

Number: 70-483  
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**Exam Code: 70-483**

**Exam Name: Programming in C#**



## Exam

### QUESTION 1

You have a collection of Order objects. The collection must meet the following requirements:

- Use strongly typed members.
- Process Order objects in first-in-first-out order.
- Store values for each Order object.
- Use zero-based indices.

You need to use a collection type that meets the requirements. Which collection type should you use?

- A. Queue<T>
- B. SortedList
- C. LinkedList<T>
- D. HashTable
- E. Array<T>

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Queues are useful for storing messages in the order they were received for sequential processing. Objects stored in a Queue<T> are inserted at one end and removed from the other.

<http://msdn.microsoft.com/en-us/library/7977ey2c.aspx>

### QUESTION 2

You are developing an application. The application calls a method that returns an array of integers named employeeIds. You define an integer variable named employeeIdToRemove and assign a value to it. You declare an array named filteredEmployeeIds. You have the following requirements:

- Remove duplicate integers from the employeeIds array.
- Sort the array in order from the highest value to the lowest value.
- Remove the integer value stored in the employeeIdToRemove variable from the employeeIds array.

You need to create a LINQ query to meet the requirements. Which code segment should you use?

- A. int[] filteredEmployeeIds = employeeIds.Where(value => value != employeeIdToRemove).OrderBy(x => x).ToArray();
- B. int[] filteredEmployeeIds = employeeIds.Where(value => value != employeeIdToRemove).OrderByDescending(x => x).ToArray();
- C. int[] filteredEmployeeIds = employeeIds.Distinct().Where(value => value != employeeIdToRemove).OrderByDescending(x => x).ToArray();
- D. int[] filteredEmployeeIds = employeeIds.Distinct().OrderByDescending(x => x).ToArray();

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

C is the only one of the answers that includes the "Distinct" clause in order to eliminate duplicate values.

### QUESTION 3

You are developing an application that includes the following code segment. (Line numbers are included for reference only.)

```
01 class Animal
02 {
03     public string Color { get; set; }
```

```
04     public string Name { get; set; }
05 }
06 private static IEnumerable<Animal> GetAnimals(string sqlConnectionString)
07 {
08     var animals = new List<Animal>();
09     SqlConnection sqlConnection = new SqlConnection(sqlConnectionString);
10     using (sqlConnection)
11     {
12         SqlCommand sqlCommand = new SqlCommand("SELECT Name, ColorName FROM
13 Animals", sqlConnection);
14         using (SqlDataReader sqlDataReader = sqlCommand.ExecuteReader())
15         {
16             {
17                 var animal = new Animal();
18                 animal.Name = (string)sqlDataReader["Name"];
19                 animal.Color = (string)sqlDataReader["ColorName"];
20                 animals.Add(animal);
21             }
22         }
23     }
24 }
25 return animals;
26 }
```

The GetAnimals() method must meet the following requirements:

- Connect to a Microsoft SQL Server database.
- Create Animal objects and populate them with data from the database.
- Return a sequence of populated Animal objects.

You need to meet the requirements. Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Insert the following code segment at line 16: `while(sqlDataReader.NextResult())`
- B. Insert the following code segment at line 13: `sqlConnection.Open()`;
- C. Insert the following code segment at line 13: `sqlConnection.BeginTransaction()`;
- D. Insert the following code segment at line 16: `while(sqlDataReader.Read())`
- E. Insert the following code segment at line 16: `while(sqlDataReader.GetValues())`

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

`SqlConnection.Open` - Opens a database connection with the property settings specified by the `ConnectionString`. <http://msdn.microsoft.com/en-us/library/system.data.sqlclient.sqlconnection.open.aspx>

`SqlDataReader.Read` - Advances the `SqlDataReader` to the next record. <http://msdn.microsoft.com/en-us/library/system.data.sqlclient.sqldatareader.read.aspx>

**QUESTION 4**

You are developing an application that uses the Microsoft ADO.NET Entity Framework to retrieve order information from a Microsoft SQL Server database. The application includes the following code. (Line numbers are included for reference only.)

```
01 public DateTime? OrderDate;
02 IQueryable<Order> LookupOrdersForYear(int year)
03 {
04     using (var context = new NorthwindEntities())
05     {
06         var orders =
07             from order in context.Orders
08             
```

```
09         select order;
10     return orders.ToList().AsQueryable();
11 }
12 }
```

The application must meet the following requirements:

- return only orders that have an `OrderDate` value other than `null`.
- return only orders that were placed in the year specified by the method `year` parameter
- not raise an exception

You need to ensure that the application meets the requirements. Which code segment should you insert at line 08?

- A. `where order.OrderDate.Value != null && order.OrderDate.Value.Year >= year`
- B. `where order.OrderDate.Value == null && order.OrderDate.Value.Year == year`
- C. `where order.OrderDate.HasValue && order.OrderDate.Value.Year >= year`
- D. `where order.OrderDate.Value.Year == year`

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

## QUESTION 5

You are developing an application. The application includes a method named `ReadFile` that reads data from a file. The `ReadFile()` method must meet the following requirements:

- It must not make changes to the data file.
- It must allow other processes to access the data file.
- It must not throw an exception if the application attempts to open a data file that does not exist.

You need to implement the `ReadFile` method. Which code segment should you use?

- A. `var fs = File.Open(Filename, FileMode.OpenOrCreate, FileAccess.Read, FileShare.ReadWrite);`
- B. `var fs = File.Open(Filename, FileMode.Open, FileAccess.Read, FileShare.ReadWrite);`
- C. `var fs = File.Open(Filename, FileMode.OpenOrCreate, FileAccess.Read, FileShare.Write);`
- D. `var fs = File.ReadAllLines(Filename);`
- E. `var fs = File.ReadAllBytes(Filename);`

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

`FileMode.OpenOrCreate` - Specifies that the operating system should open a file if it exists; otherwise, a new file should be created. If the file is opened with `FileAccess.Read`, `FileIOPermissionAccess.Read` permission is required. If the file access is `FileAccess.Write`, `FileIOPermissionAccess.Write` permission is required. If the file is opened with `FileAccess.ReadWrite`, both `FileIOPermissionAccess.Read` and `FileIOPermissionAccess.Write` permissions are required. <http://msdn.microsoft.com/en-us/library/system.io.filemode.aspx>

`FileShare.ReadWrite` - Allows subsequent opening of the file for reading or writing. If this flag is not specified, any request to open the file for reading or writing (by this process or another process) will fail until the file is closed. However, even if this flag is specified, additional permissions might still be needed to access the file. <http://msdn.microsoft.com/pl-pl/library/system.io.filesshare.aspx>

## QUESTION 6

An application receives JSON data in the following format:

```
{ "FirstName" : "David",
  "LastName" : "Jones",
  "Values" : [0, 1, 2] }
```

The application includes the following code segment. (Line numbers are included for reference only.)

```
01 public class Name
02 {
03     public int[] Values { get; set; }
04     public string FirstName { get; set; }
05     public string LastName { get; set; }
06 }
07 public static Name ConvertToName(string json)
08 {
09     var ser = new JavaScriptSerializer();
10
11 }
```

You need to ensure that the `ConvertToName()` method returns the JSON input string as a `Name` object. Which code segment should you insert at line 10?

- A. `return ser.ConvertToType<Name>(json);`
- B. `return ser.DeserializeObject(json);`
- C. `return ser.Deserialize<Name>(json) ;`
- D. `return (Name)ser.Serialize(json);`

**Correct Answer: C**

**Section: (none)**

**Explanation**

### Explanation/Reference:

`JavaScriptSerializer.Deserialize<T>` - Converts the specified JSON string to an object of type `T`. <http://msdn.microsoft.com/en-us/library/bb355316.aspx>

## QUESTION 7

You are developing an application. The application converts a `Location` object to a string by using a method named `WriteObject`. The `WriteObject()` method accepts two parameters, a `Location` object and an `XmlObjectSerializer` object. The application includes the following code. (Line numbers are included for reference only.)

```
01 public enum Compass
02 {
03     North,
04     South,
05     East,
06     West
07 }
08 [DataContract]
09 public class Location
10 {
11     [DataMember]
12     public string Label { get; set; }
13     [DataMember]
14     public Compass Direction { get; set; }
15 }
16 void DoWork()
17 {
18     var location = new Location { Label = "Test", Direction = Compass.West };
19     Console.WriteLine(WriteObject(location,
20
21     ));
22 }
```

You need to serialize the `Location` object as a JSON object. Which code segment should you insert at line 20?

- A. `newDataContractSerializer(typeof(Location))`
- B. `new XmlSerializer(typeof(Location))`
- C. `new NetDataContractSenalizer()`
- D. `newDataContractJsonSerializer(typeof(Location))`

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

`DataContractJsonSerializer` - Serializes objects to the JavaScript Object Notation (JSON) and deserializes JSON data to objects. This class cannot be inherited. <http://msdn.microsoft.com/en-us/library/system.runtime.serialization.json.datacontractjsonserializer.aspx>

**QUESTION 8**

An application includes a class named `Person`. The `Person` class includes a method named `GetData`. You need to ensure that the `GetData()` method can be used only by the `Person` class or a class derived from the `Person` class. Which access modifier should you use for the `GetData()` method?

- A. `internal`
- B. `protected`
- C. `protected internal`
- D. `private`
- E. `public`

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

`protected` - The type or member can be accessed only by code in the same class or struct, or in a class that is derived from that class. <http://msdn.microsoft.com/en-us/library/ms173121.aspx>

**QUESTION 9**

You are developing an application by using C#. The application includes the following code segment. (Line numbers are included for reference only.)

```
01 public interface IDataContainer
02 {
03     string Data { get; set; }
04 }
05 void DoWork(object obj)
06 {
07
08     if (dataContainer != null)
09     {
10         Console.WriteLine(dataContainer.Data);
11     }
12 }
```

The `DoWork()` method must not throw any exceptions when converting the `obj` object to the `IDataContainer` interface or when accessing the `Data` property. You need to meet the requirements. Which code segment should you insert at line 07?

- A. `var dataContainer = (IDataContainer)obj;`
- B. `dynamic dataContainer = obj;`
- C. `var dataContainer = obj is IDataContainer;`

D. var dataContainer = obj as IDataContainer;

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

as - The as operator is like a cast operation. However, if the conversion isn't possible, as returns null instead of raising an exception. [http://msdn.microsoft.com/en-us/library/cscsdfbt\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/cscsdfbt(v=vs.110).aspx)

## QUESTION 10

You are creating an application that manages information about zoo animals. The application includes a class named Animal and a method named Save. The Save() method must be strongly typed. It must allow only types inherited from the Animal class that uses a constructor that accepts no parameters. You need to implement the Save() method. Which code segment should you use?

- A. public static void Save<T>(T target) where T : new(), Animal
  - {
  - ...
  - }
- B. public static void Save<T>(T target) where T : Animal
  - {
  - ...
  - }
- C. public static void Save<T>(T target) where T : Animal, new()
  - {
  - ...
  - }
- D. public static void Save(Animal target)
  - {
  - ...
  - }

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

When you define a generic class, you can apply restrictions to the kinds of types that client code can use for type arguments when it instantiates your class. If client code tries to instantiate your class by using a type that is not allowed by a constraint, the result is a compile-time error. These restrictions are called constraints. Constraints are specified by using the where contextual keyword. <http://msdn.microsoft.com/en-us/library/d5x73970.aspx>

## QUESTION 11

You are developing an application. The application includes classes named Employee and Person and an interface named IPerson. The Employee class must meet the following requirements:

- it must either inherit from the Person class or implement the IPerson interface.
- it must be inheritable by other classes in the application.

You need to ensure that the Employee class meets the requirements. Which two code segments can you use to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- A. sealed class Employee : Person
  - {
  - ...
  - }
- B. abstract class Employee : Person
  - {
  - ...
  - }
- C. sealed class Employee : IPerson

```
{  
    ...  
}  
D. abstract class Employee : IPerson  
{  
    ...  
}
```

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

sealed - When applied to a class, the sealed modifier prevents other classes from inheriting from it. [http://msdn.microsoft.com/en-us/library/88c54tsw\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/88c54tsw(v=vs.110).aspx)

## QUESTION 12

You are developing an application that will convert data into multiple output formats. The application includes the following code. (Line numbers are included for reference only.)

```
01 public class TabDelimitedFormatter : IOutputFormatter<string>  
02 {  
03     readonly Func<int, char> suffix = col => col % 2 == 0 ? '\n' : '\t';  
04     public string GetOutput(IEnumerator<string> iterator, int recordSize)  
05     {  
06     }  
07     }  
08 }
```

You are developing a code segment that will produce tab-delimited output. All output routines implement the following interface:

You need to minimize the completion time of the `GetOutput()` method. Which code segment should you insert at line 06?

- A. 

```
string output = null;  
for (int i = 1; iterator.MoveNext(); i++)  
{  
    output = string.Concat(output, iterator.Current, suffix(i));  
}  
return output;
```
- B. 

```
var output = new StringBuilder();  
for (int i = 1; iterator.MoveNext(); i++)  
{  
    output.Append(iterator.Current);  
    output.Append(suffix(i));  
}  
return output.ToString();
```
- C. 

```
string output = null;  
for (int i = 1; iterator.MoveNext(); i++)  
{  
    output = output + iterator.Current + suffix(i);  
}  
return output;
```
- D. 

```
string output = null;  
for (int i = 1; iterator.MoveNext(); i++)  
{  
    output += iterator.Current + suffix(i);  
}  
return output;
```

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

A String object concatenation operation always creates a new object from the existing string and the new data. A StringBuilder object maintains a buffer to accommodate the concatenation of new data. New data is appended to the buffer if room is available; otherwise, a new, larger buffer is allocated, data from the original buffer is copied to the new buffer, and the new data is then appended to the new buffer.

The performance of a concatenation operation for a String or StringBuilder object depends on the frequency of memory allocations. A String concatenation operation always allocates memory, whereas a StringBuilder concatenation operation allocates memory only if the StringBuilder object buffer is too small to accommodate the new data. Use the String class if you are concatenating a fixed number of String objects. In that case, the compiler may even combine individual concatenation operations into a single operation. Use a StringBuilder object if you are concatenating an arbitrary number of strings; for example, if you're using a loop to concatenate a random number of strings of user input.

[http://msdn.microsoft.com/en-us/library/system.text.stringbuilder\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/system.text.stringbuilder(v=vs.110).aspx)

**QUESTION 13**

You are developing an application by using C#. The application includes an object that performs a long running process. You need to ensure that the garbage collector does not release the object's resources until the process completes. Which garbage collector method should you use?

- A. ReRegisterForFinalize()
- B. SuppressFinalize()
- C. Collect()
- D. WaitForFullGCAPIApproach()

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

GC.SuppressFinalize - Requests that the system not call the finalizer for the specified object. <http://msdn.microsoft.com/en-us/library/system.gc.suppressfinalize.aspx>

**QUESTION 14**

You are creating a class named Employee. The class exposes a string property named EmployeeType. The following code segment defines the Employee class. (Line numbers are included for reference only.)

```

01 public class Employee
02 {
03     internal string EmployeeType
04     {
05         get;
06         set;
07     }
08 }
```

The EmployeeType property value must be accessed only by code within the Employee class or within a class derived from the Employee class. The EmployeeType property value must be modified only by code within the Employee class. You need to ensure that the implementation of the EmployeeType property meets the requirements. Which two actions should you perform? (Each correct answer represents part of the complete solution. Choose two.)

- A. Replace line 05 with the following code segment:  
protected get;
- B. Replace line 06 with the following code segment:  
private set;
- C. Replace line 03 with the following code segment:  
public string EmployeeType
- D. Replace line 05 with the following code segment:  
private get;

- E. Replace line 03 with the following code segment:  
protected string EmployeeType
- F. Replace line 06 with the following code segment:  
protected set;

**Correct Answer:** BE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

AB and AF would not compile because of error: Cannot specify accessibility modifiers for both accessors of the property or indexer.

## QUESTION 15

You are implementing a method named Calculate that performs conversions between value types and reference types. The following code segment implements the method. (Line numbers are included for reference only.)

```
01 public static void Calculate(float amount)
02 {
03     object amountRef = amount;
04
05     Console.WriteLine(balance);
06 }
```

You need to ensure that the application does not throw exceptions on invalid conversions. Which code segment should you insert at line 04?

- A. int balance = (int)(float)amountRef;
- B. int balance = (int)amountRef;
- C. int balance = amountRef;
- D. int balance = (int) (double) amountRef;

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Only A has a valid cast, C would not even compile.

## QUESTION 16

You are creating a console application by using C#. You need to access the application assembly. Which code segment should you use?

- A. Assembly.GetAssembly(this);
- B. This.GetType();
- C. Assembly.Load();
- D. Assembly.GetExecutingAssembly();

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Assembly.GetExecutingAssembly - Gets the assembly that contains the code that is currently executing. [http://msdn.microsoft.com/en-us/library/system.reflection.assembly.getexecutingassembly\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/system.reflection.assembly.getexecutingassembly(v=vs.110).aspx)

Assembly.GetAssembly - Gets the currently loaded assembly in which the specified class is defined. <http://msdn.microsoft.com/en-us/library/system.reflection.assembly.getassembly.aspx>

## QUESTION 17

You use the `Task.Run()` method to launch a long-running data processing operation. The data processing operation often fails in times of heavy network congestion. If the data processing operation fails, a second operation must clean up any results of the first operation. You need to ensure that the second operation is invoked only if the data processing operation throws an unhandled exception. What should you do?

- A. Create a `TaskCompletionSource<T>` object and call the `TrySetException()` method of the object.
- B. Create a task by calling the `Task.ContinueWith()` method
- C. Examine the `Task.Status` property immediately after the call to the `Task.Run()` method.
- D. Create a task inside the existing `Task.Run()` method by using the `AttachedToParent` option.

**Correct Answer:** B

**Section:** (none)

**Explanation**

### Explanation/Reference:

`Task.ContinueWith` - Creates a continuation that executes asynchronously when the target `Task` completes. The returned `Task` will not be scheduled for execution until the current task has completed, whether it completes due to running to completion successfully, faulting due to an unhandled exception, or exiting out early due to being canceled. <http://msdn.microsoft.com/en-us/library/dd270696.aspx>

## QUESTION 18

You are modifying an application that processes leases. The following code defines the `Lease` class. (Line numbers are included for reference only.)

```
01 public class Lease
02 {
03
04     private int _term;
05     private const int MaximumTerm = 5;
06     private const decimal Rate = 0.034m;
07     public int Term
08     {
09         get
10         {
11             return _term;
12         }
13         set
14         {
15             if (value <= MaximumTerm)
16             {
17                 _term = value;
18             }
19             else
20             {
21
22             }
23         }
24     }
25 }
26 public delegate void MaximumTermReachedHandler(object source, EventArgs e);
```

Leases are restricted to a maximum term of 5 years. The application must send a notification message if a lease request exceeds 5 years. You need to implement the notification mechanism. Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Insert the following code segment at line 03:  
`public event MaximumTermReachedHandler OnMaximumTermReached;`
- B. Insert the following code segment at line 21:  
`if (OnMaximumTermReached != null)
{
 OnMaximumTermReached(this, new EventArgs());
}`

- C. Insert the following code segment at line 21:  
`value = MaximumTerm;`
- D. Insert the following code segment at line 03:  
`public string maximumTermReachedEvent { get; set; }`
- E. Insert the following code segment at line 03:  
`private string MaximumTermReachedEvent;`
- F. Insert the following code segment at line 21:  
`value = 4;`

**Correct Answer:** AB

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 19

You are developing an application that uses structured exception handling. The application includes a class named `ExceptionLogger`. The `ExceptionLogger` class implements a method named `LogException` by using the following code segment:

```
public static void LogException(Exception ex)
```

You have the following requirements:

- log all exceptions by using the `LogException()` method of the `ExceptionLogger` class.
- rethrow the original exception, including the entire exception stack.

You need to meet the requirements. Which code segment should you use?

- A. `catch (Exception ex)`  
`{`  
 `ExceptionLogger.LogException(ex);`  
 `throw;`  
`}`
- B. `catch (Exception ex)`  
`{`  
 `ExceptionLogger.LogException(ex);`  
 `throw ex;`  
`}`
- C. `catch`  
`{`  
 `ExceptionLogger.LogException(new Exception());`  
 `throw;`  
`}`
- D. `catch`  
`{`  
 `var ex = new Exception();`  
 `throw ex;`  
`}`

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Once an exception is thrown, part of the information it carries is the stack trace. The stack trace is a list of the method call hierarchy that starts with the method that throws the exception and ends with the method that catches the exception. If an exception is re-thrown by specifying the exception in the `throw` statement, the stack trace is restarted at the current method and the list of method calls between the original method that threw the exception and the current method is lost. To keep the original stack trace information with the exception, use the `throw` statement without specifying the exception. [http://msdn.microsoft.com/en-us/library/ms182363\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/ms182363(v=vs.110).aspx)

**QUESTION 20**

You are developing an application that includes a class named `UserTracker`. The application includes the following code segment. (Line numbers are included for reference only.)

```
01 public delegate void AddUserCallback(int i);
02 public class UserTracker
03 {
04     List<User> users = new List<User>();
05     public void AddUser(string name, AddUserCallback callback)
06     {
07         users.Add(new User(name));
08         callback(users.Count);
09     }
10 }
11
12 public class Runner
13 {
14
15     UserTracker tracker = new UserTracker();
16     public void Add(string name)
17     {
18
19     }
20 }
```

You need to add a user to the `UserTracker` instance. What should you do?

- A. Insert the following code segment at line 14:

```
private static void PrintUserCount(int i)
{
    ...
}
```

Insert the following code segment at line 18:

```
AddUserCallback callback = PrintUserCount;
```

- B. Insert the following code segment at line 11:

```
delegate void AdduserDelegate(userTracker userTracker);
```

Insert the following code segment at line 18:

```
AddUserDelegate addDelegate = (userTracker) =>
{
    ...
};
addDelegate(tracker);
```

- C. Insert the following code segment at line 11:

```
delegate void AddUserDelegate(string name, AddUserCallback callback);
```

Insert the following code segment at line 18:

```
AddUserDelegate adder = (i, callback) =>
{
    ...
};
```

- D. Insert the following code segment at line 18:

```
tracker.AddUser(name, delegate(int i)
{
    ...
});
```

**Correct Answer: D**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

## QUESTION 21

You are adding a public method named `UpdateScore` to a public class named `ScoreCard`. The code region that updates the score field must meet the following requirements:

- it must be accessed by only one thread at a time.
- it must not be vulnerable to a deadlock situation.

You need to implement the `UpdateScore()` method. What should you do?

- A. Place the code region inside the following lock statement:

```
lock (this)
{
    ...
}
```

- B. Add a private object named `lockObject` to the `ScoreCard` class. Place the code region inside the following lock statement:

```
lock (lockObject)
{
    ...
}
```

- C. Apply the following attribute to the `UpdateScore()` method signature:

```
[MethodImpl(MethodImplOptions.Synchronized)]
```

- D. Add a public static object named `lockObject` to the `ScoreCard` class. Place the code region inside the following lock statement:

```
lock (typeof(ScoreCard))
{
    ...
}
```

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

<http://blogs.msdn.com/b/bclteam/archive/2004/01/20/60719.aspx>

comment:

A locks entire ScoreCard and we don't want that

D lock all object of type ScoreCard

C it should work but B is much more preferred

## QUESTION 22

You are developing a C# application that has a requirement to validate some string input data by using the `Regex` class. The application includes a method named `ContainsHyperlink`. The `ContainsHyperlink()` method will verify the presence of a URI and surrounding markup. The following code segment defines the `ContainsHyperlink()` method. (Line numbers are included for reference only.)

```
01 bool ContainsHyperlink(string inputData)
02 {
03     string regExPattern = "href\\s*=\\s*(?:\"(?<1>[^\" ]*)\"|(?<1>\\S+))";
04
05     return evaluator.IsMatch(inputData);
06 }
```

The expression patterns used for each validation function are constant. You need to ensure that the expression syntax is evaluated only once when the `Regex` object is initially instantiated. Which code segment should you insert at line 04?

- A. `var evaluator = new Regex(regExPattern, RegexOptions.CultureInvariant);`
- B. `var evaluator = new Regex(inputData);`
- C. `var assemblyName = "Validation";`

```

var compilationInfo = new RegexCompilationInfo(inputData,
    RegexOptions.IgnoreCase, "Href", assemblyName, true);
Regex.CompileToAssembly(new[] { compilationInfo }, new AssemblyName
(assemblyName));
var evaluator = new Regex(regexPattern, RegexOptions.CultureInvariant);
D. var evaluator = new Regex(regexPattern, RegexOptions.Compiled);

```

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

RegexOptions.Compiled - Specifies that the regular expression is compiled to an assembly. This yields faster execution but increases startup time. This value should not be assigned to the Options property when calling the CompileToAssembly method. <http://msdn.microsoft.com/en-us/library/system.text.regularexpressions.regexoptions.aspx>

Additional info <http://stackoverflow.com/questions/513412/how-does-regexoptions-compiled-work>

**QUESTION 23**

You are developing an application by using C#. You have the following requirements:

- support 32-bit and 64-bit system configurations.
- include pre-processor directives that are specific to the system configuration.
- deploy an application version that includes both system configurations to testers.
- ensure that stack traces include accurate line numbers.

You need to configure the project to avoid changing individual configuration settings every time you deploy the application to testers. Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Update the platform target and conditional compilation symbols for each application configuration.
- B. Create two application configurations based on the default Release configuration.
- C. Optimize the application through address rebasing in the 64-bit configuration.
- D. Create two application configurations based on the default Debug configuration.

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 24**

You are developing a method named `CreateCounters` that will create performance counters for an application. The method includes the following code. (Line numbers are included for reference only.)

```

01 void CreateCounters()
02 {
03     if (!PerformanceCounterCategory.Exists("Contoso"))
04     {
05         var counters = new CounterCreationDataCollection();
06         var ccdCounter1 = new CounterCreationData
07         {
08             CounterName = "Counter1",
09             CounterType = PerformanceCounterType.SampleFraction
11         };
12         counters.Add(ccdCounter1);
13         var ccdCounter2 = new CounterCreationData
14         {
15             CounterName = "Counter2",
16         };
17     }

```

```

18     counters.Add(ccdCounter2);
19     PerformanceCounterCategory.Create("Contoso", "Help string",
20     PerformanceCounterCategoryType.MultiInstance, counters);
21 }
22 }
```

You need to ensure that Counter1 is available for use in Windows Performance Monitor (PerfMon). Which code segment should you insert at line 16?

- A. CounterType = PerformanceCounterType.RawBase;
- B. CounterType = PerformanceCounterType.AverageBase;
- C. CounterType = PerformanceCounterType.SampleBase;
- D. CounterType = PerformanceCounterType.CounterMultiBase;

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

PerformanceCounterType.SampleBase - A base counter that stores the number of sampling interrupts taken and is used as a denominator in the sampling fraction. The sampling fraction is the number of samples that were 1 (or true) for a sample interrupt. Check that this value is greater than zero before using it as the denominator in a calculation of **SampleFraction**.

PerformanceCounterType.SampleFraction - A percentage counter that shows the average ratio of hits to all operations during the last two sample intervals. Formula:  $((N1 - N0) / (D1 - D0)) \times 100$ , where the numerator represents the number of successful operations during the last sample interval, and the denominator represents the change in the number of all operations (of the type measured) completed during the sample interval, using counters of type **SampleBase**. Counters of this type include Cache\Pin Read Hits %.

<http://msdn.microsoft.com/en-us/library/system.diagnostics.performancecountertype.aspx>

**QUESTION 25**

You are developing an application that will transmit large amounts of data between a client computer and a server. You need to ensure the validity of the data by using a cryptographic hashing algorithm. Which algorithm should you use?

- A. HMACSHA256
- B. RNGCryptoServiceProvider
- C. DES
- D. Aes

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

The .NET Framework provides the following classes that implement hashing algorithms:

- HMACSHA1 .
- MACTripleDES .
- MD5CryptoServiceProvider .
- RIPEMD160 .
- SHA1Managed .
- SHA256Managed .
- SHA384Managed .
- SHA512Managed .
- HMAC variants of all of the Secure Hash Algorithm (SHA), Message Digest 5 (MD5), and RIPEMD-160 algorithms.
- CryptoServiceProvider implementations (managed code wrappers) of all the SHA algorithms.
- Cryptography Next Generation (CNG) implementations of all the MD5 and SHA algorithms.

[http://msdn.microsoft.com/en-us/library/92f9ye3s.aspx#hash\\_values](http://msdn.microsoft.com/en-us/library/92f9ye3s.aspx#hash_values)

### QUESTION 26

You are developing an assembly that will be used by multiple applications. You need to install the assembly in the Global Assembly Cache (GAC). Which two actions can you perform to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- A. Use the Assembly Registration tool (regasm.exe) to register the assembly and to copy the assembly to the GAC.
- B. Use the Strong Name tool (sn.exe) to copy the assembly into the GAC.
- C. Use Microsoft Register Server (regsvr32.exe) to add the assembly to the GAC.
- D. Use the Global Assembly Cache tool (gacutil.exe) to add the assembly to the GAC.
- E. Use Windows Installer 2.0 to add the assembly to the GAC.

**Correct Answer:** DE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

There are two ways to deploy an assembly into the global assembly cache:

- Use an installer designed to work with the global assembly cache. This is the preferred option for installing assemblies into the global assembly cache.
- Use a developer tool called the Global Assembly Cache tool (Gacutil.exe), provided by the Windows Software Development Kit (SDK).

**Note:**

In deployment scenarios, use Windows Installer 2.0 to install assemblies into the global assembly cache. Use the Global Assembly Cache tool only in development scenarios, because it does not provide assembly reference counting and other features provided when using the Windows Installer.

<http://msdn.microsoft.com/en-us/library/yf1d93sz%28v=vs.110%29.aspx>

### QUESTION 27

You are debugging an application that calculates loan interest. The application includes the following code. (Line numbers are included for reference only.)

```
01 private static decimal CalculateInterest(decimal loanAmount, int loanTerm,
02                                         decimal loanRate)
03 {
04     decimal interestAmount = loanAmount * loanRate * loanTerm;
05
06     return interestAmount;
07 }
```

You need to ensure that the debugger breaks execution within the `CalculateInterest()` method when the `loanAmount` variable is less than or equal to zero in all builds of the application. What should you do?

- A. Insert the following code segment at line 03: `Trace.Assert(loanAmount > 0);`
- B. Insert the following code segment at line 03: `Debug.Assert(loanAmount > 0);`
- C. Insert the following code segment at line 05: `Debug.WriteLine(loanAmount > 0);`
- D. Insert the following code segment at line 05: `Trace.WriteLine(loanAmount > 0);`

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

By default, the `Debug.Assert` method works only in debug builds. Use the `Trace.Assert` method if you want to do assertions in release builds. For more information, see Assertions in Managed Code. <http://msdn.microsoft.com/en-us/library/kssw4w7z.aspx>

**QUESTION 28**

You are developing an application that accepts the input of dates from the user. Users enter the date in their local format. The date entered by the user is stored in a string variable named `inputDate`. The valid date value must be placed in a `DateTime` variable named `validatedDate`. You need to validate the entered date and convert it to Coordinated Universal Time (UTC). The code must not cause an exception to be thrown. Which code segment should you use?

- A. 

```
bool validDate = DateTime.TryParse(inputDate,
    CultureInfo.CurrentCulture, DateTimeStyles.AdjustToUniversal |
    DateTimeStyles.AssumeLocal,
    out validatedDate);
```
- B. 

```
bool validDate = DateTime.TryParse(inputDate,
    CultureInfo.CurrentCulture, DateTimeStyles.AssumeUniversal, out
    validatedDate);
```
- C. 

```
bool validDate = true;
try
{
    validatedDate = DateTime.Parse(inputDate);
}
catch
{
    validDate = false;
}
```
- D. 

```
validatedDate = DateTime.ParseExact(inputDate, "g"
    CultureInfo.CurrentCulture, DateTimeStyles.AdjustToUniversal |
    DateTimeStyles.AssumeUniversal);
```

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

`DateTimeStyles.AdjustToUniversal` - Date and time are returned as a Coordinated Universal Time (UTC). If the input string denotes a local time, through a time zone specifier or `AssumeLocal`, the date and time are converted from the local time to UTC. If the input string denotes a UTC time, through a time zone specifier or `AssumeUniversal`, no conversion occurs. If the input string does not denote a local or UTC time, no conversion occurs and the resulting `Kind` property is `Unspecified`. This value cannot be used with `RoundtripKind`.

`DateTimeStyles.AssumeLocal` - If no time zone is specified in the parsed string, the string is assumed to denote a local time. This value cannot be used with `AssumeUniversal` or `RoundtripKind`.

[http://msdn.microsoft.com/en-us/library/vstudio/91hfhz89\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/vstudio/91hfhz89(v=vs.110).aspx)

**QUESTION 29**

You are developing an application by using C#. You provide a public key to the development team during development. You need to specify that the assembly is not fully signed when it is built. Which two assembly attributes should you include in the source code? (Each correct answer presents part of the solution. Choose two.)

- A. `AssemblyKeyNameAttribute`
- B. `ObfuscateAssemblyAttribute`
- C. `AssemblyDelaySignAttribute`
- D. `AssemblyKeyFileAttribute`

**Correct Answer:** CD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

[http://msdn.microsoft.com/en-us/library/t07a3dye\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/t07a3dye(v=vs.110).aspx)

**QUESTION 30**

You are adding a public method named `UpdateGrade` to a public class named `ReportCard`. The code region that updates the grade field must meet the following requirements:

- it must be accessed by only one thread at a time.
- it must not be vulnerable to a deadlock situation.

You need to implement the `UpdateGrade()` method. What should you do?

- A. Add private object named `lockObject` to the `ReportCard` class. place the code region inside the following lock statement:

```
lock (lockObject)
{
    ...
}
```

- B. Place the code region inside the following lock statement:

```
lock (this)
{
    ...
}
```

- C. Add a public static object named `lockObject` to the `ReportCard` class. Place the code region inside the following lock statement:

```
lock (typeof(ReportCard))
{
    ...
}
```

- D. Apply the following attribute to the `UpdateGrade()` method signature:  
[MethodImpl(MethodImplOptions.Synchronized)]

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

<http://blogs.msdn.com/b/bclteam/archive/2004/01/20/60719.aspx>

## QUESTION 31

You are developing an application that includes a class named `BookTracker` for tracking library books. The application includes the following code segment. (Line numbers are included for reference only.)

```
01 public delegate void AddBookCallback(int i);
02 public class BookTracker
03 {
04     List<Book> books = new List<Book>();
05     public void AddBook(string name, AddBookCallback callback)
06     {
07         books.Add(new Book(name));
08         callback(books.Count);
09     }
10 }
11
12 public class Runner
13 {
14
15     BookTracker tracker = new BookTracker();
16     public void Add(string name)
17     {
18
19     }
20 }
```

You need to add a book to the `BookTracker` instance. What should you do?

- A. Insert the following code segment at line 14:

```
private static void PrintBookCount(int i)
```

```
{  
    ...  
}
```

Insert the following code segment at line 18:

```
AddBookCallback callback PrintBookCount;
```

- B. Insert the following code segment at line 18:

```
tracker.AddBook(name, delegate(int i)  
{  
    ...  
});
```

- C. Insert the following code segment at line 11:

```
delegate void AddBookDelegate(BookTracker bookTracker);
```

Insert the following code segment at line 18:

```
AddBookDelegate addDelegate = (bookTracker) =>  
{  
    ...  
}  
addDelegate(tracker);
```

- D. Insert the following code segment at line 11:

```
delegate void AddBookDelegate(string name, AddBoookCallback callback);
```

Insert the following code segment at line 18:

```
AddBookDelegate adder = (i, callback) =>  
{  
    ...  
};
```

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 32

You are creating a console application by using C#. You need to access the assembly found in the file named car.dll. Which code segment should you use?

- A. Assembly.Load();
- B. Assembly.GetExecutingAssembly();
- C. this.GetType();
- D. Assembly.LoadFile("car.dll");

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Assembly.LoadFile - Loads the contents of an assembly file on the specified path. <http://msdn.microsoft.com/en-us/library/b61s44e8.aspx>

### QUESTION 33

You are developing an application by using C#. The application includes an object that performs a long running process. You need to ensure that the garbage collector does not release the object's resources until the process completes. Which garbage collector method should you use?

- A. WaitForFullGCComplete()
- B. WaitForFullGCApproach()
- C. KeepAlive()
- D. WaitForPendingFinalizers()

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

GC.KeepAlive - References the specified object, which makes it ineligible for garbage collection from the start of the current routine to the point where this method is called. The purpose of the KeepAlive method is to ensure the existence of a reference to an object that is at risk of being prematurely reclaimed by the garbage collector. A common scenario where this might happen is when there are no references to the object in managed code or data, but the object is still in use in unmanaged code such as Win32 APIs, unmanaged DLLs, or methods using COM. <http://msdn.microsoft.com/en-us/library/system.gc.keepalive.aspx>

#### **QUESTION 34**

An application includes a class named Person. The Person class includes a method named GetData. You need to ensure that the GetData() method can be used only by the Person class and not by any class derived from the Person class. Which access modifier should you use for the GetData() method?

- A. public
- B. protected internal
- C. internal
- D. private
- E. protected

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

private - The type or member can be accessed only by code in the same class or struct. <http://msdn.microsoft.com/en-us/library/ms173121.aspx>

#### **QUESTION 35**

You are creating an application that manages information about your company's products. The application includes a class named Product and a method named Save. The Save() method must be strongly typed. It must allow only types inherited from the Product class that use a constructor that accepts no parameters. You need to implement the Save() method. Which code segment should you use?

- A. public static void Save(Product target)  
{  
    ...  
}
- B. public static void Save<T>(T target) where T: new(), Product  
{  
    ...  
}
- C. public static void Save<T>(T target) where T: Product  
{  
    ...  
}
- D. public static void Save<T>(T target) where T: Product, new()  
{  
    ...  
}

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

When you define a generic class, you can apply restrictions to the kinds of types that client code can use for

type arguments when it instantiates your class. If client code tries to instantiate your class by using a type that is not allowed by a constraint, the result is a compile-time error. These restrictions are called constraints. Constraints are specified by using the where contextual keyword. <http://msdn.microsoft.com/en-us/library/d5x73970.aspx>

### QUESTION 36

You are developing an application. The application includes classes named `Mammal` and `Animal` and an interface named `IAnimal`. The `Mammal` class must meet the following requirements:

- it must either inherit from the `Animal` class or implement the `IAnimal` interface.
- it must be inheritable by other classes in the application.

You need to ensure that the `Mammal` class meets the requirements. Which two code segments can you use to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- A. 

```
abstract class Mammal : IAnimal
{
    ...
}
```
- B. 

```
sealed class Mammal : IAnimal
{
    ...
}
```
- C. 

```
abstract class Mammal : Animal
{
    ...
}
```
- D. 

```
sealed class Mammal : Animal
{
    ...
}
```

**Correct Answer:** AC

**Section:** (none)

**Explanation**

#### Explanation/Reference:

`sealed` - When applied to a class, the `sealed` modifier prevents other classes from inheriting from it. [http://msdn.microsoft.com/en-us/library/88c54tsw\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/88c54tsw(v=vs.110).aspx)

### QUESTION 37

You are developing an application by using C#. The application includes the following code segment. (Line numbers are included for reference only.)

```
01 public interface IDataContainer
02 {
03     string Data { get; set; }
04 }
05 void DoWork(object obj)
06 {
07
08     if (dataContainer != null)
09     {
10         Console.WriteLine(dataContainer.Data);
11     }
12 }
```

The `DoWork()` method must throw an `InvalidOperationException` exception if the `obj` object is not of type `IDataContainer` when accessing the `Data` property. You need to meet the requirements. Which code segment should you insert at line 07?

- A. `var dataContainer = (IDataContainer)obj;`
- B. `dataContainer = obj as IDataContainer;`

- C. var dataContainer = obj is IDataContainer;  
 D. dynamic dataContainer = obj;

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

<http://msdn.microsoft.com/en-us/library/ms173105.aspx>

### QUESTION 38

You are developing an application that includes the following code segment. (Line numbers are included for reference only.)

```

01 class Customer
02 {
03     public string CompanyName { get; set; }
04     public string Id { get; set; }
05 }
06 const string sqlSelectCustomerss = "SELECT CustomerID, CompanyName FROM
Customers";
07 private static IEnumerable<Customer> GetCustomers(string
sqlConnectionString)
08 {
09     List<Customer> customers = new List<Customer>();
10    SqlConnection sqlConnection = new SqlConnection(sqlConnectionString);
11    using (sqlConnection)
12    {
13        SqlCommand sqlCommand = new SqlCommand(sqlSelectCustomers,
sqlConnection);
14
15        using (SqlDataReader sqlDataReader = sqlCommand.ExecuteReader())
16        {
17
18            {
19                Customer customer = new Customer();
20                customer.Id = (string)sqlDataReader["CustomerID"];
21                customer.CompanyName = (string)sqlDataReader["CompanyName"];
22                customers.Add(customer);
23            }
24        }
25    }
26    return customers;
27 }
```

The GetCustomers() method must meet the following requirements:

- connect to a Microsoft SQL Server database.
- populate Customer objects with data from the database.
- return an IEnumerable<Customer> collection that contains the populated Customer objects.

You need to meet the requirements. Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Insert the following code segment at line 17: while (sqlDataReader.GetValues())
- B. Insert the following code segment at line 14: sqlConnection.Open();
- C. Insert the following code segment at line 14: sqlConnection.BeginTransaction();
- D. Insert the following code segment at line 17: while (sqlDataReader.Read())
- E. Insert the following code segment at line 17: while (sqlDataReader.NextResult())

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

`SqlConnection.Open` - Opens a database connection with the property settings specified by the `ConnectionString`. <http://msdn.microsoft.com/en-us/library/system.data.sqlclient.sqlconnection.open.aspx>

`SqlDataReader.Read` - Advances the `SqlDataReader` to the next record. <http://msdn.microsoft.com/en-us/library/system.data.sqlclient.sqldatareader.read.aspx>

**QUESTION 39**

An application will upload data by using HTML form-based encoding. The application uses a method named `SendMessage()`. The `SendMessage()` method includes the following code. (Line numbers are included for reference only.)

```
01 public Task<byte[]> SendMessage(string url, int intA, int intB)
02 {
03     var client = new WebClient();
04
05 }
```

The receiving URL accepts parameters as form-encoded values. You need to send the values `intA` and `intB` as form-encoded values named `a` and `b`, respectively. Which code segment should you insert at line 04?

- A. `var data = string.Format("a={0}&b={1}", intA, intB);  
return client.UploadStringTaskAsync(new Uri(url), data);`
- B. `var data = string.Format("a={0}&b={1}", intA, intB);  
return client.UploadFileTaskAsync(new Uri(url), data);`
- C. `var data = string.Format("a={0}&b={1}", intA, intB);  
return client.UploadDataTaskAsync(new Uri(url), Encoding.UTF8.GetBytes  
(data));`
- D. `var nvc = new NameValueCollection() { { "a", intA.ToString() }, { "b",  
intB.ToString() } };  
return client.UploadValuesTaskAsync(new Uri(url), nvc);`

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

`WebClient.UploadValuesTaskAsync` - Uploads the specified name/value collection to the resource identified by the specified URI as an asynchronous operation using a task object. These methods do not block the calling thread. <http://msdn.microsoft.com/en-us/library/system.net.webclient.uploadvaluestaskasync.aspx>

**QUESTION 40**

You are developing an application. The application converts a `Location` object to a string by using a method named `WriteObject`. The `WriteObject()` method accepts two parameters, a `Location` object and an `XmlObjectSerializer` object. The application includes the following code. (Line numbers are included for reference only.)

```
01 public enum Compass
02 {
03     North,
04     South,
05     East,
06     West
07 }
08 [DataContract]
09 public class Location
10 {
11     [DataMember]
12     public string Label { get; set; }
13     [DataMember]
14     public Compass Direction { get; set; }
```

```

15 }
16 void DoWork()
17 {
18     var location = new Location { Label = "Test", Direction = Compass.West };
19     Console.WriteLine(WriteObject(location,
20
21     ));
22 }

```

You need to serialize the `Location` object as XML. Which code segment should you insert at line 20?

- A. `new XmlSerializer(typeof(Location))`
- B. `new NetDataContractSerializer()`
- C. `new DataContractJsonSerializer(typeof(Location))`
- D. `new DataContractSerializer(typeof(Location))`

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

The code is using `[DataContract]` attribute here so need to used `DataContractSerializer` class.

#### QUESTION 41

You are developing an application that includes a class named `Order`. The application will store a collection of `Order` objects. The collection must meet the following requirements:

- internally store a key and a value for each collection item.
- provide objects to Iterators in ascending order based on the key.
- ensure that item are accessible by zero-based index or by key.

You need to use a collection type that meets the requirements. Which collection type should you use?

- A. `LinkedList`
- B. `Queue`
- C. `Array`
- D. `HashTable`
- E. `SortedList`

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

`SortedList<TKey, TValue>` - Represents a collection of key/value pairs that are sorted by key based on the associated `IComparer<T>` implementation. <http://msdn.microsoft.com/en-us/library/ms132319.aspx>

#### QUESTION 42

You are developing an application that includes the following code segment. (Line numbers are included for reference only.)

```

01 using System;
02 class MainClass
03 {
04     public static void Main(string[] args)
05     {
06         bool bValidInteger = false;
07         int value = 0;
08         do
09         {
10             Console.WriteLine("Enter an integer");
11             bValidInteger = GetValidInteger(ref value);

```

```

12         } while (!bValidInteger);
13         Console.WriteLine("You entered a valid integer, " + value);
14     }
15     public static bool GetValidInteger(ref int val)
16     {
17         string sLine = Console.ReadLine();
18         int number;
19
20         {
21             return false;
22         }
23         else
24         {
25             val = number;
26             return true;
27         }
28     }
29 }
```

You need to ensure that the application accepts only integer input and prompts the user each time non-integer input is entered. Which code segment should you add at line 19?

- A. if (!int.TryParse(sLine, out number))
- B. if ((number = Int32.Parse(sLine)) == Single.NaN)
- C. if ((number = int.Parse (sLine)) > Int32.MaxValue)
- D. if (Int32.TryParse(sLine, out number))

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

B and C will throw exception when user enters non-integer value. D is exactly the opposite what we want to achieve.

`Int32.TryParse` - Converts the string representation of a number to its 32-bit signed integer equivalent. A return value indicates whether the conversion succeeded. <http://msdn.microsoft.com/en-us/library/f02979c7.aspx>

#### QUESTION 43

You are debugging an application that calculates loan interest. The application includes the following code. (Line numbers are included for reference only.)

```

01 private static decimal CalculateInterest(decimal loanAmount, int loanTerm,
decimal loanRate)
02 {
03
04     decimal interestAmount = loanAmount * loanRate * loanTerm;
05
06     return interestAmount;
07 }
```

You have the following requirements:

- the debugger must break execution within the `CalculateInterest()` method when the `loanAmount` variable is less than or equal to zero.
- the release version of the code must not be impacted by any changes.

You need to meet the requirements. What should you do?

- A. Insert the following code segment at line 05: `Debug.WriteLine(loanAmount > 0);`
- B. Insert the following code segment at line 05: `Trace.WriteLine(loanAmount > 0);`
- C. Insert the following code segment at line 03: `Debug.Assert(loanAmount > 0);`

D. Insert the following code segment at line 03: `Trace.Assert(loanAmount > 0);`

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

By default, the `Debug.Assert` method works only in debug builds. Use the `Trace.Assert` method if you want to do assertions in release builds. For more information, see Assertions in Managed Code. <http://msdn.microsoft.com/en-us/library/kssw4w7z.aspx>

#### **QUESTION 44**

You are developing an application that will process orders. The debug and release versions of the application will display different logo images. You need to ensure that the correct image path is set based on the build configuration. Which code segment should you use?

- A. `#if (DEBUG)  
 imgPath = "TempFolder/Images/";  
#elif (RELEASE)  
 imgPath = "DevFolder/Images/";  
#endif`
- B. `if (DEBUG)  
 imgPath = "TempFolder/Images/";  
else  
 imgPath = "DevFolder/Images/";  
endif`
- C. `#if (DEBUG)  
 imgPath = "TempFolder/Images/";  
#else  
 imgPath = "DevFolder/Images/";  
#endif`
- D. `if(Debugger.IsAttached)  
{  
 imgPath = "TempFolder/Images/";  
}  
else  
{  
 imgPath = "DevFolder/Images/";  
}`

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

There is no such constraint (unless you define one explicitly) RELEASE. <http://stackoverflow.com/questions/507704/will-if-release-work-like-if-debug-does-in-c>

#### **QUESTION 45**

You are testing an application. The application includes methods named `CalculateInterest` and `LogLine`. The `CalculateInterest()` method calculates loan interest. The `LogLine()` method sends diagnostic messages to a console window. The following code implements the methods. (Line numbers are included for reference only.)

```
01  
02 private static decimal CalculateInterest(decimal loanAmount, int loanTerm,  
decimal loanRate)  
03 {  
04     decimal interestAmount = loanAmount * loanRate * loanTerm;  
05  
06     LogLine("Interest Amount : ", interestAmount.ToString("c"));  
07  
08     return interestAmount;  
09 }
```

```

10
11 public static void LogLine(string message, string detail)
12 {
13     Console.WriteLine("Log: {0} = {1}", message, detail);
14 }

```

You have the following requirements:

- the `CalculateInterest()` method must run for all build configurations.
- the `LogLine()` method must run only for debug builds.

You need to ensure that the methods run correctly. What are two possible ways to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- A. Insert the following code segment at line 01: `#region DEBUG`  
Insert the following code segment at line 10: `#endregion`
- B. Insert the following code segment at line 10: `[Conditional( "DEBUG" )]`
- C. Insert the following code segment at line 05: `#region DEBUG`  
Insert the following code segment at line 07: `#endregion`
- D. Insert the following code segment at line 01: `#if DEBUG`  
Insert the following code segment at line 10: `#endif`
- E. Insert the following code segment at line 01: `[Conditional( "DEBUG" )]`
- F. Insert the following code segment at line 05: `#if DEBUG`  
Insert the following code segment at line 07: `#endif`
- G. Insert the following code segment at line 10: `[Conditional( "RELEASE" )]`

**Correct Answer:** BF

**Section:** (none)

**Explanation**

**Explanation/Reference:**

- `#if DEBUG`: The code in here won't even reach the IL on release.
- `[Conditional( "DEBUG" )]`: This code will reach the IL, however the calls to the method will not execute unless DEBUG is on.

<http://stackoverflow.com/questions/3788605/if-debug-vs-conditionaldebug>

#### **QUESTION 46**

You use the `Task.Run()` method to launch a long-running data processing operation. The data processing operation often fails in times of heavy network congestion. If the data processing operation fails, a second operation must clean up any results of the first operation. You need to ensure that the second operation is invoked only if the data processing operation throws an unhandled exception. What should you do?

- A. Create a task by calling the `Task.ContinueWith()` method
- B. Use the `TaskScheduler` class to create a task and call the `TryExecuteTask()` method on the class.
- C. Create a `TaskFactory` object and call the `ContinueWhenAll()` method of the object.
- D. Create a task within the operation, and set the `Task.StartOnError` property to true.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

`Task.ContinueWith` - Creates a continuation that executes asynchronously when the target Task completes. The returned Task will not be scheduled for execution until the current task has completed, whether it completes due to running to completion successfully, faulting due to an unhandled exception, or exiting out early due to being canceled. <http://msdn.microsoft.com/en-us/library/dd270696.aspx>

#### **QUESTION 47**

You are developing a method named `CreateCounters` that will create performance counters for an

application. The method includes the following code. (Line numbers are included for reference only.)

```
01 void CreateCounters()
02 {
03     if (!PerformanceCounterCategory.Exists("Contoso"))
04     {
05         var counters = new CounterCreationDataCollection();
06         var ccdCounter1 = new CounterCreationData
07         {
08             CounterName = "Counter1",
09             CounterType = PerformanceCounterType.AverageTimer32
10         };
11         counters.Add(ccdCounter1);
12         var ccdCounter2 = new CounterCreationData
13         {
14             CounterName = "Counter2",
15             CounterType = PerformanceCounterType.AverageBase
16         };
17         counters.Add(ccdCounter2);
18         PerformanceCounterCategory.Create("Contoso", "Help string",
19                                         PerformanceCounterCategoryType.MultipleInstances, counters);
20     }
21 }
22 }
```

You need to ensure that Counter2 is available for use in Windows Performance Monitor (PerfMon). Which code segment should you insert at line 16?

- A. CounterType = PerformanceCounterType.RawBase;
- B. CounterType = PerformanceCounterType.AverageBase;
- C. CounterType = PerformanceCounterType.SampleBase;
- D. CounterType = PerformanceCounterType.CounterMultiBase;

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

PerformanceCounterType.AverageTimer32 - An average counter that measures the time it takes, on average, to complete a process or operation. Counters of this type display a ratio of the total elapsed time of the sample interval to the number of processes or operations completed during that time. This counter type measures time in ticks of the system clock. Formula:  $((N_1 - N_0)/F)/(B_1 - B_0)$ , where  $N_1$  and  $N_0$  are performance counter readings,  $B_1$  and  $B_0$  are their corresponding **AverageBase** values, and  $F$  is the number of ticks per second. The value of  $F$  is factored into the equation so that the result can be displayed in seconds. Thus, the numerator represents the numbers of ticks counted during the last sample interval,  $F$  represents the frequency of the ticks, and the denominator represents the number of operations completed during the last sample interval. Counters of this type include PhysicalDisk\ Avg. Disk sec/Transfer.

PerformanceCounterType.AverageBase - A base counter that is used in the calculation of time or count averages, such as **AverageTimer32** and AverageCount64. Stores the denominator for calculating a counter to present "time per operation" or "count per operation"..

<http://msdn.microsoft.com/en-us/library/system.diagnostics.performancecountertype.aspx>

**QUESTION 48**

You are creating a class named Employee. The class exposes a string property named EmployeeType. The following code segment defines the Employee class. (Line numbers are included for reference only.)

```

01 public class Employee
02 {
03     internal string EmployeeType
04     {
05         get;
06         set;
07     }
08 }

```

The EmployeeType property value must be accessed and modified only by code within the Employee class or within a class derived from the Employee class.

You need to ensure that the implementation of the EmployeeType property meets the requirements.

Which two actions should you perform? (Each correct answer represents part of the complete solution. Choose two.)

- A. Replace line 05 with the following code segment:  
protected get;
- B. Replace line 06 with the following code segment:  
private set;
- C. Replace line 03 with the following code segment:  
public string EmployeeType
- D. Replace line 05 with the following code segment:  
private get;
- E. Replace line 03 with the following code segment:  
protected string EmployeeType
- F. Replace line 06 with the following code segment:  
protected set;

**Correct Answer:** AF

**Section:** (none)

**Explanation**

**Explanation/Reference:**

A, F

E

#### QUESTION 49

You are implementing a method named FloorTemperature that performs conversions between value types and reference types. The following code segment implements the method. (Line numbers are included for reference only.)

```

01 public static void FloorTemperature(float degrees)
02 {
03     object degreesRef = degrees;
04
05     Console.WriteLine(result);
06 }

```

You need to ensure that the application does not throw exceptions on invalid conversions.  
Which code segment should you insert at line 04?

- A. int result = (int)degreesRef;
- B. int result = (int)(double)degreesRef;
- C. int result = degreesRef;
- D. int result = (int)(float)degreesRef;

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 50**

You are developing an application that uses structured exception handling. The application includes a class named Logger. The Logger class implements a method named Log by using the following code segment:

66  
public static void Log(Exception ex) { }

You have the following requirements:

- Log all exceptions by using the Log() method of the Logger class.
- Rethrow the original exception, including the entire exception stack.

You need to meet the requirements.

Which code segment should you use?

- A. `catch  
{  
 var ex = new Exception();  
 throw ex;  
}`
- B. `catch (Exception ex)  
{  
 Logger.Log(ex);  
 throw ex;  
}`
- C. `catch  
{  
 Logger.Log(new Exception());  
 throw;  
}`
- D. `catch (Exception ex)  
{  
 Logger.Log(ex);  
 throw;  
}`

A. Option A

B. Option B

C. Option C

D. Option D

**Correct Answer: D**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 51**

You are creating a class named Employee. The class exposes a string property named EmployeeType. The following code segment defines the Employee class. (Line numbers are included for reference only.)

```
01 public class Employee  
02 {  
03     internal string EmployeeType  
04     {  
05         get;
```

```
06         set;
07     }
08 }
```

The EmployeeType property value must meet the following requirements:

- The value must be accessed only by code within the Employee class or within a class derived from the Employee class.

- The value must be modified only by code within the Employee class.

You need to ensure that the implementation of the EmployeeType property meets the requirements.

Which two actions should you perform? (Each correct answer represents part of the complete solution. Choose two.)

- A. Replace line 03 with the following code segment:  
public string EmployeeType
- B. Replace line 06 with the following code segment:  
protected set;
- C. Replace line 05 with the following code segment:  
private get;
- D. Replace line 05 with the following code segment:  
protected get;
- E. Replace line 03 with the following code segment:  
protected string EmployeeType
- F. Replace line 06 with the following code segment:  
private set;

**Correct Answer: E**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

## QUESTION 52

You are developing an application that will transmit large amounts of data between a client computer and a server. You need to ensure the validity of the data by using a cryptographic hashing algorithm. Which algorithm should you use?

- A. DES
- B. HMACSHA512
- C. RNGCryptoServiceProvider
- D. ECDsa

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

## QUESTION 53

You are developing a C# application that includes a class named Product. The following code segment defines the Product class:

```
public class Product
{
    public int Id { get; set; }
    public int CategoryId { get; set; }
    public string Name { get; set; }
    public bool IsValid { get; set; }
}
```

You implement System.ComponentModel.DataAnnotations.IValidateableObject interface to provide a way

to validate the Product object.

The Product object has the following requirements:

- The Id property must have a value greater than zero.
- The Name property must have a value other than empty or null.

You need to validate the Product object. Which code segment should you use?

- A. 

```
public bool Validate()
{
    IsValid = Id > 0 || !string.IsNullOrEmpty(Name);
    return IsValid;
}
```
- B. 

```
public IEnumerable<ValidationResult> Validate(ValidationContext validationContext)
{
    if (Id <= 0)
        yield return new ValidationResult("Product Id is required.", new[] { "Id" });
    if (string.IsNullOrEmpty(Name))
        yield return new ValidationResult("Product Name is required.", new[] { "Name" });
}
```
- C. 

```
public bool Equals(Product productToValidate)
{
    productToValidate.IsValid = productToValidate.Id > 0 || !string.IsNullOrEmpty(productToValidate.Name);
    return productToValidate.IsValid;
}
```
- D. 

```
public ValidationResult Validate()
{
    ValidationResult validationResult = null;
    if (Id <= 0)
    {
        validationResult = new ValidationResult("Product Id is required.");
    }
    if (string.IsNullOrEmpty(Name))
    {
        validationResult = new ValidationResult("Product Name is required.");
    }
    return validationResult;
}
```

A. Option A

B. Option B

C. Option C

D. Option D

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 54**

You are creating a class named Game.

The Game class must meet the following requirements:

- Include a member that represents the score for a Game instance.
- Allow external code to assign a value to the score member.
- Restrict the range of values that can be assigned to the score member.

You need to implement the score member to meet the requirements.  
In which form should you implement the score member?

- A. protected field
- B. public static field
- C. public static property
- D. public property

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 55

You have a List object that is generated by executing the following code:

```
List<string> departments = new List<string>()
{
    "Accounting", "Marketing", "Sales", "Manufacturing", "Information Systems", "Training"
};
```

You have a method that contains the following code (line numbers are included for reference only):

```
01  private bool GetMatches(List<string> departments, string searchTerm)
02  {
03      var findDepartment = departments.Exists((delegate(string deptName)
04      {
05          return deptName.Equals(searchTerm);
06      }
07  ));
08      return findDepartment;
09  }
```

You need to alter the method to use a lambda statement.

How should you rewrite lines 03 through 06 of the method?

- A. var findDepartment = departments.First(x => x == searchTerm);
  - B. var findDepartment = departments.Where(x => x == searchTerm);
  - C. var findDepartment = departments.Exists(x => x.Equals(searchTerm));
  - D. var findDepartment = departments.Where(x => x.Equals(searchTerm));
- 
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 56**

You are developing code for a class named Account. The Account class includes the following method:

```
public void Deposit(int dollars, int cents)
{
    int totalCents = cents + this.cents;
    int extraDollars = totalCents / 100;
    this.cents = totalCents - 100 * extraCents;
    this.dollars += dollars + extraDollars;
}
```

You need to ensure that overflow exceptions are thrown when there is an error.  
Which type of block should you use?

- A. checked
- B. try
- C. using
- D. unchecked

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

<http://sholzen.pixnet.net/blog/post/47467244-c---checked-Aline>

**QUESTION 57**

You are developing an application that uses a .config file.

The relevant portion of the .config file is shown as follows:

```
<system.diagnostics>
  <trace autoflush="false" indentsize="0">
    <listeners>
      <add name="appListener"
        type="System.Diagnostics.EventLogTraceListener"
        initializeData="TraceListenerLog" />
    </listeners>
  </trace>
</system.diagnostics>
```

You need to ensure that diagnostic data for the application writes to the event log by using the configuration specified in the .config file.

What should you include in the application code?

- A. `EventLog log = new EventLog();  
log.WriteEntry("Trace data...");`
  - B. `Debug.WriteLine("Trace data...");`
  - C. `Console.SetOut(new StreamWriter("System.Diagnostics.EventLogTraceListener"));  
Console.WriteLine("Trace data...");`
  - D. `Trace.WriteLine("Trace data...");`
- A. Option A

- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

<http://msdn.microsoft.com/en-us/library/vstudio/system.diagnostics.eventlogtracelistener>  
public static void Main(string[] args) {

```
// Create a trace listener for the event log.  
EventLogTraceListener myTraceListener = new EventLogTraceListener("myEventLogSource");  
  
// Add the event log trace listener to the collection.  
Trace.Listeners.Add(myTraceListener);  
  
// Write output to the event log.  
Trace.WriteLine("Test output");  
}
```

### QUESTION 58

You have the following code (line numbers are included for reference only):

```
01class Bar  
02{  
03    public string barColor { get; set; }  
04    public string barName { get; set; }  
05    private static IEnumerable<Bar> GetBars(string sqlConnectionString)  
06    {  
07        var bars = new List<Bar>();  
08        SqlConnection fooSqlConn = new SqlConnection();  
09        using (fooSqlConn)  
10        {  
11            SqlCommand fooSqlCmd = new SqlCommand  
12                ("Select sqlName,sqlColor from Animals", fooSqlConn);  
13            fooSqlConn.Open();  
14            using (SqlDataReader fooSqlReader = fooSqlCmd.ExecuteReader())  
15            {  
16                {  
17                    var bar = new Bar();  
18                    bar.barName = (String)fooSqlReader["sqlName"];  
19                    bar.barColor = (String)fooSqlReader["sqlColor"];  
20                    bars.Add(bar);  
21                }  
22            }  
23        }  
24        return bars;  
25    }  
26}
```

You need to identify the missing line of code at line 15. Which line of code should you identify?

- A. using (fooSqlConn.BeginTransaction())
- B. while (fooSqlReader.Read())
- C. while (fooSqlReader.NextResult())

D. while (fooSqlReader.GetBoolean(0))

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 59

You are creating a console application named App1. App1 retrieves data from the Internet by using JavaScript Object Notation (JSON). You are developing the following code segment (line numbers are included for reference only):

```
01 public bool ValidateJson(string json, Dictionary<string, object> result)
02 {
03
04     try
05     {
06         result = serializer.Deserialize<Dictionary<string, object>>(json);
07         return true;
08     }
09     catch
10     {
11         return false;
12     }
13 }
```

You need to ensure that the code validates the JSON string. Which code should you insert at line 03?

- A. DataContractSerializer serializer = new DataContractSerializer();
- B. var serializer = new DataContractSerializer();
- C. XmlSerlalizer serializer = new XmlSerlalizer();
- D. var serializer = new JavaScriptSerializer();

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

The JavaScriptSerializer Class Provides serialization and deserialization functionality for AJAX-enabled applications.

The JavaScriptSerializer class is used internally by the asynchronous communication layer to serialize and deserialize the data that is passed between the browser and the Web server. You cannot access that instance of the serializer. However, this class exposes a public API. Therefore, you can use the class when you want to work with JavaScript Object Notation (JSON) in managed code.

### QUESTION 60

You are developing an application that uses several objects. The application includes the following code segment. (Line numbers are included for reference only.)

```
01 private bool IsNull(object obj)
02 {
03
04     return false;
05 }
```

You need to evaluate whether an object is null.

Which code segment should you insert at line 03?

```
A. if (obj = null)
{
    return true;
}

B. if (null)
{
    return true;
}

C. if (obj == 0)
{
    return true;
}

D. if (obj == null)
{
    return true;
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Use the == operator to compare values and in this case also use the null literal.

### QUESTION 61

You are developing an application.

The application contains the following code segment (line numbers are included for reference only):

```
01 ArrayList array1 = new ArrayList();
02 int var1 = 10;
03 int var2;
04 array1.Add(var1);
05 var2 = array1[0];
```

When you run the code, you receive the following error message: "Cannot implicitly convert type 'object' to 'int'. An explicit conversion exists (are you missing a cast?)."

You need to ensure that the code can be compiled. Which code should you use to replace line 05?

- A. var2 = array1[0] is int;
- B. var2 = ( (List<int>)array1) [0];
- C. var2 = array1[0].Equals(typeof(int));
- D. var2 = (int) array1 [0];

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Make a list of integers of the array with = ( (List<int>)array) then select the first item in the list with [0].

### QUESTION 62

You need to write a method that retrieves data from a Microsoft Access 2013 database. The method must meet the following requirements:

- Be read-only.
- Be able to use the data before the entire data set is retrieved.
- Minimize the amount of system overhead and the amount of memory usage.

Which type of object should you use in the method?

- A. SqlDataAdapter
- B. DataContext
- C. DbDataAdapter
- D. OleDbDataReader

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

OleDbDataReader Class

Provides a way of reading a forward-only stream of data rows from a data source.

Example:

```
OleDbConnection cn = new OleDbConnection();
OleDbCommand cmd = new OleDbCommand();
DataTable schemaTable;
OleDbDataReader myReader;
//Open a connection to the SQL Server Northwind database.
cn.ConnectionString = "Provider=SQLOLEDB;Data Source=server;User ID=login;
Password=password;Initial Catalog=Northwind";
```

### QUESTION 63

You have the following code:

```
List<Int32> items = new List<int>() {
    100,
    95,
    80,
    75,
    95
};
```

You need to retrieve all of the numbers from the items variable that are greater than 80.

Which code should you use?

- A. 

```
var result = from i in items
            where i > 80
            select i;
```
  - B. 

```
var result = items.Take(80);
```
  - C. 

```
var result = items.First(i => i > 80);
```
  - D. 

```
var result = items.Any(i => i > 80);
```
- A. Option A
  - B. Option B

- C. Option C
- D. Option D

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 64**

You are implementing a method named ProcessReports that performs a long-running task. The ProcessReports() method has the following method signature:

```
public void ProcessReports(List<decimal> values, CancellationTokenSource cts, CancellationToken ct)
```

If the calling code requests cancellation, the method must perform the following actions:

- Cancel the long-running task.
- Set the task status to TaskStatus.Canceled.

You need to ensure that the ProcessReports() method performs the required actions. Which code segment should you use in the method body?

- A. if (ct.IsCancellationRequested)  
    return;
- B. ct.ThrowIfCancellationRequested();
- C. cts.Cancel();
- D. throw new AggregateException();

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 65**

You are developing an application that will be deployed to multiple computers. You set the assembly name. You need to create a unique identity for the application assembly.

Which two assembly identity attributes should you include in the source code? (Each correct answer presents part of the solution. Choose two.)

- A. AssemblyTitleAttribute
- B. AssemblyCultureAttribute
- C. AssemblyVersionAttribute
- D. AssemblyKeyNameAttribute
- E. AssemblyFileVersion

**Correct Answer:** BC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

The AssemblyName object contains information about an assembly, which you can use to bind to that assembly. An assembly's identity consists of the following:

Simple name.

Version number.

Cryptographic key pair.

Supported culture.

B: AssemblyCultureAttribute

Specifies which culture the assembly supports.

The attribute is used by compilers to distinguish between a main assembly and a satellite assembly. A main assembly contains code and the neutral culture's resources. A satellite assembly contains only resources for a particular culture, as in [assembly:AssemblyCultureAttribute("de")]

C: AssemblyVersionAttribute

Specifies the version of the assembly being attributed.

The assembly version number is part of an assembly's identity and plays a key part in binding to the assembly and in version policy.

#### QUESTION 66

You are developing an application.

You need to declare a delegate for a method that accepts an integer as a parameter, and then returns an integer.

Which type of delegate should you use?

- A. Action<int>
- B. Action<int,int>
- C. Func<int, int>
- D. Func<int>

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

#### QUESTION 67

You are writing the following method (line numbers are included for reference only):

```
01 public T CreateObject<T>()
02
03 {
04     T obj = new T();
05     return obj;
06 }
```

You need to ensure that CreateObject compiles successfully.

What should you do?

- A. Insert the following code at line 02:  
where T : new()
- B. Replace line 01 with the following code:  
public void CreateObject<T>()
- C. Replace line 01 with the following code:  
public Object CreateObject<T>()
- D. Insert the following code at line 02:  
where T : Object

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

#### QUESTION 68

You are developing an application that includes the following code segment. (Line numbers are included for reference only.)

```

01 public class ItemBase
02 {
03 }
04 public class Widget : ItemBase
05 {
06 }
07 class Worker
08 {
09     void DoWork(object obj)
10    {
11        Console.WriteLine("In DoWork(object)");
12    }
13    void DoWork(Widget widget)
14    {
15        Console.WriteLine("In DoWork(Widget)");
16    }
17    void DoWork(ItemBase itembase)
18    {
19        Console.WriteLine("In DoWork(ItemBase)");
20    }
21    private void Run()
22    {
23        object o = new Widget();
24        DoWork(o);
25    }
26 }

```

You need to ensure that the DoWork(Widget widget) method runs.  
With which code segment should you replace line 24?

- A. DoWork((Widget)o);
- B. DoWork(new Widget(o));
- C. DoWork(o is Widget);
- D. DoWork((ItemBase)o);

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 69

An application uses X509 certificates for data encryption and decryption. The application stores certificates in the Personal certificates collection of the Current User store. On each computer, each certificate subject is unique.

The application includes a method named LoadCertificate. The LoadCertificate() method includes the following code. (Line numbers are included for reference only.)

```

01 X509Certificate2 LoadCertificate(string searchValue)
02 {
03     var store = new X509Store(StoreName.My, StoreLocation.CurrentUser);
04     store.Open(OpenFlags.ReadOnly | OpenFlags.OpenExistingOnly);
05     var certs = store.Certificates.Find(
06
07         searchValue, false);
08         ...
09 }

```

The LoadCertificate() method must load only certificates for which the subject exactly matches the searchValue parameter value.

You need to ensure that the LoadCertificate() method loads the correct certificates.  
Which code segment should you insert at line 06?

- A. X509FindType.FindBySubjectName,
  - B. X509FindType.FindBySubjectKeyIdentifier,
  - C. X509FindType.FindByIssuerName,
  - D. X509FindType.FindBySubjectDistinguishedName,
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 70

You are developing a class named Scorecard. The following code implements the Scorecard class. (Line numbers are included for reference only.)

```
01 public class Scorecard
02 {
03     private Dictionary<string, int> players = new Dictionary<string, int>();
04     public void Add(string name, int score)
05     {
06         players.Add(name, score);
07     }
08
09 }
```

You create the following unit test method to test the Scorecard class implementation:

```
[TestMethod]
public void UnitTest1()
{
    Scorecard scorecard = new Scorecard();
    scorecard.Add("Player1", 10);
    scorecard.Add("Player2", 15);
    int expectedScore = 15;
    int actualScore = scorecard["Player2"];
    Assert.AreEqual(expectedScore, actualScore);
}
```

You need to ensure that the unit test will pass.  
What should you do?

A. Insert the following code segment at line 08:

```
public int this[string name]
{
    get
    {
        return players[name];
    }
}
```

B. Insert the following code segment at line 08:

```
public Dictionary<string, int> Players
{
    get
    {
        return players;
    }
}
```

C. Replace line 03 with the following code segment:

```
public Dictionary<string, int> Players = new Dictionary<string, int>();
```

D. Insert the following code segment at line 08:

```
public int score(string name)
{
    return players[name];
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

#### **QUESTION 71**

You are developing an application that will parse a large amount of text.

You need to parse the text into separate lines and minimize memory use while processing data.

Which object type should you use?

- A. DataContractSerializer
- B. StringBuilder
- C. StringReader

D. JsonSerializer

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

### QUESTION 72

You are developing code for an application that retrieves information about Microsoft .NET Framework assemblies.

The following code segment is part of the application (line numbers are included for reference only):

```
01 public void ViewMetadata(string filePath)
02 {
03     var bytes = File.ReadAllBytes(filePath);
04
05     ...
06 }
```

You need to insert code at line 04. The code must load the assembly. Once the assembly is loaded, the code must be able to read the assembly metadata, but the code must be denied access from executing code from the assembly.

Which code segment should you insert at line 04?

- A. Assembly.ReflectionOnlyLoadFrom(bytes);
- B. Assembly.ReflectionOnlyLoad(bytes);
- C. Assembly.Load(bytes);
- D. Assembly.LoadFrom(bytes);

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

### QUESTION 73

You are developing a method named GenerateHash that will create the hash value for a file. The method includes the following code. (Line numbers are included for reference only.)

```
01 public byte[] GenerateHash(string filename, string hashAlgorithm)
02 {
03     var signatureAlgo = HashAlgorithm.Create(hashAlgorithm);
04     var fileBuffer = System.IO.File.ReadAllBytes(filename);
05
06 }
```

You need to return the cryptographic hash of the bytes contained in the fileBuffer variable. Which code segment should you insert at line 05?

- A. 

```
var outputBuffer = new byte[fileBuffer.Length];
signatureAlgo.TransformBlock(fileBuffer, 0, fileBuffer.Length, outputBuffer, 0);
signatureAlgo.TransformFinalBlock(fileBuffer, fileBuffer.Length - 1, fileBuffer.Length);
return outputBuffer;
```
  - B. 

```
signatureAlgo.ComputeHash(fileBuffer);
return signatureAlgo.GetHashCode();
```
  - C. 

```
var outputBuffer = new byte[fileBuffer.Length];
signatureAlgo.TransformBlock(fileBuffer, 0, fileBuffer.Length, outputBuffer, 0);
return outputBuffer;
```
  - D. 

```
return signatureAlgo.ComputeHash(fileBuffer);
```
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 74**

You are modifying an existing application that manages employee payroll. The application includes a class named PayrollProcessor. The PayrollProcessor class connects to a payroll database and processes batches of paychecks once a week.

You need to ensure that the PayrollProcessor class supports iteration and releases database connections after the batch processing completes.

Which two interfaces should you implement? (Each correct answer presents part of the complete solution. Choose two.)

- A. IEquatable
- B. IEnumerable
- C. IDisposable
- D. IComparable

**Correct Answer:** BC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 75**

You are developing an application that will read data from a text file and display the file contents. You need to read data from the file, display it, and correctly release the file resources. Which code segment should you use?

```
A. string inputLine;
using (StreamReader reader = new StreamReader("data.txt"))
{
    while ((inputLine = reader.ReadLine()) != null)
    {
        Console.WriteLine(inputLine);
    }
}

B. string inputLine;
StreamReader reader = null;
using (reader = new StreamReader("data.txt")) ;
while ((inputLine = reader.ReadLine()) != null)
{
    Console.WriteLine(inputLine);
}

C. string inputLine;
StreamReader reader = new StreamReader("data.txt");
while ((inputLine = reader.ReadLine()) != null)
{
    Console.WriteLine(inputLine);
}

D. string inputLine;
StreamReader reader = null;
try
{
    reader = new StreamReader("data.txt");
    while ((inputLine = reader.ReadLine()) != null)
    {
        Console.WriteLine(inputLine);
    }
    reader.Close();
    reader.Dispose();
}
finally
{}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 76**

You need to create a method that can be called by using a varying number of parameters.  
What should you use?

- A. method overloading

- B. interface
- C. named parameters
- D. lambda expressions

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Member overloading means creating two or more members on the same type that differ only in the number or type of parameters but have the same name.

Overloading is one of the most important techniques for improving usability, productivity, and readability of reusable libraries. Overloading on the number of parameters makes it possible to provide simpler versions of constructors and methods. Overloading on the parameter type makes it possible to use the same member name for members performing identical operations on a selected set of different types.

### QUESTION 77

You are developing an application.

The application contains the following code segment (line numbers are included for reference only):

```
01 ArrayList array1 = new ArrayList();
02 int var1 = 10;
03 int var2;
04 array1.Add(var1);
05 var2 = array1[0];
```

When you run the code, you receive the following error message: "Cannot implicitly convert type 'object' to 'int'. An explicit conversion exists (are you missing a cast?)."

You need to ensure that the code can be compiled.

Which code should you use to replace line 05?

- A. var2 = ((List<int>) array1) [0];
- B. var2 = array1[0].Equals(typeof(int));
- C. var2 = Convert.ToInt32(array1[0]);
- D. var2 = ((int[])array1)[0];

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Make a list of integers of the array with = ( (List<int>)array) then select the first item in the list with [0].

### QUESTION 78

You have the following code (line numbers are included for reference only):

```
01 public class Program
02 {
03     private static System.Diagnostics.Stopwatch _execTimer =
04         new System.Diagnostics.Stopwatch();
05     public static void Delay(int delay)
06     {
07         Thread.Sleep(delay);
08     }
09     public static void LogLongExec(string msg)
10     {
11         if (_execTimer.Elapsed.Seconds >= 5)
12             throw new Exception(
13                 string.Format("Execution is too long > {0} > {1}",
14                 msg, _execTimer.Elapsed.TotalMilliseconds));
15     }
16     public static void Main()
17     {
18         _execTimer.Start();
19         try
20         {
21             Delay(10);
22             LogLongExec("Delay(10)");
23             Delay(5000);
24             LogLongExec("Delay(5000)");
25         }
26         catch (Exception ex)
27         {
28
29     }
30 }
31 }
```

You need to ensure that if an exception occurs, the exception will be logged.  
Which code should you insert at line 28?

- A. 

```
System.Diagnostics.TraceSource trace = new TraceSource("./Trace.log");
trace.TraceEvent(TraceEventType.Error, ex.HResult, ex.Message);
```
- B. 

```
using (System.Diagnostics.XmlWriterTraceListener log1 =
    new XmlWriterTraceListener("./Error.log"))
{
    log1.TraceEvent(
        new TraceEventCache(), ex.Message, TraceEventType.Error, ex.HResult);
    log1.Flush();
}
```
- C. 

```
System.Diagnostics.EventInstance errorEvent =
    new System.Diagnostics.EventInstance(ex.HResult, 1, EventLogEntryType.Error);
System.Diagnostics.EventLog.WriteEvent("MyAppErrors", errorEvent, ex.Message);
```
- D. 

```
EventLog logEntry = new EventLog();
logEntry.Source = "Application";
logEntry.WriteEntry(ex.Message, EventLogEntryType.Error);
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

\* `XmlWriterTraceListener`

Directs tracing or debugging output as XML-encoded data to a `TextWriter` or to a `Stream`, such as a `FileStream`.

\* `TraceListener.TraceEvent` Method (`TraceEventCache`, `String`, `TraceEventType`, `Int32`)

Writes trace and event information to the listener specific output.

Syntax:

```
[ComVisibleAttribute(false)]
public virtual void TraceEvent(
    TraceEventCache eventCache,
    string source,
    TraceEventType eventType,
    int id
)
```

#### **QUESTION 79**

You write the following method (line numbers are included for reference only):

```

01 public static List<string> TestIfWebSite(string url)
02 {
03     const string pattern = @"http://(www\.)?([^\.]+\.)\.com";
04     List<string> result = new List<string>();
05
06     MatchCollection myMatches = Regex.Matches(url, pattern);
07 ...
08     return result;
09 }

```

You need to ensure that the method extracts a list of URLs that match the following pattern: @http://(www  
\\.)?([^\.]+\.)\\.com;

Which code should you insert at line 07?

- A. 

```
result = (List<string>) myMatches.SyncRoot;
```
- B. 

```
result = (from System.Text.RegularExpressions.Match m in myMatches
            where m.Value.Contains(pattern)
            select m.Value).ToList<string>();
```
- C. 

```
foreach (Match currentMatch in myMatches)
        result.Add(currentMatch.Groups.ToString());
```
- D. 

```
foreach (Match currentMatch in myMatches)
        result.Add(currentMatch.Value);
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

\* MatchCollection

Represents the set of successful matches found by iteratively applying a regular expression pattern to the input string.

The collection is immutable (read-only) and has no public constructor. The Regex.Matches method returns a MatchCollection object.

\* List<T>.Add Method

Adds an object to the end of the List<T>.

Incorrect:

Not A: ICollection.SyncRoot Property

For collections whose underlying store is not publicly available, the expected implementation is to return the current instance. Note that the pointer to the current instance might not be sufficient for collections that wrap other collections; those should return the underlying collection's SyncRoot property.

### QUESTION 80

You are creating a class library that will be used in a web application.

You need to ensure that the class library assembly is strongly named.

What should you do?

- A. Use the gacutil.exe command-line tool.

- B. Use the xsd.exe command-line tool.
- C. Use the aspnet\_regiis.exe command-line tool.
- D. Use assembly attributes.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

The Windows Software Development Kit (SDK) provides several ways to sign an assembly with a strong name:

- \* Using the Assembly Linker (Al.exe) provided by the Windows SDK.
- \* Using assembly attributes to insert the strong name information in your code. You can use either the AssemblyKeyFileAttribute or the AssemblyKeyNameAttribute, depending on where the key file to be used is located.
- \* Using compiler options such /keyfile or /delaysign in C# and Visual Basic, or the /KEYFILE or /DELAYSIGN linker option in C++. (For information on delay signing, see Delay Signing an Assembly.)

**Note:**

\* A strong name consists of the assembly's identity—its simple text name, version number, and culture information (if provided)—plus a public key and a digital signature. It is generated from an assembly file (the file that contains the assembly manifest, which in turn contains the names and hashes of all the files that make up the assembly), using the corresponding private key. Microsoft® Visual Studio® .NET and other development tools provided in the .NET Framework SDK can assign strong names to an assembly. Assemblies with the same strong name are expected to be identical.

**QUESTION 81**

You need to store the values in a collection. The solution must meet the following requirements:

- The values must be stored in the order that they were added to the collection.
- The values must be accessed in a first-in, first-out order.

Which type of collection should you use?

- A. SortedList
- B. Queue
- C. ArrayList
- D. Hashtable

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 82**

An application is throwing unhandled NullReferenceException and FormatException errors. The stack trace shows that the exceptions occur in the GetWebResult() method.

The application includes the following code to parse XML data retrieved from a web service. (Line numbers are included for reference only.)

```
01 int GetWebResult(XElement result)
02 {
03     return int.Parse(result.Element("response").Value);
04 }
```

You need to handle the exceptions without interfering with the existing error-handling infrastructure. Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Replace line 03 with the following code segment:

```
int returnValue;
int.TryParse(result.Element("response").Value, out returnValue);
return returnValue;
```

- B. Replace line 03 with the following code segment:

```
return int.ParseOptions.Safe(result.Element("response").Value);
```

- C. Register an event handler with AppDomain.CurrentDomain.UnhandledException.

- D. Use a **try...catch** statement to handle the exceptions in the **GetWebResult()** method.

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** AC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

A: The TryParse method is like the Parse method, except the TryParse method does not throw an exception if the conversion fails. It eliminates the need to use exception handling to test for a FormatException in the event that s is invalid and cannot be successfully parsed.

C: UnhandledException event handler

If the UnhandledException event is handled in the default application domain, it is raised there for any unhandled exception in any thread, no matter what application domain the thread started in. If the thread started in an application domain that has an event handler for UnhandledException, the event is raised in that application domain.

**QUESTION 83**

You are developing an application that retrieves patient data from a web service. The application stores the JSON messages returned from the web service in a string variable named PatientAsJson. The variable is encoded as UTF-8. The application includes a class named Patient that is defined by the following code:

```
public class Patient
{
    public bool IsActive { get; set; }
    public string Name { get; set; }
    public int Id { get; set; }
}
```

You need to populate the Patient class with the data returned from the web service.  
Which code segment should you use?

```

A. DataContractJsonSerializer jsSerializer = new DataContractJsonSerializer(typeof(Patient));
    using (MemoryStream stream = new MemoryStream(Encoding.UTF8.GetBytes(PatientAsJson)))
    {
        Patient patientFromJson = (Patient)jsSerializer.ReadObject(stream);
    }

B. XmlSerializer xmlSerializer = new XmlSerializer(typeof(Patient));
    using (MemoryStream stream = new MemoryStream(Encoding.UTF8.GetBytes(PatientAsJson)))
    {
        Patient patientFromJson = (Patient)xmlSerializer.Deserialize(stream);
    }

C. DataContractJsonSerializer jsSerializer = new DataContractJsonSerializer(typeof(Patient));
    using (MemoryStream stream = new MemoryStream(Encoding.UTF8.GetBytes(PatientAsJson)))
    {
        Patient patientFromJson = new Patient();
        jsSerializer.WriteObject(stream, patientFromJson);
    }

D. IFormatter formatter = new BinaryFormatter();
    Stream stream = new FileStream(PatientAsJson, FileMode.Open, FileAccess.Read, FileShare.Read);
    Patient patientFromJson = (Patient)formatter.Deserialize(stream);
    stream.Close();

```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 84

You are developing a game that allows players to collect from 0 through 1000 coins. You are creating a method that will be used in the game. The method includes the following code. (Line numbers are included for reference only.)

```

01 public string FormatCoins(string name, int coins)
02 {
03
04 }
```

The method must meet the following requirements:

- Return a string that includes the player name and the number of coins.
- Display the number of coins without leading zeros if the number is 1 or greater.
- Display the number of coins as a single 0 if the number is 0.

You need to ensure that the method meets the requirements.

Which code segment should you insert at line 03?

- A. `return String.Format("Player {0}, collected {1} coins", name, coins.ToString("###0"))`
  - B. `return String.Format("Player {0} collected {1:000#} coins.", name, coins);`
  - C. `return String.Format("Player {name} collected {coins.ToString('000')} coins");`
  - D. `return String.Format("Player {1} collected {2:D3} coins.", name, coins);`
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 85**

You have an application that will send confidential information to a Web server. You need to ensure that the data is encrypted when it is sent across the network. Which class should you use?

- A. CryptoStream
- B. AuthenticatedStream
- C. PipeStream
- D. NegotiateStream

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 86**

You are developing a class named EmployeeRoster. The following code implements the EmployeeRoster class. (Line numbers are included for reference only.)

```
01 public class EmployeeRoster
02 {
03     private Dictionary<string, int> employees = new Dictionary<string, int>();
04     public void Add(string name, int salary)
05     {
06         employees.Add(name, salary);
07     }
08
09 }
```

You create the following unit test method to test the EmployeeRoster class implementation:

```
public void UnitTest1()
{
    EmployeeRoster employeeRoster = new EmployeeRoster();
    employeeRoster.Add("David Jones", 50000);
    employeeRoster.Add("Phyllis Harris", 75000);
    int expectedSalary = 75000;
    int actualSalary = employeeRoster["Phyllis Harris"];
    Assert.AreEqual(expectedSalary, actualSalary);
}
```

You need to ensure that the unit test will pass.  
What should you do?

- A. Insert the following code segment at line 08:

```
public Dictionary<string, int> Employees
{
    get
    {
        return employees;
    }
}
```

- B. Insert the following code segment at line 08:

```
public int this[string name]
{
    get
    {
        return employees[name];
    }
}
```

- C. Replace line 03 with the following code segment:

```
public Dictionary<string, int> Employees = new Dictionary<string, int>();
```

- D. Insert the following code segment at line 08:

```
public int salary(string name)
{
    return employees[name];
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 87**

You are developing an application that produces an executable named MyApp.exe and an assembly named MyApp.dll.

The application will be sold to several customers.

You need to ensure that enough debugging information is available for MyApp.exe, so that if the application throws an error in a customer's environment, you can debug the error in your own development environment.

What should you do?

- A. Digitally sign MyApp.dll.
- B. Produce program database (PDB) information when you compile the code.
- C. Compile MyApp.exe by using the /unsafe compiler option.
- D. Initializes a new instance of the AssemblyDelaySignAttribute class in the MyApp.dll constructor.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 88**

You are modifying an existing banking application.

The application includes an Account class and a Customer class. The following code segment defines the classes.

```
class Account
{
    public Account(decimal balance, int term, decimal rate)
    {
        Term = term;
        Balance = balance;
        Rate = rate;
    }
    public decimal Balance { get; set; }
    public decimal Rate { get; set; }
    public int Term { get; set; }
}

class Customer
{
    public Customer(string firstName, string lastName, Collection<Account> accounts)
    {
        FirstName = firstName;
        LastName = lastName;
        AccountCollection = accounts;
    }
    public string FirstName { get; set; }
    public string LastName { get; set; }
    public Collection<Account> AccountCollection { get; set; }
}
```

You populate a collection named customerCollection with Customer and Account objects by using the following code segment:

```
Collection<Customer> customerCollection = new Collection<Customer>();
Collection<Account> customerAccounts = new Collection<Account>();
customerAccounts.Add(new Account(1000m, 2, 0.025m));
customerAccounts.Add(new Account(3000m, 4, 0.045m));
customerAccounts.Add(new Account(5000m, 6, 0.045m));
customerCollection.Add(new Customer("David", "Jones", customerAccounts));
```

You create a largeCustomerAccounts collection to store the Account objects by using the following code segment:

```
Collection<Account> largeCustomerAccounts = new Collection<Account>();
```

All accounts with a Balance value greater than or equal to 1,000,000 must be tracked. You need to populate the largeCustomerAccounts collection with Account objects. Which code segment should you use?

- A. 

```
foreach (Customer customer in customerCollection)
{
    foreach (Account account in customer.AccountCollection)
    {
        if (account.Balance >= 1000000m)
        {
            customer.AccountCollection.Add(account);
        }
    }
}
```
- B. 

```
foreach (Account customer in customerCollection)
{
    foreach (Account account in largeCustomerAccounts)
    {
        if (account.Balance >= 1000000m)
        {
            largeCustomerAccounts.Add(account);
        }
    }
}
```
- C. 

```
foreach (Customer customer in customerCollection)
{
    foreach (Account account in customer.AccountCollection)
    {
        if (account.Balance >= 1000000m)
        {
            largeCustomerAccounts.Add(account);
        }
    }
}
```
- D. 

```
foreach (Account account in largeCustomerAccounts)
{
    foreach (Customer customer in customerCollection)
    {
        if (account.Balance >= 1000000m)
        {
            customer.AccountCollection.Add(account);
        }
    }
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 89**

You are implementing a method named GetValidEmailAddresses. The GetValidEmailAddresses() method processes a list of string values that represent email addresses.

The GetValidEmailAddresses() method must return only email addresses that are in a valid format.

You need to implement the GetValidEmailAddresses() method.

Which two code segments can you use to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- A. 

```
private static List<String> GetValidEmailAddresses(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    var validEmailAddresses = new List<String>();
    foreach(Match match in matches)
    {
        if(!match.Success)
        {
            validEmailAddresses.Add(match.Value);
        }
    }
    return validEmailAddresses;
}
```
- B. 

```
private static List<String> GetValidEmailAddresses(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    return (from Match match in matches where match.Success select match.Value).ToList();
}
```
- C. 

```
private static List<String> GetValidEmailAddresses(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    return (from Match match in matches where match.Success select match.Success.ToString());
}
```
- D. 

```
private static List<String> GetValidEmailAddresses(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    var validEmailAddresses = new List<String>();
    foreach(Match match in matches)
    {
        if(match.Success)
        {
            validEmailAddresses.Add(match.Value);
        }
    }
    return validEmailAddresses;
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Note:

\* `List<T>.Add` Method

Adds an object to the end of the `List<T>`.

**QUESTION 90**

You are creating an application that reads from a database.

You need to use different databases during the development phase and the testing phase by using conditional compilation techniques.

What should you do?

- A. Configure the assembly metadata to use the pre-existing public key for the assembly identity by using the `AssemblySignatureKeyAttribute` attribute.
- B. Disable the strong-name bypass feature of Microsoft .NET Framework in the registry.
- C. Configure the `Define DEBUG` constant setting in Microsoft Visual Studio.
- D. Decorate the code by using the `[assembly:AssemblyDelaySignAttribute(true)]` attribute.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Use one debug version to connect to the development database, and a standard version to connect to the live database.

**QUESTION 91**

You are troubleshooting an application that uses a class named `FullName`. The class is decorated with the `DataContractAttribute` attribute. The application includes the following code. (Line numbers are included for reference only.)

```
01 class Program
02 {
03     MemoryStream WriteName(Name name)
04     {
05         var ms = new MemoryStream();
06         var binary = XmlDictionaryWriter.CreateBinaryWriter(ms);
07         var ser = new DataContractSerializer(typeof(FullName));
08         ser.WriteObject(binary, name);
09
10         return ms;
11     }
12 }
```

You need to ensure that the entire `FullName` object is serialized to the memory stream object. Which code segment should you insert at line 09?

- A. `binary.WriteEndDocument();`
- B. `binary.WriteEndDocumentAsync();`
- C. `binary.WriteEndElementAsync();`
- D. `binary.Flush();`

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

\* `DataContractSerializer.WriteEndObject` Method (`XmlDictionaryWriter`)

Writes the closing XML element using an `XmlDictionaryWriter`.

\* Note on line 07: `DataContractSerializer.WriteObject` Method

Writes all the object data (starting XML element, content, and closing element) to an XML document or stream.

## XmlDictionaryWriter

### QUESTION 92

You need to write a method that retrieves data from a Microsoft Access 2013 database. The method must meet the following requirements:

- Be read-only.
- Be able to use the data before the entire data set is retrieved.
- Minimize the amount of system overhead and the amount of memory usage.

Which type of object should you use in the method?

- A. DbDataReader
- B. DataContext
- C. unTyped DataSet
- D. DbDataAdapter

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

DbDataReader Class

Reads a forward-only stream of rows from a data source.

### QUESTION 93

You are creating a console application named App1.

App1 will validate user input for order entries.

You are developing the following code segment (line numbers are included for reference only):

```
01 Console.WriteLine("Enter unit price: ");
02 string price = Console.ReadLine();
03
04     Console.WriteLine("Valid price");
05 else
06     Console.WriteLine("Invalid price")
```

You need to complete the code segment. The solution must ensure that prices are positive and have two decimal places. Which code should you insert at line 03?

- A. `if (!Regex.IsMatch(price, @"^(-)?\d+(\.\d\d)?$"))`
  - B. `if (Regex.IsMatch(price, @"^(-)?\d+(\.\d\d)?$"))`
  - C. `Regex reg = new Regex(@"^(-)?\d+(\.\d\d)?$");
 if (reg.IsMatch(price))`
  - D. `Regex reg = new Regex(@"^(-)?\d+(\.\d\d)?$");
 if (reg.IsMatch(price))`
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

\* Regex.IsMatch Method (String, String)

Indicates whether the specified regular expression finds a match in the specified input string.

Syntax:

```
public static bool IsMatch(  
    string input,  
    string pattern  
)
```

**QUESTION 94**

You have the following code (line numbers are included for reference only):

```
01 public class Program  
02 {  
03     private static System.Diagnostics.Stopwatch _execTimer =  
04         new System.Diagnostics.Stopwatch();  
05     public static void Delay(int delay)  
06     {  
07         Thread.Sleep(delay);  
08     }  
09     public static void LogLongExec(string msg)  
10     {  
11         if (_execTimer.Elapsed.Seconds >= 5)  
12             throw new Exception(  
13                 string.Format("Execution is too long > {0} > {1}",  
14                 msg, _execTimer.Elapsed.TotalMilliseconds));  
15     }  
16     public static void Main()  
17     {  
18         _execTimer.Start();  
19         try  
20         {  
21             Delay(10);  
22             LogLongExec("Delay(10)");  
23             Delay(5000);  
24             LogLongExec("Delay(5000)");  
25         }  
26         catch (Exception ex)  
27         {  
28             //  
29         }  
30     }  
31 }
```

You need to ensure that if an exception occurs, the exception will be logged.  
Which code should you insert at line 28?

```

A. #if ERROR
    System.Diagnostics.Trace.TraceError(ex.Message, "ApplicationLog");
#endif

B. System.Diagnostics.XmlWriterTraceListener listener =
    new XmlWriterTraceListener("./Error.log");
    listener.WriteLine(ex.Message);
    listener.Flush();
    listener.Close();

C. using (System.Diagnostics.XmlWriterTraceListener log1 =
    new XmlWriterTraceListener("./Error.log"))
{
    log1.TraceEvent(
        new TraceEventCache(), ex.Message, TraceEventType.Error, ex.HResult);
    log1.Flush();
}

D. System.Diagnostics.TraceSource trace = new TraceSource("./Trace.log");
    trace.TraceEvent(TraceEventType.Error, ex.HResult, ex.Message);

```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

\* `XmlWriterTraceListener`

Directs tracing or debugging output as XML-encoded data to a `TextWriter` or to a `Stream`, such as a `FileStream`.

\* `TraceListener.TraceEvent` Method (`TraceEventCache`, `String`, `TraceEventType`, `Int32`)

Writes trace and event information to the listener specific output.

Syntax:

```
[ComVisibleAttribute(false)]
public virtual void TraceEvent(
    TraceEventCache eventCache,
    string source,
    TraceEventType eventType,
    int id
)
```

#### **QUESTION 95**

You are creating a console application named `Appl`.

`Appl` retrieves data from the Internet by using JavaScript Object Notation (JSON).

You are developing the following code segment (line numbers are included for reference only):

```
01 public bool ValidateJson(string json, Dictionary<string, object> result)
02 {
03
04     try
05     {
06         result = serializer.Deserialize<Dictionary<string, object>>(json);
07         return true;
08     }
09     catch
10     {
11         return false;
12     }
13 }
```

You need to ensure that the code validates the JSON string. Which code should you insert at line 03?

- A. `DataContractSerializer serializer = new DataContractSerializer();`
  - B. `var serializer = new NetDataContractSerializer();`
  - C. `NetDataContractSerializer serializer = new NetDataContractSerializer();`
  - D. `JavaScriptSerializer serializer = new JavaScriptSerializer();`
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

The `JavaScriptSerializer` Class Provides serialization and deserialization functionality for AJAX-enabled applications.

The `JavaScriptSerializer` class is used internally by the asynchronous communication layer to serialize and deserialize the data that is passed between the browser and the Web server. You cannot access that instance of the serializer. However, this class exposes a public API. Therefore, you can use the class when you want to work with JavaScript Object Notation (JSON) in managed code.

**QUESTION 96**

You are evaluating a method that calculates loan interest- The application includes the following code segment. (Line numbers are included for reference only.)

```

01 private static decimal CalculateInterest(decimal loanAmount, int loanTerm)
02 {
03     decimal interestAmount;
04     decimal loanRate;
05     if (loanTerm > 0 && loanTerm < 5 && loanAmount < 5000m)
06     {
07         loanRate = 0.045m;
08     }
09     else if (loanTerm > 5 && loanAmount > 5000m)
10     {
11         loanRate = 0.085m;
12     }
13     else
14     {
15         loanRate = 0.055m;
16     }
17     interestAmount = loanAmount * loanRate * loanTerm;
18     return interestAmount;
19 }

```

When the loanTerm value is 3 and the loanAmount value is 9750, the loanRate must be set to 8.25 percent. You need to adjust the loanRate value to meet the requirements.

What should you do?

- A. Replace line 04 with the following code segment:  
decimal loanRate = 0.0325m;
- B. Replace line 17 with the following code segment:  
interestAmount = loanAmount \* 0.0825m \* loanTerm;
- C. Replace line 15 with the following code segment:  
loanRate = 0.0825m;
- D. Replace line 07 with the following code segment:  
loanRate = 0.0825m;

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 97

You are implementing a new method named ProcessData. The ProcessData() method calls a third-party component that performs a long-running operation.

The third-party component uses the IAsyncResult pattern to signal completion of the long-running operation.

You need to ensure that the calling code handles the long-running operation as a System.Threading.Tasks.Task object.

Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Call the component by using the TaskFactory.FromAsync() method.
- B. Create a TaskCompletionSource<T> object.
- C. Apply the async modifier to the method signature.
- D. Apply the following attribute to the method signature: [MethodImpl(MethodImplOptions.Synchronized)]

**Correct Answer:** AB

**Section:** (none)

**Explanation**

**Explanation/Reference:**

A: TaskFactory.FromAsync Method

Creates a Task that represents a pair of begin and end methods that conform to the Asynchronous

Programming Model pattern. Overloaded.

Example:

TaskFactory.FromAsync Method (IAsyncResult, Action<IAsyncResult>)

Creates a Task that executes an end method action when a specified IAsyncResult completes.

B: In many scenarios, it is useful to enable a Task<TResult> to represent an external asynchronous operation. TaskCompletionSource<TResult> is provided for this purpose. It enables the creation of a task that can be handed out to consumers, and those consumers can use the members of the task as they would any other. However, unlike most tasks, the state of a task created by a TaskCompletionSource is controlled explicitly by the methods on TaskCompletionSource. This enables the completion of the external asynchronous operation to be propagated to the underlying Task. The separation also ensures that consumers are not able to transition the state without access to the corresponding TaskCompletionSource.

Note:

\* System.Threading.Tasks.Task

Represents an asynchronous operation.

### QUESTION 98

You are developing an application for a bank. The application includes a method named ProcessLoan that processes loan applications. The ProcessLoan() method uses a method named CalculateInterest. The application includes the following code:

You need to declare a delegate to support the ProcessLoan() method.

Which code segment should you use?

- A. `public delegate decimal LoanProcessor(decimal loanAmount, decimal loanRate, int term);`
  - B. `public delegate int LoanProcessor(decimal loanAmount, decimal loanRate, int term);`
  - C. `public delegate decimal CalculateLoanInterest(decimal loanAmount, decimal loanRate, int term);`
  - D. `public delegate decimal ProcessLoan();`
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

### QUESTION 99

You are modifying an application that processes loans. The following code defines the Loan class. (Line numbers are included for reference only.)

```
01 public class Loan
02 {
03
04     private int _term;
05     private const int MaximumTerm = 10;
06     private const decimal Rate = 0.034m;
07     public int Term
08     {
09         get
10        {
11            return _term;
12        }
13        set
14        {
15            if (value <= MaximumTerm)
16            {
17                _term = value;
18            }
19            else
20            {
21
22            }
23        }
24    }
25 }
26 public delegate void MaximumTermReachedHandler(object source, EventArgs e);
```

Loans are restricted to a maximum term of 10 years. The application must send a notification message if a loan request exceeds 10 years.

You need to implement the notification mechanism.

Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

A. Insert the following code segment at line 03:

```
public string MaximumTermReachedEvent { get; set; }
```

B. Insert the following code segment at line 21:

```
if (OnMaximumTermReached != null)
{
    OnMaximumTermReached(this, new EventArgs());
}
```

C. Insert the following code segment at line 03:

```
private string MaximumTermReachedEvent;
```

D. Insert the following code segment at line 03:

```
public event MaximumTermReachedHandler OnMaximumTermReached;
```

E. Insert the following code segment at line 21:

```
value = MaximumTerm;
```

F. Insert the following code segment at line 21:

```
value = 9;
```

A. Option A

B. Option B

C. Option C

D. Option D

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 100**

An application contains code that measures reaction times. The code runs the timer on a thread separate from the user interface. The application includes the following code. (Line numbers are included for reference only.)

```

01 static int RunTimer(CancellationToken cancellationToken)
02 {
03     var time = 0;
04     while (!cancellationToken.IsCancellationRequested)
05         time++;
06     return time;
07 }
08 static void Main(string[] args)
09 {
10     var tokenSource = new CancellationTokenSource();
11     var task = Task.Factory.StartNew<int>(() => RunTimer(tokenSource.Token));
12     Console.WriteLine("Press [Enter] to stop the timer.");
13     Console.ReadLine();
14
15     Console.WriteLine("Timer stopped at {0}", task.GetAwaiter().GetResult());
16     Console.ReadLine();
17 }

```

You need to ensure that the application cancels the timer when the user presses the Enter key. Which code segment should you insert at line 14?

- A. tokenSource.Token.Register( () => tokenSource.Cancel() );
- B. tokenSource.Cancel();
- C. tokenSource.IsCancellationRequested = true;
- D. tokenSource.Dispose();

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 101

You are developing an application that generates code. The application includes the following code segment. (Line numbers are included for reference only.)

```

01 public string GenerateCode(string className, string methodName)
02 {
03     ...
04     var ct = new CodeTypeDeclaration(className);
05
06     ...
07 }

```

You need to ensure that code generated by the GenerateCode() method represents a class that can be accessed by all objects in its application domain.

Which two code segments can you insert at line 05 to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- A. ct.Attributes = MemberAttributes.Public;
- B. ct.IsStruct = true;  
ct.Attributes = MemberAttributes.Public;
- C. ct.IsClass = true;  
ct.Attributes = MemberAttributes.Public;
- D. ct.IsClass = true;  
ct.Attributes = MemberAttributes.Private;

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** AC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### **QUESTION 102**

You are developing an application that will process personnel records.

The application must encrypt highly sensitive data.

You need to ensure that the application uses the strongest available encryption.

Which class should you use?

- A. System.Security.Cryptography.DES
- B. System.Security.Cryptography.Aes
- C. System.Security.Cryptography.TripleDES
- D. System.Security.Cryptography.RC2

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### **QUESTION 103**

You are developing an application that includes a class named Employee and a generic list of employees.

The following code segment declares the list of employees:

```
List<Employee> employeesList = new List<Employee>();
```

You populate the employeesList object with several hundred Employee objects.

The application must display the data for five Employee objects at a time.

You need to create a method that will return the correct number of Employee objects.

Which code segment should you use?

- A. 

```
public static IEnumerable<int> Page(IEnumerable<int> source, int page, int pageSize)
    {
        return source.Take((pageSize - 1) * page).Skip(pageSize);
    }
```
- B. 

```
public static IEnumerable<TSource> Page<TSource>(this IEnumerable<TSource> source, int page, int pageSize)
    {
        return source.Skip((page - 1) * pageSize).Take(pageSize);
    }
```
- C. 

```
public static IEnumerable<int> Page(IEnumerable<int> source, int page, int pageSize)
    {
        return source.Skip((pageSize - 1) * page).Take(pageSize);
    }
```
- D. 

```
public static IEnumerable<TSource> Page<TSource>(this IEnumerable<TSource> source, int page, int pageSize)
    {
        return source.Take((page - 1) * pageSize).Skip(pageSize);
    }
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 104

You are developing an application that uses multiple asynchronous tasks to optimize performance. You need to retrieve the result of an asynchronous task.

Which code segment should you use?

- A. 

```
protected async void StartTask()
{
    string result = await GetData();
    ...
}
public Task<string> GetData()
{
    ...
}
```
- B. 

```
protected async void StartTask()
{
    string result = GetData();
    ...
}
public Task<string> GetData()
{
    ...
}
```
- C. 

```
protected async void StartTask()
{
    string result = await GetData();
    ...
}
public async Task<string> GetData()
{
    ...
}
```
- D. 

```
protected async void StartTask()
{
    string result = async GetData();
    ...
}
public await Task<string> GetData()
{
    ...
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 105**

You are developing an application.

The application contains the following code:

```
class Program
{
    static void ProcessOrders (string orderRefNumber)
    {
        if (orderRefNumber == null)
        {
            throw new ArgumentNullException();
        }
        ...
    }

    static void Main()
    {
        try
        {
            string orderRefNumber = null;
            ProcessOrders(orderRefNumber);
        }
        catch (ArgumentNullException e)
        {
            Console.WriteLine("{0} An exception caught.", e);
        }

        catch (Exception e)
        {
            Console.WriteLine("{0} An exception caught.", e);
        }
    }
}
```

When you compile the code, you receive the following syntax error message: "A previous catch clause already catches all exceptions of this or a super type ('System.Exception')."

You need to ensure that the code can be compiled. What should you do?

- A. Catch the ArgumentException exception instead of the ArgumentNullException exception.
- B. Throw a new exception in the second catch block.
- C. Catch the ArgumentNullException exception first.
- D. Re-throw the exception caught by the second catch block.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 106**

You are developing an application that includes a method named SendMessage.

You need to ensure that the SendMessage() method is called with the required parameters.

Which two code segments can you use to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- A. 

```
static void Main(string[] args)
{
    dynamic message = new { From = "Jon Morris", To = "Mary North", Content = "Hello World" };
    SendMessage(message);
}

private static void SendMessage(Object msg)
{
    Console.WriteLine(msg.From);
    Console.WriteLine(msg.To);
    Console.WriteLine(msg.Content);
}
```
- B. 

```
static void Main(string[] args)
{
    var message = new Object();
    message.From = "Jon Morris";
    message.To = "Mary North";
    message.Content = "Hello World";
    SendMessage(message);
}

private static void SendMessage(dynamic msg)
{
    Console.WriteLine(msg.From);
    Console.WriteLine(msg.To);
    Console.WriteLine(msg.Content);
}
```
- C. 

```
static void Main(string[] args)
{
    var message = new { From = "Jon Morris", To = "Mary North", Content = "Hello World" };
    SendMessage(message);
}

private static void SendMessage(dynamic msg)
{
    Console.WriteLine(msg.From);
    Console.WriteLine(msg.To);
    Console.WriteLine(msg.Content);
}
```
- D. 

```
static void Main(string[] args)
{
    dynamic message = new ExpandoObject();
    message.From = "Jon Morris";
    message.To = "Mary North";
    message.Content = "Hello World";
    SendMessage(message);
}

private static void SendMessage(dynamic msg)
{
    Console.WriteLine(msg.From);
    Console.WriteLine(msg.To);
    Console.WriteLine(msg.Content);
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** CD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

D: ExpandoObject

Represents an object whose members can be dynamically added and removed at run time.

/ The ExpandoObject class enables you to add and delete members of its instances at run time and also to set and get values of these members. This class supports dynamic binding, which enables you to use standard syntax like sampleObject.sampleMember instead of more complex syntax like sampleObject.GetAttribute("sampleMember").

/ You can pass instances of the ExpandoObject class as parameters. Note that these instances are treated as dynamic objects in C# and late-bound objects in Visual Basic. This means that you do not have IntelliSense for object members and you do not receive compiler errors when you call non-existent members. If you call a member that does not exist, an exception occurs.

**Note:**

\* Visual C# 2010 introduces a new type, dynamic. The type is a static type, but an object of type dynamic bypasses static type checking. In most cases, it functions like it has type object. At compile time, an element that is typed as dynamic is assumed to support any operation. Therefore, you do not have to be concerned about whether the object gets its value from a COM API, from a dynamic language such as IronPython, from the HTML Document Object Model (DOM), from reflection, or from somewhere else in the program. However, if the code is not valid, errors are caught at run time.

### QUESTION 107

You have an application that accesses a Web server named Server1.

You need to download an image named Image1.jpg from Server1 and store the image locally as File1.jpg.

Which code should you use?

- A. 

```
WebRequest request = HttpWebRequest.Create("http://server1/image1.jpg");
StreamWriter writer = new StreamWriter(request.GetResponse().GetResponseStream());
writer.WriteLine("C:\\\\file1.jpg");
writer.Dispose();
```
- B. 

```
WebClient client = new WebClient();
StreamWriter writer = new StreamWriter("C:\\\\file1.jpg");
writer.Write(client.DownloadData("http://server1/image1.jpg"));
writer.Dispose();
client.Dispose();
```
- C. 

```
WebClient client = new WebClient();
client.DownloadFile("http://server1/image1.jpg", "C:\\\\file1.jpg");
client.Dispose();
```
- D. 

```
WebRequest request = HttpWebRequest.Create("http://server1/image1.jpg");
StreamWriter writer = new StreamWriter(request.GetResponse().GetResponseStream());
writer.Write("C:\\\\file1.jpg");
writer.Dispose();
```
- A. Option A
- B. Option B
- C. Option C

D. Option D

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

### QUESTION 108

You are developing a C# application. The application references and calls a RESTful web service named EmployeeService. The EmployeeService web service includes a method named GetEmployee, which accepts an employee ID as a parameter. The web service returns the following JSON data from the method.

{"Id":1,"Name":"David Jones"}

The following code segment invokes the service and stores the result:

```
WebClient client = new WebClient();
byte[] employeeData = client.DownloadData("http://localhost:2588/EmployeeService.svc/GetEmployee/1");
```

You need to convert the returned JSON data to an Employee object for use in the application.

Which code segment should you use?

- A. 

```
using (Stream stream = new MemoryStream(employeeData))
{
    XmlSerializer xmlSerializer = new XmlSerializer(typeof(Employee));
    Employee retrievedEmployee = xmlSerializer.Deserialize(stream) as Employee;
    ...
}
```
  - B. 

```
using (Stream stream = new MemoryStream(employeeData))
{
    DataContractSerializer dataContractSerializer = new DataContractSerializer(typeof(Employee));
    Employee retrievedEmployee = dataContractSerializer.ReadObject(stream) as Employee;
    ...
}
```
  - C. 

```
using (Stream stream = new MemoryStream(employeeData))
{
    DataContractJsonSerializer dataContractJsonSerializer = new DataContractJsonSerializer(typeof(Employee));
    Employee retrievedEmployee = dataContractJsonSerializer.ReadObject(stream) as Employee;
    ...
}
```
  - D. 

```
using (Stream stream = new MemoryStream(employeeData))
{
    NetDataContractSerializer netDataContractSerializer = new NetDataContractSerializer();
    Employee retrievedEmployee = netDataContractSerializer.ReadObject(stream) as Employee;
    ...
}
```
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

**Correct Answer: C**

**Section: (none)**

**Explanation****Explanation/Reference:****QUESTION 109**

You are developing an assembly.

You plan to sign the assembly when the assembly is developed.

You need to reserve space in the assembly for the signature.

What should you do?

- A. Run the Assembly Linker tool from the Windows Software Development Kit (Windows SDK).
- B. Run the Strong Name tool from the Windows Software Development Kit (Windows SDK).
- C. Add the AssemblySignatureKeyAttribute attribute to the assembly.
- D. Add the AssemblyDelaySignAttribute attribute to the assembly.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:****QUESTION 110**

You have the following code (line numbers are included for reference only):

```
01 public class Program
02 {
03     private static System.Diagnostics.Stopwatch _execTimer =
04         new System.Diagnostics.Stopwatch();
05     public static void Delay(int delay)
06     {
07         Thread.Sleep(delay);
08     }
09     public static void LogLongExec(string msg)
10     {
11         if (_execTimer.Elapsed.Seconds >= 5)
12             throw new Exception(
13                 string.Format("Execution is too long > {0} > {1}",
14                 msg, _execTimer.Elapsed.TotalMilliseconds));
15     }
16     public static void Main()
17     {
18         _execTimer.Start();
19         try
20         {
21             Delay(10);
22             LogLongExec("Delay(10)");
23             Delay(5000);
24             LogLongExec("Delay(5000)");
25         }
26         catch (Exception ex)
27         {
28
29     }
30 }
31 }
```

You need to ensure that if an exception occurs, the exception will be logged.

Which code should you insert at line 28?

- A. 

```
System.Diagnostics.XmlWriterTraceListener listener =
    new XmlWriterTraceListener("./Error.log");
listener.WriteLine(ex.Message);
listener.Flush();
listener.Close();
```
  
- B. 

```
System.Diagnostics.XmlWriterTraceListener loggingListener =
    new XmlWriterTraceListener("./Trace.log");
loggingListener.Flush();
loggingListener.Close();
```
  
- C. 

```
System.Diagnostics.Trace.WriteLine(ex.Message, "Error.log");
```
  
- D. 

```
System.Diagnostics.TraceSource trace = new TraceSource("./Trace.log");
trace.TraceEvent(TraceEventType.Error, ex.HResult, ex.Message);
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

\* `XmlWriterTraceListener`

Directs tracing or debugging output as XML-encoded data to a `TextWriter` or to a Stream, such as a `FileStream`.

### QUESTION 111

You are troubleshooting an application that uses a class named `FullName`. The class is decorated with the `DataContractAttribute` attribute. The application includes the following code. (Line numbers are included for reference only.)

```
01 class Program
02 {
03     MemoryStream WriteName(Name name)
04     {
05         var ms = new MemoryStream();
06         var binary = XmlDictionaryWriter.CreateBinaryWriter(ms);
07         var ser = new DataContractSerializer(typeof(FullName));
08         ser.WriteObject(binary, name);
09
10         return ms;
11     }
12 }
```

You need to ensure that the entire `FullName` object is serialized to the memory stream object. Which code segment should you insert at line 09?

- A. `binary.WriteEndElement();`
- B. `binary.NriteEndDocument();`
- C. `ms.Close();`
- D. `binary.Flush();`

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

\* `DataContractSerializer.WriteEndObject` Method (`XmlDictionaryWriter`)

Writes the closing XML element using an `XmlDictionaryWriter`.

\* Note on line 07: `DataContractSerializer.WriteObject` Method

Writes all the object data (starting XML element, content, and closing element) to an XML document or stream.

`XmlDictionaryWriter`

## QUESTION 112

You write the following method (line numbers are included for reference only):

```
01 public static List<string> TestIfWebSite(string url)
02 {
03     const string pattern = @"http://(www\.)?([^\.]+\.)\.com";
04     List<string> result = new List<string>();
05
06     MatchCollection myMatches = Regex.Matches(url, pattern);
07     ...
08     return result;
09 }
```

You need to ensure that the method extracts a list of URLs that match the following pattern: @`http://(www\\.)?([^\.]+)\\.com`;

Which code should you insert at line 07?

- A. `foreach (Match currentMatch in myMatches)  
 result.Add(currentMatch.Groups.ToString());`
  - B. `result = (List<string>) myMatches.GetEnumerator();`
  - C. `foreach (Match currentMatch in myMatches)  
 result.Add(currentMatch.Value);`
  - D. `result = (List<string>) myMatches.SyncRoot;`
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

\* `MatchCollection`

Represents the set of successful matches found by iteratively applying a regular expression pattern to the input string.

The collection is immutable (read-only) and has no public constructor. The `Regex.Matches` method returns a `MatchCollection` object.

\* `List<T>.Add` Method

Adds an object to the end of the List<T>.

Incorrect:

Not D: ICollection.SyncRoot Property

For collections whose underlying store is not publicly available, the expected implementation is to return the current instance. Note that the pointer to the current instance might not be sufficient for collections that wrap other collections; those should return the underlying collection's SyncRoot property.

### QUESTION 113

You have the following code:

```
List<Int32> items = new List<int>() {  
    100,  
    95,  
    80,  
    75,  
    95  
};
```

You need to retrieve all of the numbers from the items variable that are greater than 80.

Which code should you use?

A. var result = items.First(i => i > 80);

B. var result = items.Where(i => i > 80);

C. var result = from i in items  
 groupby i into grouped  
 where grouped.Key > 80  
 select i;

D. var result = items.Any(i => i > 80);

A. Option A

B. Option B

C. Option C

D. Option D

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Enumerable.Where<TSource> Method (IEnumerable<TSource>, Func<TSource, Boolean>)

Filters a sequence of values based on a predicate.

Example:

```
List<string> fruits =  
new List<string> { "apple", "passionfruit", "banana", "mango",  
"orange", "blueberry", "grape", "strawberry" };  
IEnumerable<string> query = fruits.Where(fruit => fruit.Length < 6);  
foreach (string fruit in query)  
{  
    Console.WriteLine(fruit);  
}  
/*
```

This code produces the following output:

```
apple  
mango  
grape
```

\*/

#### QUESTION 114

You are developing an application that uses several objects. The application includes the following code segment. (Line numbers are included for reference only.)

```
01 private bool IsNull(object obj)
02 {
03
04     return false;
05 }
```

You need to evaluate whether an object is null.

Which code segment should you insert at line 03?

A. `if (null = obj)`  
{  
 return true;  
}

B. `if (null == obj)`  
{  
 return true;  
}

C. `if (null)`  
{  
 return true;  
}

D. `if (!obj)`  
{  
 return true;  
}

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Use the `==` operator to compare values and in this case also use the `null` literal.

#### QUESTION 115

You are implementing a new method named `ProcessData`. The `ProcessData()` method calls a third-party component that performs a long-running operation to retrieve stock information from a web service.

The third-party component uses the `IAsyncResult` pattern to signal completion of the long-running operation so that the UI can be updated with the new values.

You need to ensure that the calling code handles the long-running operation as a `System.Threading.Tasks.Task` object to avoid blocking the UI thread.

Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Create a `TaskCompletionSource<T>` object.

- B. Call the component by using the TaskFactory.FromAsync() method.
- C. Apply the following attribute to the ProcessData() method signature: [MethodImpl(MethodImplOptions.Synchronized)]
- D. Apply the async modifier to the ProcessData() method signature.

**Correct Answer:** AB

**Section:** (none)

**Explanation**

**Explanation/Reference:**

A: In many scenarios, it is useful to enable a Task<TResult> to represent an external asynchronous operation. TaskCompletionSource<TResult> is provided for this purpose. It enables the creation of a task that can be handed out to consumers, and those consumers can use the members of the task as they would any other. However, unlike most tasks, the state of a task created by a TaskCompletionSource is controlled explicitly by the methods on TaskCompletionSource. This enables the completion of the external asynchronous operation to be propagated to the underlying Task. The separation also ensures that consumers are not able to transition the state without access to the corresponding TaskCompletionSource.

B: TaskFactory.FromAsync Method

Creates a Task that represents a pair of begin and end methods that conform to the Asynchronous Programming Model pattern. Overloaded.

Example:

TaskFactory.FromAsync Method (IAsyncResult, Action<IAsyncResult>)

Creates a Task that executes an end method action when a specified IAsyncResult completes.

Note:

\* System.Threading.Tasks.Task

Represents an asynchronous operation.

**QUESTION 116**

You are developing a class named Account that will be used by several applications.

The applications that will consume the Account class will make asynchronous calls to the Account class to execute several different methods.

You need to ensure that only one call to the methods is executed at a time.

Which keyword should you use?

- A. sealed
- B. protected
- C. checked
- D. lock

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 117**

You are developing an application by using C#. The application will write events to an event log. You plan to deploy the application to a server.

You create an event source named MySource and a custom log named MyLog on the server.

You need to write events to the custom log.

Which code segment should you use?

- A. 

```
public void WriteToEventLog(string message)
{
    EventLog eventLog = new EventLog() { Source = "Application" };
    eventLog.WriteEntry(message);
}
```
  - B. 

```
public void WriteToEventLog(string message)
{
    EventLog eventLog = new EventLog() { Source = "MyLog", EnableRaisingEvents = true };
    EventInstance eventInstance = new EventInstance(0, 1);
    eventLog.WriteEvent(eventInstance, message);
}
```
  - C. 

```
public void WriteToEventLog(string message, EventLogEntryType eventLogEntryType)
{
    EventLog eventLog = new EventLog() { Source = "MyLog" };
    eventLog.WriteEntry(message, eventLogEntryType);
}
```
  - D. 

```
public void WriteToEventLog(string message, EventLogEntryType eventLogEntryType)
{
    EventLog eventLog = new EventLog() { Source = "MySource", EnableRaisingEvents = true };
    eventLog.WriteEntry(message, eventLogEntryType);
}
```
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 118**

You plan to store passwords in a Windows Azure SQL Database database.

You need to ensure that the passwords are stored in the database by using a hash algorithm,

Which cryptographic algorithm should you use?

- A. ECDSA
- B. RSA-768
- C. AES-256
- D. SHA-256

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 119**

You are developing an application that includes methods named ConvertAmount and TransferFunds.

You need to ensure that the precision and range of the value in the amount variable is not lost when the

TransferFunds() method is called.  
Which code segment should you use?

- A. 

```
private static void ConvertAmount(float amount)
{
    TransferFunds(amount);
}
private static void TransferFunds(int funds)
{
    ...
    Console.WriteLine(funds);
}
```
- B. 

```
private static void ConvertAmount(float amount)
{
    TransferFunds((int) funds);
}
private static void TransferFunds(float funds)
{
    ...
}
```
- C. 

```
private static void ConvertAmount(float amount)
{
    TransferFunds(amount);
}
private static void TransferFunds(float funds)
{
    ...
}
```
- D. 

```
private static void ConvertAmount(float amount)
{
    TransferFunds(Double.Parse(amount));
}
private static void TransferFunds(double funds)
{
    ...
    Console.WriteLine(funds);
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** C

**Section:** (none)  
**Explanation**

**Explanation/Reference:**

Simply use float for the TransferFunds parameter.

**Note:**

- \* The float keyword signifies a simple type that stores 32-bit floating-point values.
- \* The double keyword signifies a simple type that stores 64-bit floating-point values

**QUESTION 120**

You need to write a console application that meets the following requirements:

- If the application is compiled in Debug mode, the console output must display Entering debug mode.
  - If the application is compiled in Release mode, the console output must display Entering release mode.
- Which code should you use?

A. `#if (TRACE)  
 Console.WriteLine("Entering debug mode");  
#else  
 Console.WriteLine("Entering release mode");  
#endif`

B. `#if (DEBUG)  
 Console.WriteLine("Entering debug mode");  
#else  
 Console.WriteLine("Entering release mode");  
#endif`

C. `if(System.Diagnostics.Debugger.IsAttached)  
 Console.WriteLine("Entering debug mode");  
else  
 Console.WriteLine("Entering release mode");`

D. `#region DEBUG  
 Console.WriteLine("Entering debug mode");  
#endregion  
#region RELEASE  
 Console.WriteLine("Entering release mode");  
#endregion`

- A. Option A  
B. Option B  
C. Option C  
D. Option D

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

When the C# compiler encounters an #if directive, followed eventually by an #endif directive, it will compile the code between the directives only if the specified symbol is defined. Unlike C and C++, you cannot assign a numeric value to a symbol; the #if statement in C# is Boolean and only tests whether the symbol has been defined or not. For example,

```
#define DEBUG  
// ...  
#if DEBUG  
Console.WriteLine("Debug version");  
#endif
```

**QUESTION 121**

You have the following class (line numbers are included for reference only):

```

01 public class Class1
02 {
03     private String value = String.Empty;
04     private ServiceProxy proxy = new ServiceProxy();
05
06     public String Value
07     {
08         get {return value;}
09     }
10     public void Modify(Object newValue)
11     {
12
13         value += proxy.Update(newValue.ToString());
14     }
15 }
16 public class Test
17 {
18     public void Execute()
19     {
20         Class1 class1 = new Class1();
21         (new ParameterizedThreadStart(class1.Modify)).Invoke(1);
22         (new ParameterizedThreadStart(class1.Modify)).Invoke(2);
23         (new ParameterizedThreadStart(class1.Modify)).Invoke(3);
24         Console.WriteLine(class1.Value);
25     }
26 }

```

ServiceProxy is a proxy for a web service. Calls to the Update method can take up to five seconds. The Test class is the only class that uses Class1.

You run the Execute method three times, and you receive the following results:

213  
312  
231

You need to ensure that each value is appended to the Value property in the order that the Modify methods are invoked.

What should you do?

- A. Insert the following at line 5:  
`Object obj1 = new Object();`

Insert the following at line 12:  
`Monitor.Enter(obj1);`

- B. Insert the following at line 5:  
`Object obj1 = new Object();`

Insert the following at line 12:  
`lock (obj1)`

- C. Insert the following at line 12:  
`Monitor.Enter(this);`

- D. Insert the following at line 12:  
`lock (value)`

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 122

You are developing a method named GetHash that will return a hash value for a file. The method includes the following code. (Line numbers are included for reference only.)

```
01 public byte[] GetHash(string filename, string algorithmType)
02 {
03     var hasher = HashAlgorithm.Create(algorithmType);
04     var fileBytes = System.IO.File.ReadAllBytes(filename);
05
06 }
```

You need to return the cryptographic hash of the bytes contained in the fileBytes variable. Which code segment should you insert at line 05?

- A. 

```
var outputBuffer = new byte[fileBytes.Length];
hasher.TransformBlock(fileBytes, 0, fileBytes.Length, outputBuffer, 0);
hasher.TransformFinalBlock(fileBytes, fileBytes.Length - 1, fileBytes.Length);
return outputBuffer;
```
  - B. 

```
hasher.ComputeHash(fileBytes);
return hasher.GetHashCode();
```
  - C. 

```
var outputBuffer = new byte[fileBytes.Length];
hasher.TransformBlock(fileBytes, 0, fileBytes.Length, outputBuffer, 0);
return outputBuffer;
```
  - D. 

```
hasher.ComputeHash(fileBytes);
return hasher.Hash;
```
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 123

You are developing an application that includes the following code segment:

```
interface IFile
{
    void Open();
}
interface IDbConnection
{
    void Open();
}
```

You need to implement the Open() method of each interface in a derived class named UseResources and call the Open() method of each interface.

Which two code segments should you use? (Each correct answer presents part of the solution. Choose two.)

- A. 

```
class UseResources : IFile, IDbConnection
{
    void IFile.Open()
    {
        ...
    }
    void IDbConnection.Open()
    {
        ...
    }
}
```
- B. 

```
var manager = new UseResources ();
manager.Open();
```
- C. 

```
var manager = new UseResources ();
((IFile)manager).Open();
((IDbConnection)manager).Open();
```
- D. 

```
class UseResources : IFile, IDbConnection
{
    public void IFile.Open()
    {
        ...
    }
    public void IDbConnection.Open()
    {
        ...
    }
}
```
- E. 

```
var manager = new UseResources ();
manager.Open(IFile);
manager.Open(IDbConnection);
```
- F. 

```
var manager = new UseResources ();
((IFile, IDbConnection)manager).Open();
```

- A. Option A
- B. Option B

- C. Option C
- D. Option D

**Correct Answer:** AC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

\* An interface contains only the signatures of methods, properties, events or indexers. A class or struct that implements the interface must implement the members of the interface that are specified in the interface definition.

\* Example:

```
interface ISampleInterface
{
    void SampleMethod();
}

class ImplementationClass : ISampleInterface
{
    // Explicit interface member implementation:
    void ISampleInterface.SampleMethod()
    {
        // Method implementation.
    }

    static void Main()
    {
        // Declare an interface instance.
        ISampleInterface obj = new ImplementationClass();
        // Call the member.
        obj.SampleMethod();
    }
}
```

#### **QUESTION 124**

You are implementing a method named ProcessData that performs a long-running task. The ProcessData() method has the following method signature:

```
public void ProcessData(List<decimal> values, CancellationTokenSource source, CancellationToken token)
```

If the calling code requests cancellation, the method must perform the following actions:

- Cancel the long-running task.
- Set the task status to TaskStatus.Canceled.

You need to ensure that the ProcessData() method performs the required actions.

Which code segment should you use in the method body?

- A. if (token.IsCancellationRequested)  
    return;
- B. throw new AggregateException();
- C. token.ThrowIfCancellationRequested();
- D. ThrowIfCancellationRequested();  
    D. source.Cancel();

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 125**

You are developing an application in C#.

The application uses exception handling on a method that is used to execute mathematical calculations by using integer numbers.

You write the following catch blocks for the method (line numbers are included for reference only):

```
01
02 catch(ArithmetricException e) {Console.WriteLine("Arithmetric error");}
03
04 catch(ArgumentException e) {Console.WriteLine("Bad Argument");}
05
06 catch(Exception e) {Console.WriteLine("General error");}
07
```

You need to add the following code to the method:

```
catch(DivideByZeroException e) {Console.WriteLine("Divide by zero");}
```

At which line should you insert the code?

- A. 01
- B. 03
- C. 05
- D. 07

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 126**

You are developing an application that uses multiple asynchronous tasks to optimize performance. The application will be deployed in a distributed environment.

You need to retrieve the result of an asynchronous task that retrieves data from a web service. The data will later be parsed by a separate task.

Which code segment should you use?

```

A. protected async void StartTask()
{
    string result = await GetData();
    ...
}
public Task<string> GetData()
{
    ...
}

B. protected async void StartTask()
{
    string result = await GetData();
    ...
}
public async Task<string> GetData()
{
    ...
}

C. protected async void StartTask()
{
    string result = GetData();
    ...
}
public Task<string> GetData()
{
    ...
}

D. protected async void StartTask()
{
    string result = async GetData();
    ...
}
public await Task<string> GetData()
{
    ...
}

```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 127

You are implementing a method named GetValidPhoneNumbers. The GetValidPhoneNumbers() method processes a list of string values that represent phone numbers.

The GetValidPhoneNumbers() method must return only phone numbers that are in a valid format.

You need to implement the GetValidPhoneNumbers() method.

Which two code segments can you use to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

```

A. private static List<String> GetValidPhoneNumbers(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    var validPhoneNumbers = new List<String>();
    foreach(Match match in matches)
    {
        if(match.Success)
        {
            validPhoneNumbers.Add(match.Value);
        }
    }
    return validPhoneNumbers;
}

B. private static List<String> GetValidPhoneNumbers(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    return (from Match match in matches where match.Success select match.Value).ToList();
}

C. private static List<String> GetValidPhoneNumbers(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    return (from Match match in matches where match.Success select match.Success.ToString());
}

D. private static List<String> GetValidPhoneNumbers(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    var validPhoneNumbers = new List<String>();
    foreach(Match match in matches)
    {
        if(!match.Success)
        {
            validPhoneNumbers.Add(match.Value);
        }
    }
    return validPhoneNumbers;
}

```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer:** AB

**Section:** (none)

**Explanation**

**Explanation/Reference:**

\* `Regex.Matches`

Searches an input string for all occurrences of a regular expression and returns all the matches.

\* `MatchCollection`

Represents the set of successful matches found by iteratively applying a regular expression pattern to the input string.

The collection is immutable (read-only) and has no public constructor. The Regex.Matches method returns a MatchCollection object.

\* List<T>.Add Method

Adds an object to the end of the List<T>.

### QUESTION 128

You need to create a method that can be called by using a varying number of parameters.

What should you use?

- A. derived classes
- B. interface
- C. enumeration
- D. method overloading

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Member overloading means creating two or more members on the same type that differ only in the number or type of parameters but have the same name.

Overloading is one of the most important techniques for improving usability, productivity, and readability of reusable libraries. Overloading on the number of parameters makes it possible to provide simpler versions of constructors and methods. Overloading on the parameter type makes it possible to use the same member name for members performing identical operations on a selected set of different types.

### QUESTION 129

You are creating an application that reads from a database.

You need to use different databases during the development phase and the testing phase by using conditional compilation techniques.

What should you do?

- A. Configure the Define TRACE constant setting in Microsoft Visual Studio.
- B. Decorate the code by using the [DebuggerDisplay("Mydebug")] attribute.
- C. Configure the Define DEBUG constant setting in Microsoft Visual Studio.
- D. Disable the strong-name bypass feature of Microsoft .NET Framework in the registry.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Use one debug version to connect to the development database, and a standard version to connect to the live database.

### QUESTION 130

You are creating a class named Loan.

The Loan class must meet the following requirements:

- Include a member that represents the rate for a Loan instance.
- Allow external code to assign a value to the rate member.
- Restrict the range of values that can be assigned to the rate member.

You need to implement the rate member to meet the requirements. In which form should you implement the rate member?

- A. public static property
- B. public property
- C. public static field
- D. protected field

**Correct Answer:** B

**Section:** (none)

## Explanation

### Explanation/Reference:

#### QUESTION 131

You are creating a class library that will be used in a web application. You need to ensure that the class library assembly is strongly named. What should you do?

- A. use the csc.exe /target:Library option when building the application.
- B. use the AL.exe command-line tool.
- C. use the aspnet\_regiis.exe command-line tool.
- D. use the EdmGen.exe command-line tool.

### Correct Answer: B

#### Section: (none)

#### Explanation

### Explanation/Reference:

The Windows Software Development Kit (SDK) provides several ways to sign an assembly with a strong name:

- \* Using the Assembly Linker (Al.exe) provided by the Windows SDK.
- \* Using assembly attributes to insert the strong name information in your code. You can use either the AssemblyKeyFileAttribute or the AssemblyKeyNameAttribute, depending on where the key file to be used is located.
- \* Using compiler options such /keyfile or /delaysign in C# and Visual Basic, or the /KEYFILE or /DELAYSIGN linker option in C++. (For information on delay signing, see Delay Signing an Assembly.)

#### Note:

\* A strong name consists of the assembly's identity—its simple text name, version number, and culture information (if provided)—plus a public key and a digital signature. It is generated from an assembly file (the file that contains the assembly manifest, which in turn contains the names and hashes of all the files that make up the assembly), using the corresponding private key. Microsoft® Visual Studio® .NET and other development tools provided in the .NET Framework SDK can assign strong names to an assembly. Assemblies with the same strong name are expected to be identical.

#### QUESTION 132

You are creating a console application named App1.

App1 retrieves data from the Internet by using JavaScript Object Notation (JSON).

You are developing the following code segment (line numbers are included for reference only):

```
01 public bool ValidateJson(string json, Dictionary<string, object> result)
02 {
03
04     try
05     {
06         result = serializer.Deserialize<Dictionary<string, object>>(json);
07         return true;
08     }
09     catch
10     {
11         return false;
12     }
13 }
```

You need to ensure that the code validates the JSON string.  
Which code should you insert at line 03?

- A. `var serializer = new DataContractSerializer();`
  - B. `DataContractSerializer serializer = new DataContractSerializer();`
  - C. `var serializer = new XmlSerializer();`
  - D. `var serializer = new JavaScriptSerializer();`
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

The JavaScriptSerializer Class Provides serialization and deserialization functionality for AJAX-enabled applications.

The JavaScriptSerializer class is used internally by the asynchronous communication layer to serialize and deserialize the data that is passed between the browser and the Web server. You cannot access that instance of the serializer. However, this class exposes a public API. Therefore, you can use the class when you want to work with JavaScript Object Notation (JSON) in managed code.

**QUESTION 133**

You are developing an application that includes methods named EvaluateLoan, ProcessLoan, and FundLoan. The application defines build configurations named TRIAL, BASIC, and ADVANCED.

You have the following requirements:

- The TRIAL build configuration must run only the EvaluateLoan() method.
- The BASIC build configuration must run all three methods.
- The ADVANCED build configuration must run only the EvaluateLoan() and ProcessLoan() methods.

You need to meet the requirements. Which code segment should you use?

A. #if TRIAL  
    #warning EvaluateLoan();  
    #error ProcessLoan();  
    #error FundLoan();  
#elif ADVANCED  
    #warning EvaluateLoan();  
    #warning ProcessLoan();  
    #warning FundLoan();  
#else  
    #warning EvaluateLoan();  
    #warning ProcessLoan();  
    #error FundLoan();  
#endif

B. #if TRIAL  
    EvaluateLoan();  
#elif ADVANCED  
    EvaluateLoan();  
    ProcessLoan();  
    FundLoan();  
#else  
    EvaluateLoan();  
    ProcessLoan();  
#endif

C. #if TRIAL  
    EvaluateLoan();  
#elif BASIC  
    EvaluateLoan();  
    ProcessLoan();  
    FundLoan();  
#else  
    EvaluateLoan();  
    ProcessLoan();  
#endif

D. #if TRIAL  
    EvaluateLoan();  
#elif BASIC  
    EvaluateLoan();  
    ProcessLoan();  
    #error FundLoan();  
#else  
    EvaluateLoan();  
    ProcessLoan();  
    FundLoan();  
#endif

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 134**

You are creating an application that processes a list of numbers.

The application must define a method that queries the list and displays a subset of the numbers to the user.

The method must not update the list.

You need to create an extendable query by using LINQ.

What should you do?

- A. Create an in-memory array of numbers. Process the numbers in the array by using the following code:

```
int[] numbersList = new int[8] { 1, 3, 5, 7, 11, 13, 17, 19 };
var numbers = from p in numbersList where p > 10;
foreach (int p in numbers)
{
    ...
}
```

- B. Create an in-memory array of numbers. Process the numbers in the array by using the following code:

```
int[] numbersList = new int[8] { 1, 3, 5, 7, 11, 13, 17, 19 };
var numbers = new Query<int>(from p in numbersList where p > 10 select p);
foreach (int p in numbers)
{
    ...
}
```

- C. Create an in-memory array of numbers. Process the numbers in the array by using the following code:

```
int[] numbersList = new int[8] { 1, 3, 5, 7, 11, 13, 17, 19 };
var numbers = from p in numbersList where p > 10 select p;
foreach (int p in numbers)
{
    ...
}
```

- D. Create a query to return data from a SQL database table named **Numbers**. Process the returned data by using the following code segment:

```
var numbers = "select p from Numbers where p > 10";
foreach (int p in numbers)
{
    ...
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:****QUESTION 135**

You are developing an application that will be deployed to multiple computers. You set the assembly name. You need to create a unique identity for the application assembly. Which two assembly identity attributes should you include in the source code? (Each correct answer presents part of the solution. Choose two.)

- A. AssemblyTitleAttribute
- B. AssemblyCultureAttribute
- C. AssemblyVersionAttribute
- D. AssemblyKeyNameAttribute
- E. AssemblyFileVersion

**Correct Answer:** BC**Section:** (none)**Explanation****Explanation/Reference:**

The AssemblyName object contains information about an assembly, which you can use to bind to that assembly. An assembly's identity consists of the following:

Simple name.

Version number.

Cryptographic key pair.

Supported culture.

B: AssemblyCultureAttribute

Specifies which culture the assembly supports.

The attribute is used by compilers to distinguish between a main assembly and a satellite assembly. A main assembly contains code and the neutral culture's resources. A satellite assembly contains only resources for a particular culture, as in [assembly:AssemblyCultureAttribute("de")]

C: AssemblyVersionAttribute

Specifies the version of the assembly being attributed.

The assembly version number is part of an assembly's identity and plays a key part in binding to the assembly and in version policy.

**QUESTION 136**

You are developing an application that contains a class named TheaterCustomer and a method named ProcessTheaterCustomer. The ProcessTheaterCustomer() method accepts a TheaterCustomer object as the input parameter.

You have the following requirements:

- Store the TheaterCustomer objects in a collection.
- Ensure that the ProcessTheaterCustomer() method processes the TheaterCustomer objects in the order in which they are placed into the collection.

You need to meet the requirements.

What should you do?

- A. Create a System.Collections.Stack collection. Use the Push() method to add TheaterCustomer objects to the collection. Use the Peek() method to pass the objects to the ProcessTheaterCustomer() method.
- B. Create a System.Collections.Queue collection. Use the Enqueue() method to add TheaterCustomer objects to the collection. Use the Dequeue() method to pass the objects to the ProcessTheaterCustomer() method.
- C. Create a System.Collections.SortedList collection. Use the Add() method to add TheaterCustomer objects to the collection. Use the Remove() method to pass the objects to the ProcessTheaterCustomer() method.
- D. Create a System.Collections.ArrayList collection. Use the Insert() method to add TheaterCustomer objects to the collection. Use the Remove() method to pass the objects to the ProcessTheaterCustomer() method.

**Correct Answer:** B**Section:** (none)

## Explanation

### Explanation/Reference:

#### QUESTION 137

You are debugging a 64-bit C# application.

Users report System.OutOfMemoryException exceptions. The system is attempting to use arrays larger than 2 GB in size.

You need to ensure that the application can use arrays larger than 2 GB.

What should you do?

- A. Add the /3GB switch to the boot.ini file for the operating system.
- B. set the IMAGE\_FILE\_LARGE\_ADDRESS\_AWARE flag in the image header for the application executable file.
- C. set the value of the gcAllowVeryLargeObjects property to true in the application configuration file.
- D. Set the value of the user-mode virtual address space setting for the operating system to MAX.

**Correct Answer:** C

**Section:** (none)

**Explanation**

### Explanation/Reference:

#### QUESTION 138

You develop an application by using C#. The application counts the number of times a specific word appears within a set of text files. The application includes the following code. (Line numbers are included for reference only.)

```
01 class Counter
02 {
03     System.Collections.Concurrent.ConcurrentDictionary<string, int> _wordCounts =
04         new System.Collections.Concurrent.ConcurrentDictionary<string, int>();
05     public Action<DirectoryInfo> ProcessDirectory()
06     {
07         return (dirInfo =>
08             {
09                 var files = dirInfo.GetFiles("*.cs").AsParallel<FileInfo>();
10                 files.ForAll<FileInfo>(
11                     fileInfo =>
12                     {
13                         var fileContent = File.ReadAllText(fileInfo.FullName);
14                         var sb = new StringBuilder();
15                         foreach (var val in fileContent)
16                         {
17                             sb.Append(char.IsLetter(val) ? val.ToString().ToLowerInvariant() : " ");
18                         }
19                         string[] wordsInFile = sb.ToString().Split(new []{' '},
20                             StringSplitOptions.RemoveEmptyEntries);
21                         foreach (var word in wordsInFile)
22                         {
23
24                         }
25                     });
26                     var directories = dirInfo.GetDirectories().AsParallel< DirectoryInfo >();
27                     directories.ForAll< DirectoryInfo >(ProcessDirectory());
28                 });
29             }
30 }
```

You have the following requirements:

- Populate the \_wordCounts object with a list of words and the number of occurrences of each word.

- Ensure that updates to the ConcurrentDictionary object can happen in parallel.  
You need to complete the relevant code.  
Which code segment should you insert at line 23?

A. `_wordCounts.AddOrUpdate(word, 1, (s, n) => n + 1);`

B. `int value;  
if (_wordCounts.TryGetValue(word, out value))  
{  
 _wordCounts[word] = value++;  
}  
else  
{  
 _wordCounts[word] = 1;  
}`

C. `var value = _wordCounts.GetOrAdd(word, 0);  
_wordCounts[word] = value++;`

D. `var value = _wordCounts.GetOrAdd(word, 0);  
_wordCounts.TryUpdate(word, value + 1, value);`

- A. Option A  
B. Option B  
C. Option C  
D. Option D

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 139

You are evaluating a method that calculates loan interest. The application includes the following code segment. (Line numbers are included for reference only.)

```
01 private static decimal CalculateInterest(decimal loanAmount, int loanTerm)
02 {
03     decimal interestAmount;
04     decimal loanRate;
05     if (loanTerm > 0 && loanTerm < 5 && loanAmount < 5000m)
06     {
07         loanRate = 0.045m;
08     }
09     else if (loanTerm > 5 && loanAmount > 5000m)
10     {
11         loanRate = 0.085m;
12     }
13     else
14     {
15         loanRate = 0.055m;
16     }
17     interestAmount = loanAmount * loanRate * loanTerm;
18     return interestAmount;
19 }
```

When the loanTerm value is 5 and the loanAmount value is 4500, the loanRate must be set to 6.5 percent.  
You need to adjust the loanRate value to meet the requirements.  
What should you do?

- A. Replace line 15 with the following code segment:  
loanRate = 0.065m;
- B. Replace line 07 with the following code segment:  
loanRate = 0.065m;
- C. Replace line 17 with the following code segment:  
interestAmount = loanAmount \* 0.065m \* loanTerm;
- D. Replace line 04 with the following code segment:  
decimal loanRate = 0.065m;

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 140

You are developing an application that includes a class named Customer and a generic list of customers. The following code segment declares the list of customers:

List<Customer> customersList = new List<Customer> () ;

You populate the customersList object with several hundred Customer objects.

The application must display the data for five Customer objects at a time.

You need to create a method that will return the correct number of Customer objects.

Which code segment should you use?

- A. 

```
var manager = new UseResources();
((IFile)manager).Open();
(( IDbConnection)manager).Open();
```
- B. 

```
class UseResources : IFile, IDbConnection
{
    public void IFile.Open()
    {
        ...
    }
    public void IDbConnection.Open()
    {
        ...
    }
}
```
- C. 

```
var manager = new UseResources();
manager.Open(IFile);
manager.Open(IDbConnection);
```
- D. 

```
class UseResources : IFile, IDbConnection
{
    void IFile.Open()
    {
        ...
    }
    void IDbConnection.Open()
    {
        ...
    }
}
```

- A. Option A

- B. Option B
- C. Option C
- D. Option D

**Correct Answer:**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 141**

You are developing an application that will use multiple asynchronous tasks to optimize performance. You create three tasks by using the following code segment. (Line numbers are included for reference only.)

```
01 protected void ProcessTasks()
02 {
03     Task[] tasks = new Task[3]
04     {
05         Task.Factory.StartNew(() => MethodA()),
06         Task.Factory.StartNew(() => MethodB()),
07         Task.Factory.StartNew(() => MethodC())
08     };
09
10     ...
11 }
```

You need to ensure that the ProcessTasks() method waits until all three tasks complete before continuing. Which code segment should you insert at line 09?

- A. Task.WaitFor(3);
- B. tasks.Yield();
- C. tasks.WaitForCompletion();
- D. Task.WaitAll(tasks);

**Correct Answer: D**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 142**

You are developing a C# application. The application includes the following code segment, (Line numbers are included for reference only.)

```
01 class Beam
02 {
03     public string Description { get; set; }
04     public int Weight { get; set; }
05     public int Id { get; set; }
06     public decimal Length { get; set; }
07 }
08 Dictionary<int, Beam> beams = new Dictionary<int, Beam>
09 {
10     { 111, new Beam { Description = "Iron", Weight = 4297, Id = 211, Length = 22.23m }
11     { 112, new Beam { Description = "Copper", Weight = 6822, Id = 317, Length = 11.13m }
12     { 113, new Beam { Description = "Steel", Weight = 88021, Id = 198, Length = 7.91m }
13     { 114, new Beam { Description = "Titanium", Weight = 14014, Id = 192, Length = 17.11m }
14     { 115, new Beam { Description = "Aluminum", Weight = 3263, Id = 196, Length = 8.45m }
15 };
16
17 beams.Add(115, new Beam { Description = "Brass", Weight = 24331, Id = 214, Length = 22.23m })
18 }
```

The application fails at line 17 with the following error message: "An item with the same key has already been added."

You need to resolve the error.

Which code segment should you insert at line 16?

- A. if (!beams.ContainsKey(115))
  
  - B. foreach (Beam beam in beams.Values.Where(t => t.Id != 115))
  
  - C. foreach (KeyValuePair<int, Beam> key in beams.Where(t => t.Key != 115))
  
  - D. foreach (int key in beams.Keys.Where(k => k != 115))
- 
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

## DRAG DROP

### QUESTION 1

You are developing an application that will write data to a file. The application includes the following code segment. (Line numbers are included for reference only.)

You need to ensure that the WriteData() method will write data to a file.

Which four code segments should you insert in sequence at line 03? (To answer, move the appropriate code segments from the list of code segments to the answer area and arrange them in the correct order.)

Select and Place:

writer.Write(data);

writer = new StreamWriter(fileName);

StreamWriter writer = null;

writer.Close();

writer.Open();

Correct Answer:

writer.Open();

StreamWriter writer = null;

writer = new StreamWriter(fileName);

writer.Write(data);

writer.Close();

Section: (none)

Explanation

Explanation/Reference:

Note:

\* StreamWriter Constructor (String)

Initializes a new instance of the StreamWriter class for the specified file by using the default encoding and buffer size.

Incorrect:

The StreamWriter class has no method Open.

### QUESTION 2

You are adding a method to an existing application. The method uses an integer named statusCode as an input parameter and returns the status code as a string.

The method must meet the following requirements:

- Return "Error" if the statusCode is 0.
- Return "Success" if the statusCode is 1.

- Return "Unauthorized" if the statusCode is any value other than 0 or 1.  
You need to implement the method to meet the requirements.  
How should you complete the relevant code? (To answer, drag the appropriate statements to the correct locations in the answer area. Each statement may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

default  
switch  
break  
case

```
string statusText;
switch (statusCode)
{
    case 0:
        statusText = "Error";
    break;
    case 1:
        statusText = "Success";
    break;
    default:
        statusText = "Unauthorized";
}
return statusText;
```

**Correct Answer:**

default  
switch  
break  
case

```
string statusText;
switch (statusCode)
{
    case 0:
        statusText = "Error";
    break;
    case 1:
        statusText = "Success";
    break;
    default:
        statusText = "Unauthorized";
    break;
}
return statusText;
```

**Section: (none)****Explanation****Explanation/Reference:****QUESTION 3**

You have a method that will evaluate a parameter of type Int32 named Status.

You need to ensure that the method meets the following requirements:

If Status is set to Active, the method must return 1.

If Status is set to Inactive, the method must return 0.

If Status is any other value, the method must return -1.

What should you do? (To answer, drag the appropriate statement to the correct location in the answer area.

Each statement may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

break;  
case "Active":  
case "Inactive"  
default:  
goto default;  
return

```
Int32 returnStatus = Int32.MinValue;
switch (status) {
    Statement
    returnStatus = 1;
    Statement
    Statement
    returnStatus = 0;
    Statement
    Statement
    returnStatus = -1;
    Statement
}
return returnStatus;
```

**Correct Answer:**

```
break;  
case "Active";  
case "Inactive";  
default:  
    goto default;  
return
```

```
Int32 returnStatus = Int32.MinValue;  
switch (status) {  
    case "Active":  
        returnStatus = 1;  
        break;  
    case "Inactive"  
        returnStatus = 0;  
        break;  
    default:  
        returnStatus = -1;  
        break;  
}  
return returnStatus;
```

### Section: (none)

#### Explanation

#### Explanation/Reference:

### QUESTION 4

You have an application that uses paging. Each page displays 10 items from a list.

You need to display the third page. (Develop the solution by selecting and ordering the required code snippets. You may not need all of the code snippets.)

#### Select and Place:

```
.Skip(2)
```

```
.First(10)
```

```
.Take(10)
```

```
var page = items
```

```
.Take(1)
```

```
.Skip(30)
```

```
int page = items
```

```
.Skip(20)
```

#### Correct Answer:



**Section: (none)**

**Explanation**

**Explanation/Reference:**

Skip the first two page (first 20 items) then select the next page (next 10 items),

\* Use the Take operator to return a given number of elements in a sequence and then skip over the remainder.

Use the Skip operator to skip over a given number of elements in a sequence and then return the remainder.

**QUESTION 5**

You have an application that accesses a Microsoft SQL Server database.

The database contains a stored procedure named Proc1. Proc1 accesses several rows of data across multiple tables.

You need to ensure that after Proc1 executes, the database is left in a consistent state. While Proc1 executes, no other operation can modify data already read or changed by Proc1. (Develop the solution by selecting and ordering the required code snippets. You may not need all of the code snippets.)

**Select and Place:**

```
SqlTransaction transaction = connection.BeginTransaction
(System.Data.IsolationLevel.RepeatableRead);

SqlTransaction transaction = connection.BeginTransaction
(System.Data.IsolationLevel.ReadUncommitted)
;

} finally {

command.Dispose();
connection.Dispose();
}

try {
connection.Open();
command.ExecuteNonQuery();

TransactionScope transaction = new TransactionScope();

SqlConnection connection = new SqlConnection
(connectionString);
SqlCommand command = new SqlCommand
("proc1", connection);

} catch {

transaction.Rollback();

transaction.Commit();
```

**Correct Answer:**

```
SqlTransaction transaction = connection.BeginTransaction  
    (System.Data.IsolationLevel.ReadUncommitted)  
;
```

```
TransactionScope transaction = new TransactionScope();
```

```
SqlConnection connection = new SqlConnection  
    (connectionString);  
SqlCommand command = new SqlCommand  
    ("proc1", connection);
```

```
SqlTransaction transaction = connection.  
    BeginTransaction  
    (System.Data.IsolationLevel.RepeatableRead);
```

```
try {  
    connection.Open();  
    command.ExecuteNonQuery();
```

```
    transaction.Commit();
```

```
} catch {
```

```
    transaction.Rollback();
```

```
} finally {
```

```
    command.Dispose();  
    connection.Dispose();  
}
```

## Section: (none)

### Explanation

#### Explanation/Reference:

- \* Box 1: Start with the SqlConnection
- \* Box 2: Open the SQL transaction (RepeatableRead)

/ IsolationLevel

Specifies the isolation level of a transaction.

/ RepeatableRead

Volatile data can be read but not modified during the transaction. New data can be added during the transaction.

/ ReadCommitted

Volatile data cannot be read during the transaction, but can be modified.

/ ReadUncommitted

Volatile data can be read and modified during the transaction.

Box 3: Try the query

Box 4: commit the transaction

Box 5: Catch the exception (a failed transaction)

Box 6: Rollback the transaction

Box 7: Final cleanup

Box 8: Clean up (close command and connection).

Reference: SqlConnection.BeginTransaction Method

Incorrect:

The transaction is not set up by transactionscope here. Begintransaction is used.

### QUESTION 6

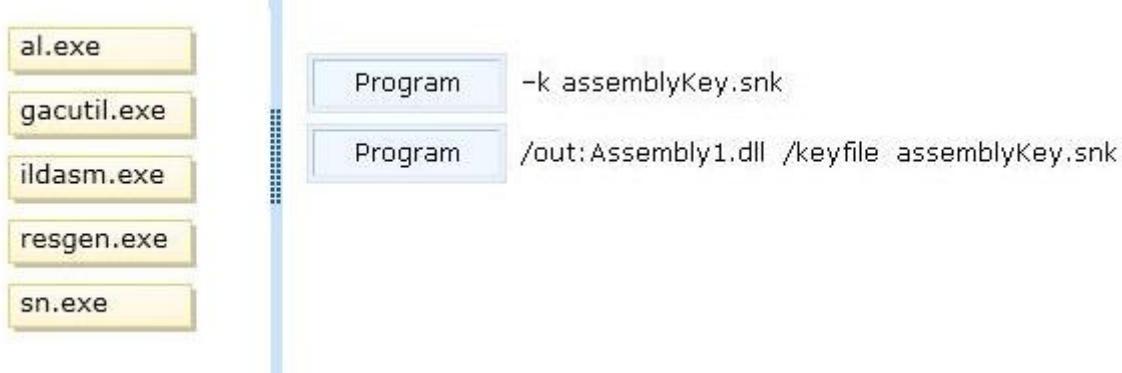
You create an assembly named Assembly1.dll.

You need to ensure that Assembly1.dll can be deployed to the global assembly cache (GAC).

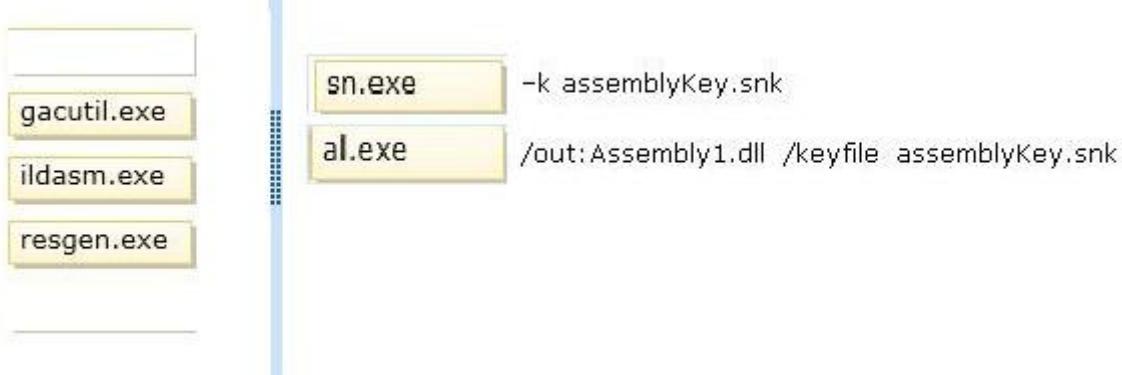
Which commands should you run? (To answer, drag the appropriate programs to the correct locations.

Each program may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

#### Select and Place:



#### Correct Answer:



#### Section: (none)

#### Explanation

#### Explanation/Reference:

### QUESTION 7

You are developing a C# console application that outputs information to the screen. The following code segments implement the two classes responsible for making calls to the Console object:

```

abstract class BaseLogger
{
    public virtual void Log(string message)
    {
        Console.WriteLine("Base: " + message);
    }
    public void LogCompleted()
    {
        Console.WriteLine("Completed");
    }
}

class Logger : BaseLogger
{
    public override void Log(string message)
    {
        Console.WriteLine(message);
    }
    public new void LogCompleted()
    {
        Console.WriteLine("Finished");
    }
}

```

When the application is run, the console output must be the following text:

Log started

Base: Log continuing

Finished

You need to ensure that the application outputs the correct text.

Which four lines of code should you use in sequence? (To answer, move the appropriate classes from the list of classes to the answer area and arrange them in the correct order.)

#### Select and Place:

logger.Log("Base: Log continuing");

((BaseLogger)logger).Log("Log continuing");

var logger = new BaseLogger();

((Logger)logger).LogCompleted();

logger.Log("Log started");

BaseLogger logger = new Logger();

logger.LogCompleted();

#### Correct Answer:

```
((BaseLogger)logger).Log("Log continuing");

var logger = new BaseLogger();

((Logger)logger).LogCompleted();
```

```
BaseLogger logger = new Logger();

logger.Log("Log started");

logger.Log("Base: Log continuing");

logger.LogCompleted();
```

**Section: (none)**  
**Explanation**

**Explanation/Reference:**

**Note:**

- \* The abstract keyword enables you to create classes and class members that are incomplete and must be implemented in a derived class.
- \* An abstract class cannot be instantiated. The purpose of an abstract class is to provide a common definition of a base class that multiple derived classes can share.

**QUESTION 8**

You are creating a method that saves information to a database.

You have a static class named LogHelper. LogHelper has a method named Log to log the exception.

You need to use the LogHelper Log method to log the exception raised by the database server. The solution must ensure that the exception can be caught by the calling method, while preserving the original stack trace.

How should you write the catch block? (Develop the solution by selecting and ordering the required code snippets. You may not need all of the code snippets.)

**Select and Place:**

```
catch {  
  
    catch (SqlException ex) {  
  
        catch (FileNotFoundException ex) {  
  
            throw;  
  
        }  
  
        throw new FileNotFoundException();  
  
        throw ex;  
  
        LogHelper.Log(ex);  
  
        throw new SqlException();  
    }  
}
```

**Correct Answer:**

```
catch {  
  
    catch (FileNotFoundException ex) {  
  
        throw;  
  
        throw new FileNotFoundException();  
  
    }  
  
    catch (SqlException ex) {  
  
        LogHelper.Log(ex);  
  
        throw ex;  
  
    }  
}
```

**Section: (none)**  
**Explanation**

**Explanation/Reference:**

Catch the database exception, log it, and then rethrow it.

\* SQLException

An exception that provides information on a database access error or other errors.

**QUESTION 9**

You are adding a function to a membership tracking application- The function uses an integer named memberCode as an input parameter and returns the membership type as a string.

The function must meet the following requirements:

- Return "Non-Member" if the memberCode is 0.
- Return "Member" if the memberCode is 1.
- Return "Invalid" if the memberCode is any value other than 0 or 1.

You need to implement the function to meet the requirements.

How should you complete the relevant code? (To answer, drag the appropriate statements to the correct locations in the answer area. Each statement may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

default

switch

break

case

```
private string GetMemberType(int memberCode)
{
    string memberType;
    (memberCode)
    {
        0:
            memberType = "Non-Member";
        ;
        1:
            memberType = "Member";
        ;
        :
            memberType = "Invalid";
        ;
    }
    return memberType;
}
```

**Correct Answer:**

The screenshot shows a code editor with a vertical split bar. On the left side, there are four yellow-highlighted code segments: 'default', 'switch', 'break', and 'case'. These segments are intended to be placed into the correct locations within the 'GetMemberType' method. The method signature is 'private string GetMemberType(int memberCode)'. The body of the method contains a switch statement on 'memberCode'. It has three cases: case 0, case 1, and a default case. Each case sets a variable 'memberType' to a specific value ('Non-Member', 'Member', or 'Invalid') and includes a 'break' statement. The method concludes with a return statement.

```
private string GetMemberType(int memberCode)
{
    string memberType;
    switch (memberCode)
    {
        case 0:
            memberType = "Non-Member";
            break;
        case 1:
            memberType = "Member";
            break;
        default:
            memberType = "Invalid";
            break;
    }
    return memberType;
}
```

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 10**

You are creating a method that will split a single input file into two smaller output files.

The method must perform the following actions:

- Create a file named header.dat that contains the first 20 bytes of the input file.
- Create a file named body.dat that contains the remainder of the input file.

You need to create the method.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

```
fsSource.Seek(20, SeekOrigin.Current);  
byte[] body = new byte[fsSource.Length];  
byte[] body = new byte[fsSource.Length - 20];  
fsHeader.Write(header, 0, header.Length);  
fsHeader.Write(header, 20, header.Length);  
fsBody.Write(body, 0, body.Length);  
fsBody.Write(body, 20, body.Length);
```

```
using (FileStream fsSource = File.OpenRead(SourceFilePath))  
using (FileStream fsHeader = File.OpenWrite(HeaderFilePath))  
using (FileStream fsBody = File.OpenWrite(BodyFilePath))  
{  
    byte[] header = new byte[20];  
  
    fsSource.Read(header, 0, header.Length);  
  
    byte[] body = new byte[fsSource.Length - 20];  
    fsSource.Read(body, 0, body.Length);  
}
```

**Correct Answer:**

```
fsSource.Seek(20, SeekOrigin.Current);  
byte[] body = new byte[fsSource.Length];  
  
fsHeader.Write(header, 20, header.Length);  
  
fsBody.Write(body, 20, body.Length);  
  
using (FileStream fsSource = File.OpenRead(SourceFilePath))  
using (FileStream fsHeader = File.OpenWrite(HeaderFilePath))  
using (FileStream fsBody = File.OpenWrite(BodyFilePath))  
{  
    byte[] header = new byte[20];  
    byte[] body = new byte[fsSource.Length - 20];  
    fsSource.Read(header, 0, header.Length);  
    fsHeader.Write(header, 0, header.Length);  
    fsSource.Read(body, 0, body.Length);  
    fsBody.Write(body, 0, body.Length);  
}
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 11**

You are creating a class named Data that includes a dictionary object named \_data. You need to allow the garbage collection process to collect the references of the \_data object.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

```
staticDictionary<int, WeakReference> _data;  
  
staticDictionary<int, Int32> _data;  
  
_data.Add(i, new WeakReference(new Class(i * 2), false));  
  
_data.Add(i, (Int32)(i * 2));
```

```
public class Data  
{  
  
    public Data(int count)  
    {  
        for (int i = 0; i < count; i++)  
        {  
            _data.Add(i, (Int32)(i * 2));  
        }  
    }  
}
```

**Correct Answer:**

```
staticDictionary<int, Int32> _data;  
  
_data.Add(i, (Int32)(i * 2));
```

```
public class Data  
{  
  
    staticDictionary<int, WeakReference<Temperature>> _data;  
  
    public Data(int count)  
    {  
        for (int i = 0; i < count; i++)  
        {  
            _data.Add(i, new WeakReference<Temperature>(new Temperature(i)));  
        }  
    }  
}
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 12**

You are developing a class named Temperature.

You need to ensure that collections of Temperature objects are sortable.

How should you complete the relevant code segment? (To answer, drag the appropriate code segments to the correct locations in the answer area. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

```
public class Temperature : IComparable  
public class Temperature : IComparer  
CompareTo  
Equals  
this.Fahrenheit.CompareTo(otherTemperature.Fahrenheit);  
otherTemperature.Fahrenheit.CompareTo(this.Fahrenheit);
```

```
{  
    public double Fahrenheit { get; set; }  
    public int [ ]  
        (object obj)  
    {  
        if (obj == null) return 1;  
        var otherTemperature = obj as Temperature;  
        if (otherTemperature != null)  
            return [ ];  
        throw new ArgumentException("Object is not a Temperature");  
    }  
}
```

**Correct Answer:**

```
public class Temperature : IComparer  
  
    Equals  
  
    otherTemperature.Fahrenheit.CompareTo(this.Fahrenheit);
```

```
public class Temperature : IComparable  
{  
    public double Fahrenheit { get; set; }  
    public int CompareTo  
    (object obj)  
    {  
        if (obj == null) return 1;  
        var otherTemperature = obj as Temperature;  
        if (otherTemperature != null)  
            return this.Fahrenheit.CompareTo(otherTemperature.Fahrenheit);  
        throw new ArgumentException("Object is not a Temperature");  
    }  
}
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 13**

You are developing an application that will populate an extensive XML tree from a Microsoft SQL Server 2008 R2 database table named Contacts.

You are creating the XML tree. The solution must meet the following requirements:

- Minimize memory requirements.
- Maximize data processing speed.

You open the database connection.

You need to create the XML tree.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

```
XElement root = new XElement  
    ("{ContactList}contacts", "content");  
  
XNamespace ew = "ContactList";  
XElement root = new XElement(ew + "Root");  
  
XAttribute contacts =  
new XAttribute("contacts",  
  
 XElement contacts =  
new XElement("contacts",
```

```
Console.WriteLine(ro
```

```
from c in db.Conta  
orderby c.ContactI  
select new XElemen  
    new XAttribute(""  
    new XElement("fi  
    new XElement("la  
) ;
```

#### Correct Answer:

```
XElement root = new XElement  
    ("{ContactList}contacts", "content");  
  
XElement contacts =  
new XElement("contacts",
```

```
XNamespace ew = "ContactLis  
XElement root = new XElemen  
Console.WriteLine(ro
```

```
XAttribute contacts =  
new XAttribute("contacts",
```

```
from c in db.Conta  
orderby c.ContactI  
select new XElemen  
    new XAttribute(""  
    new XElement("fi  
    new XElement("la  
) ;
```

#### Section: (none) Explanation

#### Explanation/Reference:

#### QUESTION 14

You are developing an application that will include a method named GetData. The GetData() method will retrieve several lines of data from a web service by using a System.IO.StreamReader object.

You have the following requirements:

- The GetData() method must return a string value that contains the entire response from the web service.
- The application must remain responsive while the GetData() method runs. 67

You need to implement the GetData() method.

How should you complete the relevant code? (To answer, drag the appropriate objects to the correct locations in the answer area. Each object may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

ReadLineAsync();  
ReadToEndAsync();  
await  
async  
ReadLine();  
ReadToEnd();  
ToString();

```
public [ ] void GetData(WebResponse response)
{
    string urlText;
    var sr = new StreamReader(response.GetResponseStream());
    urlText = [ ] await sr.[ ]
```

**Correct Answer:**

ReadToEndAsync();  
  
ReadLine();  
ReadToEnd();  
ToString();

```
public [ ] void GetData(WebResponse response)
{
    string urlText;
    var sr = new StreamReader(response.GetResponseStream());
    urlText = [ ] await [ ] await sr.[ ] ReadLineAsync();
```

**Section: (none)**  
**Explanation****Explanation/Reference:****QUESTION 15**

You have the following class:

```
public class Class1 : IEquatable<Class1>
{
    public Int32 ID { get; set; }
    public String Name { get; set; }
    public bool Equals(Class1 other)
    {
    }
}
```

You need to implement IEquatable. The Equals method must return true if both ID and Name are set to the identical values. Otherwise, the method must return false. Equals must not throw an exception.

What should you do? (Develop the solution by selecting and ordering the required code snippets. You may not need all of the code snippets.)

**Select and Place:**

```
if (!Object.Equals  
    (this.Name, other.Name)) return false;  
  
if (this.ID == other.ID) return false;  
  
return false;  
  
return true;  
  
if (other == null) return false;  
  
break  
  
if (this.ID != other.ID) return false;  
  
if (!this.Name.Equals  
    (other.Name)) return false;
```

**Correct Answer:**

```
if (other == null) return false;  
  
if (this.ID == other.ID) return false;  
  
return false;  
  
return true;  
  
break  
  
if (!this.Name.Equals  
    (other.Name)) return false;
```

```
if (other == null) return false;  
  
if (this.ID != other.ID) return false;  
  
if (!Object.Equals  
    (this.Name, other.Name)) return false;
```

**Section: (none)**  
**Explanation**

**Explanation/Reference:**

```
if (!this.name.Equals(other.name)) return false;  
    name null
```

#### QUESTION 16

You have a method named GetCustomerIDs that returns a list of integers. Each entry in the list represents a customer ID that is retrieved from a list named Customers. The Customers list contains 1,000 rows. Another developer creates a method named ValidateCustomer that accepts an integer parameter and returns a Boolean value. ValidateCustomer returns true if the integer provided references a valid customer. ValidateCustomer can take up to one second to run.

You need to create a method that returns a list of valid customer IDs. The code must execute in the shortest amount of time.

What should you do? (Develop the solution by selecting and ordering the required code snippets. You may not need all of the code snippets.)

#### Select and Place:

```
public List<Int32> GetValidCustomers()  
{  
  
    Task<List<Int32>> validCustomers =  
  
        (from c in customers  
         where ValidateCustomer(c)  
         select c).ToList();  
  
    return validCustomers;  
}  
  
(from c in customers  
where ValidateCustomer(c)  
select c).AsParallel().ToList();  
  
public async Task<List<Int32>> GetValidCusto  
mers()  
  
(from c in customers.AsParallel()  
where ValidateCustomer(c)  
select c).ToList();  
  
List<Int32> validCustomers =
```

#### Correct Answer:

```
public List<Int32> GetValidCustomers()
{
    Task<List<Int32>> validCustomers =
        (from c in customers
         where ValidateCustomer(c)
         select c).ToList();
    return validCustomers;
}
```

```
List<Int32> validCustomers =
    (from c in customers
     where ValidateCustomer(c)
     select c).AsParallel().ToList();
```

```
public async Task<List<Int32>> GetValidCustomers()
{
    (from c in customers.AsParallel()
     where ValidateCustomer(c)
     select c).ToList();
}
```

**Section: (none)**  
**Explanation**

**Explanation/Reference:**

**QUESTION 17**

You are developing an application by using C#. The application will output the text string "First Line" followed by the text string "Second Line". You need to ensure that an empty line separates the text strings. Which four code segments should you use in sequence? (To answer, move the appropriate code segments to the answer area and arrange them in the correct order.)

**Select and Place:**

```
sb.Append("\1");
var sb = new StringBuilder();
sb.Append("First Line");
sb.Append("\t");
sb.AppendLine();
sb.Append(String.Empty);
sb.Append("Second Line");
```

**Correct Answer:**

```
sb.Append("\1");
var sb = new StringBuilder();
sb.Append("First Line");
sb.AppendLine();
sb.Append("\t");
sb.Append("Second Line");
sb.Append(String.Empty);
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

[http://msdn.microsoft.com/en-us/library/system.text.stringbuilder\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/system.text.stringbuilder(v=vs.110).aspx)

#### **QUESTION 18**

You are developing a class named ExtensionMethods. You need to ensure that the ExtensionMethods class implements the IsEmail() method on string objects. How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

```
public static class ExtensionMethods
public class ExtensionMethods
this String str
String str
protected static class ExtensionMethods
```

```
public static bool IsEmail(
)
{
    var regex = new Regex(@""
        return regex.IsMatch(str
    )
}
```

**Correct Answer:**

```
public static class ExtensionMethods
public class ExtensionMethods
this String str
String str
protected static class ExtensionMethods
```

```
public static class ExtensionMethods
{
    public static bool IsEmail(
        this String str
    )
    {
        var regex = new Regex(@""
            return regex.IsMatch(str
        )
    }
}
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

<http://msdn.microsoft.com/en-us/library/vstudio/bb311042.aspx>

### QUESTION 19

You are developing an application that includes a class named `Customer`. The application will output the `Customer` class as a structured XML document by using the following code segment:

```
<?xml version="1.0" encoding="utf-8"?>
<Prospect xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema"
    ProspectId="9c027bb8-65f1-40a9-8afa-ac839f3cdc5d" xmlns="http://prospect">
    <FullName>David Jones</FullName>
    <DateOfBirth>1977-06-11T00:00:00</DateOfBirth>
</Prospect>
```

You need to ensure that the `Customer` class will serialize to XML. How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

```
[XmlAttribute("ProspectId")]
[XmlElement("ProspectId")]
[XmlChoiceIdentifier]
[XmlAttribute("FullName")]
[XmlElement("FullName")]
=====
public class Customer
{
    public Guid Id { get; set; }
    public string Name { get; set; }
    public DateTime DateOfBirth { get; set; }
    public int Tin { get; set; }
}
```

**Correct Answer:**

```
[XmlAttribute("CustomerId")]
[XmlElement("CustomerId")]
[XmlAttribute("ProspectId")]
[XmlElement("ProspectId")]
[XmlAttribute("ChoiceIdentifier")]
[XmlAttribute("Ignore")]
[XmlAttribute("ArrayItem")]
[XmlElement("FullName")]
```

```
[XmlAttribute("ProspectId")]
public class Customer
{
    [XmlElement("FullName")]
    public string Name { get; set; }
    public DateTime DateOfBirth { get; set; }
    [XmlAttribute]
    public int Tin { get; set; }
}
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

<http://msdn.microsoft.com/en-us/library/3dkta8ya.aspx>

**QUESTION 20**

You are developing an application that will include a method named `GetData`. The `GetData()` method will retrieve several lines of data from a web service by using a `System.IO.StreamReader` object. You have the following requirements:

- the `GetData()` method must return a string value that contains whole response from the web service.
- the application must remain responsive while the `GetData()` method runs.

You need to implement the `GetData()` method. How should you complete the relevant code? (To answer, drag the appropriate objects to the correct locations in the answer area. Each object may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

```
ReadLineAsync();
ReadToEndAsync();
await
async
ReadLine();
ReadToEnd();
ToString();
```

```
private [ ] void GetData(WebResponse response)
{
    var streamReader = new StreamReader(response.GetResponseStream());
    urlText.Text = [ ] streamReader.[ ]
```

**Correct Answer:**

```
ReadLineAsync();
ReadToEndAsync();
await
async
ReadLine();
ReadToEnd();
ToString();
```

```
private [ ] async void GetData(WebResponse response)
{
    var streamReader = new StreamReader(response.GetResponseStream());
    urlText.Text = await [ ] streamReader.[ ] ReadToEndAsync();
```

**Section: (none)**  
**Explanation**

**Explanation/Reference:**

#### **QUESTION 21**

You are developing a custom collection named `LoanCollection` for a class named `Loan` class. You need to ensure that you can process each `Loan` object in the `LoanCollection` collection by using a `foreach` loop. (You may need to drag the split bar between panes or scroll to view content.)

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area. Each code segment may be used once, more than once, or not at all.)

**Select and Place:**

```
: IComparable  
: IEnumerable  
: IDisposable  
public IEnumerator GetEnumerator()  
public int CompareTo(object obj)  
public void Dispose()  
_loanCollection[0].Amount++;  
return obj == null ? 1 : _loanCollection.Length;  
return _loanCollection.GetEnumerator();
```

```
public class LoanCollection  
{  
    private readonly Loan[] _loanCollection;  
    public LoanCollection(Loan[] loanArray)  
    {  
        _loanCollection = new Loan[loanArray.Length];  
  
        for (int i = 0; i < loanArray.Length; i++)  
        {  
            _loanCollection[i] = loanArray[i];  
        }  
    }  
      
    {  
    }  
}
```

**Correct Answer:**

```
: IComparable  
  
: IDisposable  
  
public int CompareTo(object obj)  
public void Dispose()  
_loanCollection[0].Amount++;  
return obj == null ? 1 : _loanCollection.Length;
```

```
public class LoanCollection : IEnumerable  
{  
    private readonly Loan[] _loanCollection;  
    public LoanCollection(Loan[] loanArray)  
    {  
        _loanCollection = new Loan[loanArray.Length];  
  
        for (int i = 0; i < loanArray.Length; i++)  
        {  
            _loanCollection[i] = loanArray[i];  
        }  
    }  
  
    public IEnumerator GetEnumerator()  
    {  
        return _loanCollection.GetEnumerator();  
    }  
}
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 22**

You are developing an application by using C#. The application includes an array of decimal values named loanAmounts. You are developing a LINQ query to return the values from the array. The query must return decimal values that are evenly divisible by two. The values must be sorted from the lowest value to the highest value.

You need to ensure that the query correctly returns the decimal values. How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area. Each code segment may be used once, more than once, or not at all.)

**Select and Place:**

join  
from  
group  
ascending  
descending  
where  
orderby  
select

```
decimal[] loanAmounts = { 303m, 1000m, 85579m, 501.51m, 603m
1200m, 400m, 22m };
IEnumerable<decimal> loanQuery =
    amount in loanAmounts
    amount % 2 == 0
    amount
    amount;
```

**Correct Answer:**

join  
from  
group  
ascending  
descending  
where  
orderby  
select

```
decimal[] loanAmounts = { 303m, 1000m, 85579m, 501.51m, 603m
1200m, 400m, 22m };
IEnumerable<decimal> loanQuery =
    from amount in loanAmounts
    where amount % 2 == 0
    orderby amount ascending
    select amount;
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 23**

An application serializes and deserializes XML from streams. The XML streams are in the following format:

```
<Name xmlns="http://www.contoso.com/2012/06">
  <LastName>Jones</LastName>
  <FirstName>David</FirstName>
</Name>
```

The application reads the XML streams by using a `DataContractSerializer` object that is declared by the following code segment:

```
var ser = new DataContractSerializer(typeof(Name));
```

You need to ensure that the application preserves the element ordering as provided in the XML stream. How should you complete the relevant code? (To answer, drag the appropriate attributes to the correct locations in the answer area. Each attribute may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

```
[DataContract(Namespace="http://www.contoso.com/2012/06")]
[DataMember(Order=10)]
[DataMember]
[DataContract(Name="http://www.contoso.com/2012/06")]
[DataMember(Name="http://www.contoso.com/2012/06", Order=10)]
[DataContract]
[DataMember(Name="http://www.contoso.com/2012/06")]

class Name
{
    public string FirstName { get; set; }

    public string LastName { get; set; }
}
```

#### Correct Answer:

```
[DataContract(Namespace="http://www.contoso.com/2012/06")]
[DataMember(Order=10)]
[DataMember]
[DataContract(Name="http://www.contoso.com/2012/06")]
[DataMember(Name="http://www.contoso.com/2012/06", Order=10)]
[DataContract]
[DataMember(Name="http://www.contoso.com/2012/06")]

[DataContract(Namespace="http://www.contoso.com/2012/06")]
class Name
{
    [DataMember(Order=10)]
    public string FirstName { get; set; }

    [DataMember]
    public string LastName { get; set; }
}
```

#### Section: (none)

#### Explanation

#### Explanation/Reference:

DataContractAttribute - Specifies that the type defines or implements a data contract and is serializable by a serializer, such as the DataContractSerializer. To make their type serializable, type authors must define a data contract for their type. <http://msdn.microsoft.com/en-us/library/system.runtime.serialization.datacontractattribute.aspx>

**DataMemberAttribute** - When applied to the member of a type, specifies that the member is part of a data contract and is serializable by the **DataContractSerializer**. <http://msdn.microsoft.com/en-us/library/ms574795.aspx>

#### QUESTION 24

You are developing a class named **ExtensionMethods**. You need to ensure that the **ExtensionMethods** class implements the **IsUrl()** method on string objects. How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

#### Select and Place:

```
public static class ExtensionMethods
{
    public class ExtensionMethods
    {
        this String str
        String str
        protected static class ExtensionMethods
        {
            public static bool IsUrl(
            {
                var regex = new Regex(
                    "(https?://)?([A-Za-z0-9-]+\\.)?([A-Za-z0-9-]+)" +
                    "\\.[A-Za-z0-9]*[/?.*]");
                return regex.IsMatch(str);
            }
        }
    }
}
```

#### Correct Answer:

```
public static class ExtensionMethods
{
    public class ExtensionMethods
    {
        this String str
        String str
    }
    protected static class ExtensionMethods
    {
        public static class ExtensionMethods
        {
            public static bool IsUrl(
                this String str
            )
            {
                var regex = new Regex(
                    "(https?://)?([A-Za-z0-9-]+\\.)?([A-Za-z0-9-]+)" +
                    "\\.[A-Za-z0-9-]*/?.*");
                return regex.IsMatch(str);
            }
        }
    }
}
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

<http://msdn.microsoft.com/en-us/library/vstudio/bb311042.aspx>

**QUESTION 25**

You develop an application that displays information from log files. When a user opens a log file by using the application, the application throws an exception and closes. The application must preserve the original stack trace information when an exception occurs. You need to implement the method that reads the log files. How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

```
using (StringReader sr = new StringReader("log.txt"))
using (StreamReader sr = new StreamReader("log.txt"))
throw new FileNotFoundException();
throw;
=====
{  

try
{
    string line;
    while ((line = sr.ReadLine()) != null)
    {
        Console.WriteLine(line);
    }
}
catch (FileNotFoundException e)
{
    Console.Write(e.ToString());
}
}
```

**Correct Answer:**

```
using (StringReader sr = new StringReader("log.txt"))
using (StreamReader sr = new StreamReader("log.txt"))
throw new FileNotFoundException();
throw;
=====
using (StreamReader sr = new StreamReader("log.txt"))
{
try
{
    string line;
    while ((line = sr.ReadLine()) != null)
    {
        Console.WriteLine(line);
    }
}
catch (FileNotFoundException e)
{
    Console.Write(e.ToString());
    throw;
}
}
```

**Section: (none)****Explanation****Explanation/Reference:**

StringReader - Implements a TextReader that reads from a string. [http://msdn.microsoft.com/en-us/library/system.io.stringreader\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/system.io.stringreader(v=vs.110).aspx)

StreamReader - Implements a TextReader that reads characters from a byte stream in a particular encoding. [http://msdn.microsoft.com/en-us/library/system.io.streamreader\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/system.io.streamreader(v=vs.110).aspx)

Once an exception is thrown, part of the information it carries is the stack trace. The stack trace is a list of the method call hierarchy that starts with the method that throws the exception and ends with the method that catches the exception. If an exception is re-thrown by specifying the exception in the throw statement, the stack trace is restarted at the current method and the list of method calls between the original method that threw the exception and the current method is lost. To keep the original stack trace information with the exception, use the throw statement without specifying the exception. [http://msdn.microsoft.com/en-us/library/ms182363\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/ms182363(v=vs.110).aspx)

**QUESTION 26**

You are developing an application that includes a class named Kiosk. The Kiosk class includes a static property named Catalog. The Kiosk class is defined by the following code segment. (Line numbers are included for reference only.)

```
01 public class Kios
02 {
03     static Catalog _catalog = null;
04     static object _lock = new object();
05     public static Catalog Catalog
06     {
07         get
08         {
09             return _catalog;
10        }
11    }
12 }
13 }
```

You have the following requirements:

- initialize the \_catalog field to a Catalog instance.
- initialize the \_catalog field only once.
- ensure that the application code acquires a lock only when the \_catalog object must be instantiated.

You need to meet the requirements. Which three code segments should you insert in sequence at line 09? (To answer, move the appropriate code segments from the list of code segments to the answer area and arrange them in the correct order.)

**Select and Place:**

lock (_lock)
if (_catalog != null) _catalog = new Catalog();
if (_catalog != null)
if (_catalog == null) _catalog = new Catalog();
if (_catalog == null)

**Correct Answer:**

```
if (_catalog != null) _catalog = new Catalog();
if (_catalog != null)
    if (_catalog == null) _catalog = new Catalog();
```

**Section: (none)****Explanation****Explanation/Reference:**

After taking a lock you must check once again the `_catalog` field to be sure that other threads didn't instantiated it in the meantime.

**QUESTION 27**

You are developing an application that will include a method named `GetData`. The `GetData()` method will retrieve several lines of data from a web service by using a `System.IO.StreamReader` object. You have the following requirements:

- the `GetData()` method must return a string value that contains the first line of the response from the web service.
- the application must remain responsive while the `GetData()` method runs.

You need to implement the `GetData()` method. How should you complete the relevant code? (To answer, drag the appropriate objects to the correct locations in the answer area. Each object may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

```
private void GetDataWebResponse response)
{
    var streamReader = new StreamReader(response.GetResponseStream());
    urlText.Text = streamReader.
```

**Correct Answer:**

```
private async void GetData(WebResponse response)
{
    var streamReader = new StreamReader(response.GetResponseStream());
    urlText.Text = await streamReader.ReadLineAsync();
}
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 28**

You are developing an application that implements a set of custom exception types. You declare the custom exception types by using the following code segments:

```
public class AdventureWorksException : System.Exception { ... }
public class AdventureWorksDbException : AdventureWorksException { ... }
public class AdventureWorksValidationException : AdventureWorksException
{ ... }
```

The application includes a function named `DoWork` that throws .NET Framework exceptions and custom exceptions. The application contains only the following logging methods:

```
static void Log(Exception ex) { ... }
static void Log(AdventureWorksException ex) { ... }
static void Log(AdventureWorksValidationException ex) { ... }
```

The application must meet the following requirements:

- when `AdventureWorksValidationException` exceptions are caught, log the information by using the static void `Logx(AdventureWorksValidationException ex)` method.
- when `AdventureWorksDbException` or other `AdventureWorksException` exceptions are caught, log the information by using the static void `Log(AdventureWorksException ex)` method.

You need to meet the requirements. How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

```
(AdventureWorksValidationException ex)
(AdventureWorksException ex)
(Exception ex)
(ContosoDbException ex)

try
{
    DoWork();
}
catch []
{
    Log(ex);
}
catch []
{
    Log(ex);
}
catch []
{
    Log(ex);
}
```

Correct Answer:

```
(AdventureWorksValidationException ex)
(AdventureWorksException ex)
(Exception ex)
(ContosoDbException ex)

try
{
    DoWork();
}
catch (AdventureWorksValidationException e)
{
    Log(ex);
}
catch (AdventureWorksException ex)
{
    Log(ex);
}
catch (Exception ex)
{
    Log(ex);
}
```

Section: (none)  
Explanation

Explanation/Reference:

QUESTION 29

You are testing an application. The application includes methods named CalculateInterest and LogLine. The CalculateInterest() method calculates loan interest. The LogLine() method sends diagnostic messages to a console window. You have the following requirements:

- the CalculateInterest() method must run for all build configurations.
- LogLine() method must run only for debug builds.

You need to ensure that the methods run correctly. How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

[Conditional("DEBUG")]  
[Conditional("RELEASE")]  
#if DEBUG  
#region DEBUG  
#endif  
#endregion

```
private static decimal CalculateInterest(decimal loanAmount)
{
    decimal interestAmount = loanAmount * loanRate * loanTerm;
    LogLine("Interest Amount : ", interestAmount.ToString());
    return interestAmount;
}
public static void LogLine(string message, string detail)
{
    Console.WriteLine("Log: {0} = {1}", message, detail);
}
```

**Correct Answer:**

[Conditional("DEBUG")]  
[Conditional("RELEASE")]  
#if DEBUG  
#region DEBUG  
#endif  
#endregion

```
private static decimal CalculateInterest(decimal loanAmount)
{
    decimal interestAmount = loanAmount * loanRate * loanTerm;
    #if DEBUG
    LogLine("Interest Amount : ", interestAmount.ToString());
    #endif
    return interestAmount;
}
public static void LogLine(string message, string detail)
{
    Console.WriteLine("Log: {0} = {1}", message, detail);
}
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 30**

You are developing an application by using C#. The application will process several objects per second. You need to create a performance counter to analyze the object processing. Which three actions should you perform in sequence? (To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.)

**Select and Place:**

Add the **CounterCreationData** objects to the collection by calling the **Add()** method of the collection.

Create a **PerformanceCounterPermissionEntryCollection** collection.

Call the **Create()** method of the **PerformanceCounterCategory** class and pass the collection to the method.

Get the **CategoryName** property of the **PerformanceCounterPermissionEntry** class.

Create a **CounterCreationDataCollection** collection. Then create the counters as **CounterCreationData** objects and set the necessary properties.

**Correct Answer:**

Create a **PerformanceCounterPermissionEntryCollection** collection.

Get the **CategoryName** property of the **PerformanceCounterPermissionEntry** class.

Create a **CounterCreationDataCollection** collection. Then create the counters as **CounterCreationData** objects and set the necessary properties.

Add the **CounterCreationData** objects to the collection by calling the **Add()** method of the collection.

Call the **Create()** method of the **PerformanceCounterCategory** class and pass the collection to the method.

**Section: (none)**  
**Explanation**

**Explanation/Reference:**  
Refer to Q33

```

CounterCreationDataCollection counterDataCollection = new CounterCreationDataCollection(); // Box1
// Add the counter. Box 1
CounterCreationData averageCount64 = new CounterCreationData();
averageCount64.CounterType = PerformanceCounterType.AverageCount64;
averageCount64.CounterName = "AverageCounter64Sample";
counterDataCollection.Add(averageCount64);
// Add the base counter.
CounterCreationData averageCount64Base = new CounterCreationData();
averageCount64Base.CounterType = PerformanceCounterType.AverageBase;
averageCount64Base.CounterName = "AverageCounter64SampleBase";
counterDataCollection.Add(averageCount64Base); // Box 2
// Create the category. Box 3
PerformanceCounterCategory.Create("AverageCounter64SampleCategory",
"Demonstrates usage of the AverageCounter64 performance counter type.",
PerformanceCounterCategoryType.SingleInstance, counterDataCollection);

```

### **QUESTION 31**

You are developing an application that includes a class named `Warehouse`. The `Warehouse` class includes a static property named `Inventory`. The `Warehouse` class is defined by the following code segment. (Line numbers are included for reference only.)

```

01 public class Warehouse
02 {
03     static Inventory _inventory = null;
04     static object _lock = new object();
05     public static Inventory Inventory
06     {
07         get
08         {
09             return _inventory;
10         }
11     }
12 }
13 }

```

You have the following requirements:

- initialize the `_inventory` field to an `Inventory` instance.
- initialize the `_inventory` field only once.
- ensure that the application code acquires a lock only when the `_inventory` object must be instantiated.

You need to meet the requirements. Which three code segments should you insert in sequence at line 09? (To answer, move the appropriate code segments from the list of code segments to the answer area and arrange them in the correct order.)

### **Select and Place:**

```
if (_inventory != null) _inventory = new  
Inventory();  
  
if (_inventory != null)  
  
lock (_lock)  
  
if (_inventory == null)  
  
if (_inventory == null) _inventory = new  
Inventory();
```

**Correct Answer:**

```
if (_inventory != null) _inventory = new  
Inventory();  
  
if (_inventory != null)
```

```
if (_inventory == null)  
lock (_lock)  
if (_inventory == null) _i  
Inventory();
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

After taking a lock you must check once again the `_inventory` field to be sure that other threads didn't instantiate it in the meantime.

**QUESTION 32**

You are implementing a method that creates an instance of a class named `User`. The `User` class contains a public event named `Renamed`. The following code segment defines the `Renamed` event:

```
public event EventHandler<RenamedEventArgs> Renamed;
```

You need to create an event handler for the `Renamed` event by using a lambda expression. How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Select and Place:**

```
user.Renamed -= delegate(object sender, RenamedEventArgs e)
user.Renamed -= (sender, e) =>
user.Renamed += delegate(object sender, RenamedEventArgs e)
user.Renamed += (sender, e) =>
users[0] = user;
users.Add(user);
users.Insert(user);

List<User> users = new List<User>();

public void AddUser(string name)
{
    User user = new User(name);
    {
        Log("User {0} was renamed to {1}", e.OldName, e.Name);
    };
}
```

**Correct Answer:**

```
user.Renamed -= delegate(object sender, RenamedEventArgs e)
user.Renamed -= (sender, e) =>
user.Renamed += delegate(object sender, RenamedEventArgs e)
user.Renamed += (sender, e) =>
users[0] = user;
users.Add(user);
users.Insert(user);

List<User> users = new List<User>();

public void AddUser(string name)
{
    User user = new User(name);
    user.Renamed += (sender, e) =>
    {
        Log("User {0} was renamed to {1}", e.OldName, e.Name);
    };
    users.Add(user);
}
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

## HOTSPOT

### QUESTION 1

You have the following code (line numbers are included for reference only):

```
01 using (StreamWriter writer = new StreamWriter(@"C:\console.txt"))
02 {
03     Console.SetOut(writer);
04     using (FileStream stream = new FileStream(@"C:\file.txt", FileMode.Open))
05     {
06         using (StreamReader reader = new StreamReader(stream))
07         {
08             while (!reader.EndOfStream) Console.WriteLine(reader.ReadLine());
09         }
10     }
11 }
```

To answer, complete each statement according to the information presented in the code.

#### Hot Area:

If File.txt does NOT exist in the root of C:, ... will be thrown.

ArgumentNullException
FileLoadException
FileNotFoundException
PipeException

The final output of the streaming operation will be ...

a console window.
the Console.txt file.
the file.txt file.
the Visual Studio Debug console.

#### Correct Answer:

If File.txt does NOT exist in the root of C:, ... will be thrown.

ArgumentNullException
FileLoadException
FileNotFoundException
PipeException

The final output of the streaming operation will be ...

a console window.
the Console.txt file.
the file.txt file.
the Visual Studio Debug console.

#### Section: (none)

#### Explanation

#### Explanation/Reference:

### QUESTION 2

## HOTSPOT

You have an existing order processing system that accepts .xml files.  
The following code shows an example of a properly formatted order in XML:

```
<Order OrderID="42">
  <Customer>Ben Smith</Customer>
  <CustomerID>206</CustomerID>
  <OrderDate>2013-04-19T09:13:14.7265994-05:00</OrderDate>
</Order>
```

You create the following class that will be serialized:

```
[DataContract()]
public class Order
{
  [DataMember()]
  public Int32 OrderID { get; set; }

  [DataMember(Name = "Customer")]
  public String CustomerName { get; set; }

  [DataMember()]
  private Int32 CustomerID { get; set; }

  public DateTime OrderDate { get; set; }
}
```

For each of the following properties, select Yes if the property is serialized according to the defined schema.  
Otherwise, select No.

**Hot Area:**

	<b>Yes</b>	<b>No</b>
OrderID	<input type="radio"/>	<input checked="" type="radio"/>
OrderDate	<input checked="" type="radio"/>	<input type="radio"/>
CustomerName	<input checked="" type="radio"/>	<input type="radio"/>

**Correct Answer:**

	<b>Yes</b>	<b>No</b>
OrderID	<input checked="" type="radio"/>	<input type="radio"/>
OrderDate	<input type="radio"/>	<input checked="" type="radio"/>
CustomerName	<input checked="" type="radio"/>	<input type="radio"/>

**Section: (none)**  
**Explanation**

**Explanation/Reference:**

**QUESTION 3**

You define a class by using the following code:

```
public class Class1 : IComparable<Class1>
{
    public Int32 ID { get; set; }
    public String Name { get; set; }
    public int CompareTo(Class1 other)
    {
        if(ID == other.ID) return 0;
        else return ID.CompareTo(other.ID);
    }
}
```

You write the following code for a method (line numbers are included for reference only):

```
01 List<Class1> list = new List<Class1>() {
02     new Class1() { ID = 5, Name = "User1" },
03     new Class1() { ID = 6, Name = "User2" },
04     new Class1() { ID = 3, Name = "User3" },
05     new Class1() { ID = 4, Name = "User4" }
06 };
07 Console.WriteLine(list.Count);
08 list.Sort();
09 Console.WriteLine(list[0].Name);
```

To answer, complete each statement according to the information presented in the code.

**Hot Area:**

Line 07 of the method will display ...

0
1
2
3
4

Line 09 of the method will display ...

User1
User2
User3
User4

**Correct Answer:**

Line 07 of the method will display ...

0
1
2
3
4

Line 09 of the method will display ...

User1
User2
User3
User4

### Section: (none)

#### Explanation

#### Explanation/Reference:

#### QUESTION 4

You define a class by using the following code:

```
public class Department
{
    public int Id { get; set; }
    public string Name { get; set; }
    public string Manager { get; set; }
    public int BuildingId { get; set; }
}
```

You create a collection by using the following code:

```
Department[] departments =
{
    new Department
    { Id = 1, Name = "Accounting", Manager = "User1", BuildingId = 15 },
    new Department
    { Id = 2, Name = "Sales", Manager = "User2", BuildingId = 3 },
    new Department
    { Id = 3, Name = "IT", Manager = "User3" , BuildingId = 15},
    new Department
    { Id = 4, Name = "Marketing", Manager = "User4", BuildingId = 3}
};
var output =
    from d in departments
    group d by d.BuildingId into dp
    select new { sorted = dp.Key, Department = dp };
```

To answer, complete each statement according to the information presented in the code.

#### Hot Area:

The output collection will contain ... object(s).

0
1
2
3
4

The sorted property of the output collection will be the ... type.

byte
int
string
var

**Correct Answer:**

The output collection will contain ... object(s).

0
1
2
3
4

The sorted property of the output collection will be the ... type.

byte
int
string
var

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 5**

You have the following code (line numbers are included for reference only):

```
01 DataTable dataTable;
02 string connString = "Data Source=192.168.1.100;Initial Catalog=Database1;User Id=sa;P
03 using (SqlConnection sqlConn = new SqlConnection(connString))
04 {
05     sqlConn.Open();
06     using (SqlCommand sqlCmd = new SqlCommand())
07     {
08         sqlCmd.Connection = sqlConn;
09         sqlCmd.CommandType = CommandType.StoredProcedure;
10         sqlCmd.CommandText = "p_Procedure1";
11         using (SqlDataAdapter adapter = new SqlDataAdapter(sqlCmd))
12         {
13             using (dataTable = new DataTable())
14             {
15                 adapter.Fill(dataTable);
16             }
17         }
18     }
19 }
```

To answer, complete each statement according to the information presented in the code.

**Hot Area:**

The database connection gets closed at line...

A dropdown menu containing the numbers 15, 16, 17, 18, and 19, with the bottom number (19) highlighted.

The adapter object gets disposed at line..

A dropdown menu containing the numbers 15, 16, 17, 18, and 19, with the top number (15) highlighted.

**Correct Answer:**

The database connection gets closed at line...

A dropdown menu containing the numbers 15, 16, 17, 18, and 19, with the bottom number (19) highlighted.

The adapter object gets disposed at line..

A dropdown menu containing the numbers 15, 16, 17, 18, and 19, with the middle number (17) highlighted.

**Section: (none)**  
**Explanation**

**Explanation/Reference:**

**QUESTION 6**

You have the following code:

```
public class Customer
{
    private int CustomerId      { get; set; }
    public string CompanyName { get; set; }
    protected string State       { get; set; }
    public string City          { get; set; }

    public Customer(int customerId, string companyName, string state, string city)
    {
        CustomerId = customerId;
        CompanyName = companyName;
        State = state;
        City = city;
    }
    public Customer() {}
}

public interface ICustomer
{
    string GetCustomerById(int customerId);
    string GetCustomerByDate(DateTime dateFrom, DateTime dateTo);
}

public class MyCustomerClass : Customer, ICustomer
{
    public string Zip { get; set; }
    public string Phone { get; set; }
    public string GetCustomerById(int customerId)
    {
        ...
    }
    public string GetCustomerByDate(DateTime dateFrom, DateTime dateTo)
    {
        ...
    }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

**Hot Area:**

	<b>Yes</b>	<b>No</b>
All of the objects derived from MyCustomerClass have CustomerID as a property.	<input type="radio"/>	<input checked="" type="radio"/>
All of the objects derived from MyCustomerClass have CompanyName as a property.	<input checked="" type="radio"/>	<input type="radio"/>
All of the objects derived from MyCustomerClass have State as a property.	<input type="radio"/>	<input checked="" type="radio"/>

**Correct Answer:**

	Yes	No
All of the objects derived from MyCustomerClass have CustomerID as a property.	<input checked="" type="radio"/>	<input type="radio"/>
All of the objects derived from MyCustomerClass have CompanyName as a property.	<input checked="" type="radio"/>	<input type="radio"/>
All of the objects derived from MyCustomerClass have State as a property.	<input checked="" type="radio"/>	<input type="radio"/>

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 7**

You are building a data access layer in an application that contains the following code:

```
public static Object GetTypeDefault(DbType dbDataType)
{
    switch (dbDataType)
    {
        case DbType.Boolean:
            return false;
        case DbType.DateTime:
            return DateTime.MinValue;
        case DbType.Decimal:
            return 0m;
        case DbType.Int32:
            return 0;
        case DbType.String:
            return String.Empty;
        default:
            return null;
    }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

**Hot Area:**

	Yes	No
If dbDataType is DateTime, today's date is returned.	<input checked="" type="radio"/>	<input type="radio"/>
If dbDatatype is Int64, Null is returned.	<input checked="" type="radio"/>	<input type="radio"/>
If dbDatatype is Double, 0 is returned.	<input checked="" type="radio"/>	<input type="radio"/>

**Correct Answer:**

	Yes	No
If dbDataType is DateTime, today's date is returned.	<input type="radio"/>	<input checked="" type="radio"/>
If dbDatatype is Int64, Null is returned.	<input checked="" type="radio"/>	<input type="radio"/>
If dbDatatype is Double, 0 is returned.	<input type="radio"/>	<input checked="" type="radio"/>

**Section: (none)**  
**Explanation**

**Explanation/Reference:**

**QUESTION 8**

You have the following code:

```
public class Alert
{
    public event EventHandler<EventArgs> SendMessage;

    public void Execute()
    {
        SendMessage(this, new EventArgs());
    }
}

public class Subscriber
{
    Alert alert = new Alert();

    public void Subscribe()
    {
        alert.SendMessage += (sender, e) => { Console.WriteLine("First"); };
        alert.SendMessage += (sender, e) => { Console.WriteLine("Second"); };
        alert.SendMessage += (sender, e) => { Console.WriteLine("Third"); };
        alert.SendMessage += (sender, e) => { Console.WriteLine("Third"); };
    }

    public void Execute()
    {
        alert.Execute();
    }
}

public static void Main()
{
    Subscriber subscriber = new Subscriber();
    subscriber.Subscribe();
    subscriber.Execute();
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

**Hot Area:**

	Yes	No
If there are no subscribers to the SendMessage event, the Execute method on the Alert class will throw an exception.	<input type="radio"/>	<input type="radio"/>
When the application runs, "First" will always appear before "Second".	<input type="radio"/>	<input checked="" type="radio"/>
When the application runs, "Third" will be displayed once.	<input type="radio"/>	<input checked="" type="radio"/>

**Correct Answer:**

	Yes	No
If there are no subscribers to the SendMessage event, the Execute method on the Alert class will throw an exception.	<input checked="" type="radio"/>	<input type="radio"/>
When the application runs, "First" will always appear before "Second".	<input type="radio"/>	<input checked="" type="radio"/>
When the application runs, "Third" will be displayed once.	<input type="radio"/>	<input checked="" type="radio"/>

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 9**

You are developing the following classes named:

- Class1
- Class2
- Class3

All of the classes will be part of a single assembly named Assembly.dll. Assembly.dll will be used by multiple applications.

All of the classes will implement the following interface, which is also part of Assembly.dll:

public interface Interface1

```
{
void Method1(decimal amount);
void Method2(decimal amount);
}
```

You need to ensure that the Method2 method for the Class3 class can be executed only when instances of the class are accessed through the Interface1 interface. The solution must ensure that calls to the Method1 method can be made either through the interface or through an instance of the class.

Which signature should you use for each method? (To answer, select the appropriate signature for each method in the answer area.)

**Hot Area:**

Method1:

```
internal void Method1(decimal amount)
private void Method1(decimal amount)
public void Method1(decimal amount)
void Interface1.Method1(decimal amount)
```

Method2:

```
internal void Method2(decimal amount)
private void Method2(decimal amount)
public void Method2(decimal amount)
void Inteface1. Method2 (decimal amount)
```

**Correct Answer:**

Method1:

```
internal void Method1(decimal amount)
private void Method1(decimal amount)
public void Method1(decimal amount)
void Interface1.Method1(decimal amount)
```

Method2:

```
internal void Method2(decimal amount)
private void Method2(decimal amount)
public void Method2(decimal amount)
void Inteface1. Method2 (decimal amount)
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 10**

You are developing an application that includes a Windows Communication Foundation (WCF) service. The service includes a custom TraceSource object named ts and a method named DoWork. The application must meet the following requirements:

- Collect trace information when the DoWork() method executes.
- Group all traces for a single execution of the DoWork() method as an activity that can be viewed in the WCF Service Trace Viewer Tool.

You need to ensure that the application meets the requirements.

How should you complete the relevant code? (To answer, select the correct code segment from each drop-down list in the answer area.)

**Hot Area:**

```
static TraceSource ts = new TraceSource("Contoso",  
    SourceLevels.ActivityTracing  
    SourceLevels.Information  
    SourceLevels.Verbose  
    SourceLevels.Critical  
);  
public void DoWork()  
{  
    var originalId = Trace.CorrelationManager.ActivityId;  
    try  
    {  
        var guid = Guid.NewGuid();  
  
        ts.TraceTransfer(1, "Changing Activity", guid);  
        ts.TraceEvent(TraceEventType.Start, 0, "Start");  
        ts.TraceTransfer(1, "Changing Activity", originalId);  
        ts.TraceInformation("Start");  
  
        Trace.CorrelationManager.ActivityId = guid;  
  
        ts.TraceTransfer(1, "Changing Activity", guid);  
        ts.TraceEvent(TraceEventType.Start, 0, "Start");  
        ts.TraceTransfer(1, "Changing Activity", originalId);  
        ts.TraceInformation("Start");  
  
    }  
    finally  
    {  
  
        ts.TraceTransfer(1, "Changing Activity", guid);  
        ts.TraceTransfer(1, "Changing Activity", originalId);  
        ts.TraceInformation("Stop");  
  
        ts.TraceTransfer(1, "Changing Activity", guid);  
        ts.TraceEvent(TraceEventType.Stop, 0, "Stop");  
        ts.TraceInformation("Stop");  
  
        Trace.CorrelationManager.ActivityId = originalId;  
    }  
}
```

**Correct Answer:**

```

static TraceSource ts = new TraceSource("Contoso",
    SourceLevels.ActivityTracing
    SourceLevels.Information
    SourceLevels.Verbose
    SourceLevels.Critical

);

public void DoWork()
{
    var originalId = Trace.CorrelationManager.ActivityId;
    try
    {
        var guid = Guid.NewGuid();

        ts.TraceTransfer(1, "Changing Activity", guid);
        ts.TraceEvent(TraceEventType.Start, 0, "Start");
        ts.TraceTransfer(1, "Changing Activity", originalId);
        ts.TraceInformation("Start");

        Trace.CorrelationManager.ActivityId = guid;

        ts.TraceTransfer(1, "Changing Activity", guid);
        ts.TraceEvent(TraceEventType.Start, 0, "Start");
        ts.TraceTransfer(1, "Changing Activity", originalId);
        ts.TraceInformation("Start");

    }
    finally
    {

        ts.TraceTransfer(1, "Changing Activity", guid);
        ts.TraceTransfer(1, "Changing Activity", originalId);
        ts.TraceInformation("Stop");

        ts.TraceTransfer(1, "Changing Activity", guid);
        ts.TraceEvent(TraceEventType.Stop, 0, "Stop");
        ts.TraceInformation("Stop");

        Trace.CorrelationManager.ActivityId = originalId;
    }
}

```

**Section: (none)**  
**Explanation**

**Explanation/Reference:**

**QUESTION 11**

You are developing an application in C#.

The application will display the temperature and the time at which the temperature was recorded. You have the following method (line numbers are included for reference only):

```
01 public void DisplayTemperature(DateTime date, double temp)
02 {
03     string output;
04
05     string lblMessage = output;
06 }
```

You need to ensure that the message displayed in the `lblMessage` object shows the time formatted according to the following requirements:

- The time must be formatted as hour:minute AM/PM, for example 2:00 PM.
- The date must be formatted as month/day/year, for example 04/21/2013.
- The temperature must be formatted to have two decimal places, for example 23.45.

Which code should you insert at line 04? (To answer, select the appropriate options in the answer area.)

**Hot Area:**

```
output = string.Format("Temperature at ", date, temp)
```

<input type="checkbox"/>	on	<input type="checkbox"/>	<input type="checkbox"/>
{0:t}		{0:d}	{0}
{1:t}		{1:d}	{1}
{0:hh:mm}		{0:dd/mm/yy}	{0:N2}
{1:hh:mm}		{1:mm/dd/yy}	{1:N2}

**Correct Answer:**

```
output = string.Format("Temperature at ", date, temp)
```

<input checked="" type="checkbox"/>	on	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
{0:t}		{0:d}	{0}
{1:t}		{1:d}	{1}
{0:hh:mm}		{0:dd/mm/yy}	{0:N2}
{1:hh:mm}		{1:mm/dd/yy}	{1:N2}

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 12**

**HOTSPOT**

You are reviewing the following code:

```
[System.FlagsAttribute()]
public enum Group
{
    Users = 1,
    Supervisors = 2,
    Managers = 4,
    Administrators = 8
}
public class User
{
    public Group UserGroup { get; set; }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

**Hot Area:**

	Yes	No
A user can be a member of more than one of the groups.	<input type="radio"/>	<input checked="" type="radio"/>
If the user belongs to only the Administrators group, the following code will return a value of true:	<input type="radio"/>	<input checked="" type="radio"/>
user.UserGroup == Group.Administrators		
If the user belongs to only the Supervisors group, the following code will return a value of true:	<input type="radio"/>	<input checked="" type="radio"/>
user.UserGroup != Group.Administrators		

**Correct Answer:**

	Yes	No
A user can be a member of more than one of the groups.	<input checked="" type="radio"/>	<input type="radio"/>
If the user belongs to only the Administrators group, the following code will return a value of true:	<input checked="" type="radio"/>	<input type="radio"/>
user.UserGroup == Group.Administrators		
If the user belongs to only the Supervisors group, the following code will return a value of true:	<input type="radio"/>	<input checked="" type="radio"/>
user.UserGroup != Group.Administrators		

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Note:

\* An enum type is a special data type that enables for a variable to be a set of predefined constants. The variable must be equal to one of the values that have been predefined for it.

**QUESTION 13**

You have the following code:

```
private static Dictionary<string, int> CreateTestData()
{
    Dictionary<string, int> dict = new Dictionary<string, int>()
    {
        {"Accounting", 1},
        {"Marketing", 2},
        {"Operations", 3}
    };
    return dict;
}
private static bool? FindInList(string searchTerm)
{
    Dictionary<string, int> data = CreateTestData();

    if (data.ContainsKey(searchTerm))
    {
        return true;
    }
    else
    {
        return false;
    }
}
```

To answer, complete each statement according to the information presented in the code.

**Hot Area:**

If the search term is set to "Finance", the result will be ...

false
true
null

If the search term is set to "1", the result will be ...

false
true
null

If the search term is set to "Operations", the result will be ...

false
true
null

**Correct Answer:**

If the search term is set to "Finance", the result will be ...

<input type="button" value="▼"/>
false
true
null

If the search term is set to "1", the result will be ...

<input type="button" value="▼"/>
false
true
null

If the search term is set to "Operations", the result will be ...

<input type="button" value="▼"/>
false
true
null

### Section: (none)

#### Explanation

#### Explanation/Reference:

### QUESTION 14

You have the following code:

```
[DataContract(Name="Individual")]
public class Individual
{
    private string m_FirstName;
    private string m_LastName;

    [DataMember]
    public string FirstName
    {
        get { return m_FirstName; }
        set { m_FirstName = value; }
    }

    [DataMember(EmitDefaultValue=false)]
    public string LastName
    {
        get { return m_LastName; }
        set { m_LastName = value; }
    }

    public Individual()
    {}

    public Individual(string firstName, string lastName)
    {
        m_FirstName = firstName;
        m_LastName = lastName;
    }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

**Hot Area:**

	<b>Yes</b>	<b>No</b>
LastName will be serialized after firstName.	<input type="radio"/>	<input checked="" type="radio"/>
The namespace used in the serialized XML will be Individual.	<input checked="" type="radio"/>	<input type="radio"/>
The lastName node will always appear in the serialized XML.	<input type="radio"/>	<input checked="" type="radio"/>

**Correct Answer:**

	<b>Yes</b>	<b>No</b>
LastName will be serialized after firstName.	<input type="radio"/>	<input checked="" type="radio"/>
The namespace used in the serialized XML will be Individual.	<input checked="" type="radio"/>	<input type="radio"/>
The lastName node will always appear in the serialized XML.	<input type="radio"/>	<input checked="" type="radio"/>

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**Note:**

\* The System.Runtime.Serialization namespace contains classes that can be used for serializing and deserializing objects. Serialization is the process of converting an object or a graph of objects into a linear sequence of bytes for either storage or transmission to another location. Deserialization is the process of taking in stored information and recreating objects from it.

\* EmitDefaultValue

DataMemberAttribute.EmitDefaultValue Property

Gets or sets a value that specifies whether to serialize the default value for a field or property being serialized.

true if the default value for a member should be generated in the serialization stream; otherwise, false.

**QUESTION 15**

You are implementing a library method that accepts a character parameter and returns a string. If the lookup succeeds, the method must return the corresponding string value. If the lookup fails, the method must return the value "invalid choice." You need to implement the lookup algorithm. How should you complete the relevant code? (To answer, select the correct keyword in each drop-down list in the answer area.)

**Hot Area:**

```
public string GetResponse(char letter)
{
    string response;
    ▼(letter)
    case
    if
    switch
    {
        ▼'a':
        case
        default
        else
        if
            response = "animal";
            break;
        ▼'m':
        case
        default
        else
        if
            response = "mineral";
            break;
        ▼:
        case
        default
        else
        if
            response = "invalid choice";
            break;
    }
    return response;
}
```

**Correct Answer:**

```
public string GetResponse(char letter)
{
    string response;
    (letter)
    case
    if
    switch
    {
        'a':
        case
        default
        else
        if
            response = "animal";
            break;
        'm':
        case
        default
        else
        if
            response = "mineral";
            break;
        :
        case
        default
        else
        if
            response = "invalid choice";
            break;
    }
    return response;
}
```

**Section: (none)**  
**Explanation**

**Explanation/Reference:**  
[http://msdn.microsoft.com/en-us/library/06tc147t\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/06tc147t(v=vs.110).aspx)