the base class

5. Which of the following can you not wire to an event?
   A. a delegate   C. an anonymous method
   B. a named method   D. a lambda expression

6. When used correctly, inheritance can
   A. make an application run faster
   B. make it easier to write the code for the application
   C. simplify the overall design of an application
   D. eliminate the need for casting

7. Given the following code answer the question below it:

```
public class SavingsAccount : Account {
    public SavingsAccount() : base(){
        base.Type = "Savings";
    }

    public SavingsAccount(int number) : base(number){
        base.Type = "Savings";
    }

    public SavingsAccount(int number, decimal balance) :
        base(number, "Savings", balance){
    }

}
```

If the statement that follows is executed, which of the following constructors will be called?

```
SavingsAccount account = new SavingsAccount(111);
```

```
A. public SavingsAccount(){...}
B. public SavingsAccount(int number, double balance){...}
C. public Account(int number){...}
D. public Account(int number, string type){...}
```

8. Which of the following is a difference between interfaces and abstract classes?
   A. None of the members of an interface can be implemented, but some of the members of an abstract class can be.
   B. An interface can declare static members, but an abstract class can't.
   C. An interface can't inherit multiple classes, but an abstract class can.
   D. All of the above.

9. How would you refer to the nested class in the following example from another class?

```
public class Customer
{
    public class Address
    {
    }
}
```

```
A. Address                          C. Customer_Address
B. CustomerAddress                  D. Customer.Address
```

10. Before you can use a class library in an application, you must
    A. fully qualify each class in the libary with its namespace
    B. code a using directive that identifies the class library's namespace
    C. add a reference to the class library
    D. create a new namespace for the application

11. To communicate with a DBMS, the application software sends
    A. command objects   C. SQL queries
    B. dataset requests   D. primary keys

12. Refer to the code below to answer the following question:

```
Select VendorName, InvoiceNumber, InvoiceDate, InvoiceTotal
From Vendors Inner Join Invoices
    On Vendors.VendorID = Invoices.VendorID
Where InvoiceTotal >= 500
Order By VendorName Desc
```

If `VendorName` contains string data and `InvoiceTotal` contains decimal values, how will the result set be ordered?

    A. alphabetically starting with A   C. numerically starting with 0
    B. alphabetically starting with Z   D. numerically starting with 500

13. What is the primary function of a data adapter?
    A. To define the connection to a database
    B. To manage the flow of data between a client program and a database
    C. To convert data to the format required by an application
    D. To define a SQL operation to be performed

14. ADO.NET's disconnected data architecture
    A. eliminates the need for concurrency control
    B. requires additional system resources
    C. allows the database connection to be closed after each operation
    D. requires that programs be designed to retrieve and update a single row at a time

15. When a derived class contains a method that overrides a parent class method, you can use the keyword ____ to access the parent class method from within the derived class.
    A. `base`   C. `upper`
    B. `super`   D. `parent`

16. Every class you create in C# derives from a single class named ____.
    A. `System.Console`   C. `System.Class`
    B. `System.Object`   D. `Object.System`

17. Delegate signatures differ from method signatures in that the delegate also includes its ____.
    A. name   C. number of parameters
    B. return type   D. type of parameters

18. Replacing a method defined at a higher level creates a(n) ____.
    A. overloaded method   C. virtual method
    B. overridden method   D. abstract method

19. Classes that can be used to retrieve, manipulate, and update data in databases are part of ____.
    A. ACCESS.NET   C. ODBC.NET
    B. ASP.NET   D. ADO.NET

20. Refer to the code below to answer the following question:

```
public interface IPrintable{
    void Print();
}

public class Printer{
    public static void Print(IPrintable p){
        MessageBox.Show("Print");
        p.Print();
    }
}

public class Order : IPrintable{
    public void Print(){
        MessageBox.Show("Order");
    }
}

public class Transaction
{}

public class Rental : Transaction, IPrintable {
    public void Print(){
        MessageBox.Show("Rental");
    }
}
```

What happens when the code that follows is executed?

```
Order order = new Order();
order.Print();
```

A. "Print" is displayed in a message box.
B. "Order" is displayed in a message box.
C. "Print" is displayed in a message box and then "Order" is displayed in a second message box.
D. A runtime error occurs because the Print method can't accept Rental objects.

Short Answer. Clearly mark answers as directed. Partial Credit will be given. **(10 @ 2 each)**

Use the following code to answers questions 21 & 22:

```
public class CustomerList {
    private List<Customer> customers;

    public delegate void ChangeHandler(CustomerList customers);
    public event ChangeHandler ChangedList;

    public CustomerList(){
        customers = new List<Customer>();
    }

    public void Add(Customer c){
        customers.Add(c);
    }

    public static CustomerList operator + (CustomerList customers, Customer c)
    {
        customers.Add(c);
        return customers;
    }
}
```

21. Write the code for activating the event that's declared for the `CustomerList` class. Assume that you're going to add this code to the `Add` method.

22. Suppose that you've used the `Load` event handler for a form to add the wiring for the event in the `CustomerList` class so it should be handled by an event handler named `CustomerListChange`. Write the declaration for this event handler assuming that you've used customers as the name for the `CustomerList` object.

23. Write the declaration for a class named `Book` that implements the `ICloneable` and `IDisplayable` interfaces.

24. Show an example of a class definition that creates a subclass of an existing `Employee` class, and adds a `private double` field called `commissionRate`. What is the total set of fields that an instance of the new class contains?

25. Look at the following class declarations:

```
Class Vegetable{
 public virtual void Message(){
    Console.WriteLine("I'm a vegetable.");
 }
}

Class Potato : Vegetable{
 public override void Message(){
    Console.WriteLine("I'm a potato.");
 }
}
```

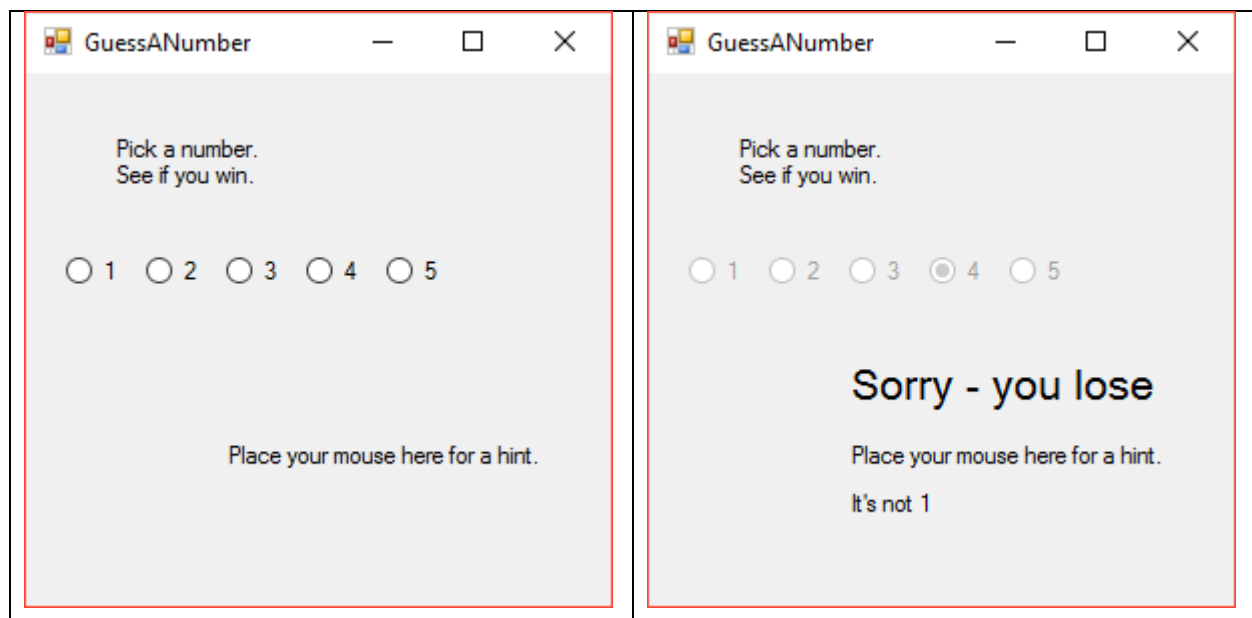Given these class definitions, what will the following code display?

```
Vegetable v = new Potato();
Potato p = new Potato();
v. Message();
 p. Message();
```

+++

Extra Credit: Implement the following program. Follows same program guidelines and graded on the same scale as program sets. Submit only your project file- no test runs required. Partial credit given. (**10 points)**

Write a C# windows form project that contains a guessing game with five RadioButtons numbered 1 through 5. Randomly choose one of the RadioButtons as the winning button. When the user clicks a RadioButton, display a message indicating the user is right.

Sample Run:

🔲 GuessANumber — □ ✕	🔲 GuessANumber — □ ✕
Pick a number. See if you win. ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 Place your mouse here for a hint.	Pick a number. See if you win. ○ 1 ○ 2 ○ 3 ◉ 4 ○ 5 Sorry - you lose Place your mouse here for a hint. It's not 1

Name the project: GuessNummberXX, where XX are your initials.