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70-483

Programming in C#

Version 21.0

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Sections

1. Volume A
2. Volume B

Exam A

QUESTION 1

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:

- 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: Volume A

Explanation

Explanation/Reference:

Explanation:

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.

References: <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();
```

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

Correct Answer: C

Section: Volume A

Explanation

Explanation/Reference:

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 Animals", sqlConnection);
13         using (SqlDataReader sqlDataReader = sqlCommand.ExecuteReader())
14         {
15             while (sqlDataReader.Read())
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.

NOTE: Each correct selection is worth one point.

- 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: Volume A
Explanation

Explanation/Reference:

Explanation:

- SqlConnection.Open - Opens a database connection with the property settings specified by the ConnectionString.
- SqlDataReader.Read - Advances the SqlDataReader to the next record.

References:

<http://msdn.microsoft.com/en-us/library/system.data.sqlclient.sqlconnection.open.aspx>

<http://msdn.microsoft.com/en-us/library/system.data.sqlclient.sqldatareader.read.aspx>

QUESTION 4

You have an assembly named Assembly1 that is written in C#. Assembly1 has a method named Method1.

You add a new method named Method2 to Assembly1. Method2 is a newer version of Method1 and must be used by applications in the future.

You need to ensure that if a developer builds a project that uses Method1, the developer is notified that Method1 is deprecated.

What should you do?

- A. Set an #if DEPRECATED preprocessor directive above Method1. Set a #endif preprocessor directive after Method1.
- B. Set a #pragma warning disable preprocessor inside of Method1.
- C. Set a #define preprocessor directive above Method1. Set an #if preprocessor directive inside of Method1.
- D. Set a #warning preprocessor directive inside of Method1.

Correct Answer: C
Section: Volume A
Explanation

Explanation/Reference:

Explanation:

You use #define to define a symbol. When you use the symbol as the expression that's passed to the #if directive, the expression will evaluate to true.

Example:

```
#define DEBUG
```

```
using System;
```

```
public class TestDefine
{
    static void Main()
    {
#if (DEBUG)
        Console.WriteLine("Debugging is enabled.");
#endif
    }
}
```

Reference:

<https://docs.microsoft.com/en-us/dotnet/csharp/language-reference/preprocessor-directives/preprocessor-define>

QUESTION 5

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 in the `OrderDate` property or in a later year.

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: A

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

- For the requirement to use an `OrderDate` value other than null use:
`OrderDate.Value != null`
- For the requirement to use an `OrderDate` value for this year or a later year use:
`OrderDate.Value >= year`

QUESTION 6

DRAG DROP

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. You may need to drag the split bar between panes or scroll to view content.)

Select and Place:

A screenshot of a software interface titled "Select and Place". On the left, there is a vertical list of code segments: "join", "from", "group", "ascending", "descending", "where", "orderby", and "select". On the right, there is a code editor pane containing the following C# code:

```
decimal[] loanAmounts = { 303m, 1000m, 85579m, 501.51m, 603m  
1200m, 400m, 22m };  
IQueryable<decimal> loanQuery =  
    from amount in loanAmounts  
    where amount % 2 == 0  
    orderby amount  
    select amount;
```

Correct Answer:

A screenshot of a software interface titled "Correct Answer". It shows the same code completion interface as the previous screenshot, but the "orderby" segment has been moved to the "select" segment, resulting in the following completed code:

```
decimal[] loanAmounts = { 303m, 1000m, 85579m, 501.51m, 603m  
1200m, 400m, 22m };  
IQueryable<decimal> loanQuery =  
    from amount in loanAmounts  
    where amount % 2 == 0  
    orderby amount ascending  
    select amount;
```

Section: Volume A
Explanation

Explanation/Reference:

Explanation:

Note: In a query expression, the orderby clause causes the returned sequence or subsequence (group) to be sorted in either ascending or descending order.

Examples:

```
// Query for ascending sort.
IQueryable<string> sortAscendingQuery =
from fruit in fruits
orderby fruit //"ascending" is default
select fruit;

// Query for descending sort.
IQueryable<string> sortDescendingQuery =
from w in fruits
orderby w descending
select w;
```

QUESTION 7

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: Volume A

Explanation

Explanation/Reference:

Explanation:

`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.

`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.

References:

<http://msdn.microsoft.com/pl-pl/library/system.io.filesshare.aspx>
<http://msdn.microsoft.com/en-us/library/system.io.filemode.aspx>

QUESTION 8

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: Volume A

Explanation

Explanation/Reference:

Explanation:

`JavaScriptSerializer.Deserialize<T>` - Converts the specified JSON string to an object of type T.

References: <http://msdn.microsoft.com/en-us/library/bb355316.aspx>

QUESTION 9

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 `XmIObjectSerializer` 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. New DataContractSerializer(typeof(Location))
- B. New XmlSerializer(typeof(Location))
- C. New NetDataContractSerializer()
- D. New DataContractJsonSerializer(typeof(Location))

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

The DataContractJsonSerializer class serializes objects to the JavaScript Object Notation (JSON) and deserializes JSON data to objects.

Use the DataContractJsonSerializer class to serialize instances of a type into a JSON document and to deserialize a JSON document into an instance of a type.

QUESTION 10

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: Volume A

Explanation

Explanation/Reference:

Explanation:

As - The `as` operator is like a cast operation. However, if the conversion isn't possible, `as` returns `null` instead of raising an exception.

Reference:

[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 11

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 : Animal`
 {
 ...
 }

B. `public static void Save<T>(T target) where T : Animal, new()`
 {
 ...
 }

C. `public static void Save(Animal target)`
 {
 ...
 }

D. `public static void Save<T>(T target) where T : new()`
 {
 ...
 }

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

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

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.

Reference:

<http://msdn.microsoft.com/en-us/library/d5x73970.aspx>

QUESTION 12

DRAG DROP

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 class ExtensionMethods
{
    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: Volume A
Explanation

Explanation/Reference:

QUESTION 13

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`
`{`
 `...`
`}`

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

Correct Answer: BD

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

Sealed - When applied to a class, the sealed modifier prevents other classes from inheriting from it.

References: [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 14

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(IEnumerable<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:

```
public interface IOutputFormatter<T>
{
    string GetOutput(IEnumerable<T> iterator, int recordsSize);
}
```

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;
```

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

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

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.

References: [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 15

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. WaitForFullGCApproach()

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 16

DRAG DROP

You are developing a class named **ExtensionMethods**.

You need to ensure that the **ExtensionMethods** class implements the `IsUrl()` extension method on string objects.

You have the following code:

```
Target 1
{
    public static bool IsUrl(
        Target 2
    )

    {
        var regex = new Regex(
            "(https://)?([A-Za-z0-9-]*\\.)?([A-Za-z0-9-]*)" +
            "\\.[A-Za-z0-9-]*/?.*");
        return regex.IsMatch(str);
    }
}
```

Which code segments should you include in Target 1 and Target 2 to complete the code? (To answer, drag the appropriate code segments to the correct targets 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.)

NOTE: Each correct selection is worth one point.

Select and Place:

Code Segments

`public static class ExtensionMethods`
`public class ExtensionMethods`
`this String str`
`String str`
`protected static class ExtensionMethods`

Answer Area

Target 1: Code Segment

Target 2: Code Segment

Correct Answer:

Code Segments

`public class ExtensionMethods`
`String str`
`protected static class ExtensionMethods`

Answer Area

Target 1: `public static class ExtensionMethods`

Target 2: `this String str`

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 17

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: Volume A

Explanation

Explanation/Reference:

QUESTION 18

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: Volume A

Explanation

Explanation/Reference:

Explanation:

- Assembly.GetExecutingAssembly - Gets the assembly that contains the code that is currently executing.
- Assembly.GetAssembly - Gets the currently loaded assembly in which the specified class is defined.

References:

<http://msdn.microsoft.com/en-us/library/system.reflection.assembly.getassembly.aspx>

[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)

QUESTION 19

HOTSPOT

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:

Work 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:

Work 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;
}
```

Section: Volume A
Explanation

Explanation/Reference:References: [http://msdn.microsoft.com/en-us/library/06tc147t\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/06tc147t(v=vs.110).aspx)**QUESTION 20**

DRAG DROP

You have the following code:

```
string[] vehicles = { "Airplane", "Boat", "Car" };
    Target 1<string> aVehicles =
    (Target 2 vehicle in vehicles
    Target 3 vehicle.StartsWith("A"))
    Target 4 vehicle).ToList<string>();
    foreach (var vehicle in aVehicles)
    {
        Console.WriteLine(vehicle);
    }
```

You need to display all of the vehicles that start with the letter "A".

How should you complete the code? To answer, drag the appropriate code elements to the correct targets. Each code element 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.

NOTE: Each correct selection is worth one point.**Select and Place:**

Code Segments	Answer Area
Array	Target 1: []
from	Target 2: []
include	Target 3: []
List	Target 4: []
select	
where	

Correct Answer:

The screenshot shows a programming exercise interface. On the left, under 'Code Segments', there are two rows of input fields. The first row contains 'Array' and an empty field. The second row contains 'include' and an empty field. On the right, under 'Answer Area', there is a vertical scroll bar. To its right are four target fields labeled 'Target 1' through 'Target 4'. The answers are: Target 1: List, Target 2: from, Target 3: where, Target 4: select.

Array	
include	

Target 1:	List
Target 2:	from
Target 3:	where
Target 4:	select

Section: Volume A Explanation

Explanation/Reference:

References:

<https://docs.microsoft.com/en-us/dotnet/csharp/language-reference/keywords/select-clause>

QUESTION 21

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 = 5;
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D
- E. Option E
- F. Option F

Correct Answer: AB

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 22**DRAG DROP**

You have a class named **Product** that has a property named **Name**.

You have the following code.

```
Product oneProduct = new Product();
oneProduct.Name = "aName";

string productName = oneProduct.Target 1 ().Target 2().First(
    prop => prop.Name == "Name" ). Target 3 (Target 4).ToString();
```

You need to get the **Name** property of **oneProduct**.

How should you complete the code? To answer, drag the appropriate code elements to the correct targets. Each code element 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.

NOTE: Each correct selection is worth one point.

Select and Place:

Code Segments	Answer Area
GetProperties	Target 1: [Dotted-line box]
GetType	Target 2: [Dotted-line box]
GetValue	Target 3: [Dotted-line box]
oneProduct	Target 4: [Dotted-line box]
"oneProduct"	

Correct Answer:

The screenshot shows a user interface for a programming exercise. On the left, under 'Code Segments', there are four empty text input boxes. Below them is a line of code: 'oneProduct'. To the right, under 'Answer Area', there is a vertical scroll bar followed by four target fields, each with a dotted border:

- Target 1: GetProperties
- Target 2: GetType
- Target 3: GetValue
- Target 4: "oneProduct"

Section: Volume A Explanation

Explanation/Reference:

QUESTION 23

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?

C 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;
```

C 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 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) =>
{
    ...
};
```

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

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

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

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 24

DRAG DROP

You develop an application that displays information from log files when errors occur. The application will prompt the user to create an error report that sends details about the error and the session to the administrator.

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 during this process.

You have the following code:

```
Target 1
{
    try
    {
        string line;
        while ((line = sr.ReadLine()) != null)
        {
            Console.WriteLine(line);
        }
    }
    catch (FileNotFoundException e)
    {
        Console.Write(e.ToString());
        Target 2
    }
}
```

Which code segments should you include in Target 1 and Target 2 to complete the code? To answer, drag the appropriate code segments to the correct targets. 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.

NOTE: Each correct selection is worth one point.

Select and Place:

Code Segments

```
using(StringReader sr = new StringReader("log.txt"))
using(StreamReader sr = new StreamReader("log.txt"))
throw new FileNotFoundException();
throw;
```

Answer Area

Target 1:

Target 2:

Correct Answer:

Code Segments

```
using(StringReader sr = new StringReader("log.txt"))
using(StreamReader sr = new StreamReader("log.txt"))
throw new FileNotFoundException();
throw;
```

Answer Area

Target 1:

```
using(StringReader sr = new StringReader("log.txt"))
```

Target 2:

```
throw new FileNotFoundException();
```

Section: Volume A Explanation

Explanation/Reference:

Explanation:

Box1: StringReader

- StringReader - Implements a TextReader that reads from a string.
- StreamReader - Implements a TextReader that reads characters from a byte stream in a particular encoding.

Box2: Throw new FileNotFoundException();

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.

References:

[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)

[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)

[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 25

DRAG DROP

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 Kiosk
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()  
lock (_lock)  
if (_catalog == null) _catalog = new Catalog()  
if (_catalog == null)
```

Section: Volume A
Explanation

Explanation/Reference:

Explanation:

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 26

DRAG DROP

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 GetData(WebResponse response)
{
    var streamReader = new StreamReader(response.GetResponseStream());

    urlText.Text = [ ] StreamReader.[ ];
}

[ ] ReadLine();
[ ] ReadToEnd();
[ ] ToString();

```

Correct Answer:

```

private [ ] async void GetData(WebResponse response)
{
    var streamReader = new StreamReader(response.GetResponseStream());

    urlText.Text = await [ ] StreamReader.[ ];
}

[ ] ReadLine();
[ ] ReadToEnd();
[ ] ToString();

```

Section: Volume A Explanation

Explanation/Reference:

QUESTION 27

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?

- C A. Place the code region inside the following lock statement:
- ```
lock (this)
{
 ...
}
```
- C B. Add a private object named **lockObject** to the **ScoreCard** class. Place the code region inside the following lock statement:
- ```
lock (lockObject)
{
    ...
}
```
- C C. Apply the following attribute to the **UpdateScore()** method signature:
- ```
[MethodImpl(MethodImplOptions.Synchronized)]
```
- C D. Add a public static object named **lockObject** to the **ScoreCard** class. Place the code region inside the following lock statement:
- ```
lock (typeof(ScoreCard))
{
    ...
}
```

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

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

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

QUESTION 28

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: Volume A

Explanation

Explanation/Reference:

Explanation:

`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.

References:

<http://msdn.microsoft.com/en-us/library/system.text.regularexpressions.regexoptions.aspx>

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

QUESTION 29

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: Volume A

Explanation

Explanation/Reference:

QUESTION 30

HOTSPOT

You plan to implement the following interfaces:

```
interface IFahrenheit
{
    double Temp();
}

interface iCelsius
{
    double Temp();
}
```

You have the following methods:

- `getCelsiusFromKelvin` returns the temperature in Celsius.
- `getFahrenheitFromKelvin` returns the temperature in Fahrenheit.

You need to implement both interfaces within a class named **TempControl**. The **TempControl** class must return the Celsius temperature as the default temperature if the following code executes.

```
TempControl t = new TempControl();
var celsiusTemp = t.Temp();
```

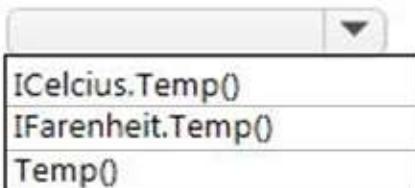
How should you implement the interfaces? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

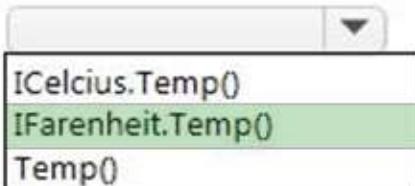
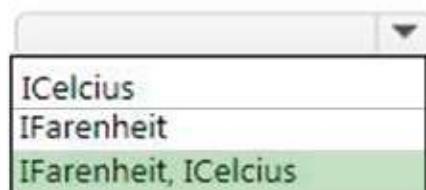
```
partial class TempControl:  
{  
    double kelvin;  
  
    public double  
    {  
        return getCelsiusFromKelvin();  
    }  
  
    double  
    {  
        return getFahrenheitFromKelvin();  
    }  
}
```



Correct Answer:

Answer Area

```
partial class TempControl:  
{  
    double kelvin;  
  
    public double  
    {  
        return getCelsiusFromKelvin();  
    }  
  
    double  
    {  
        return getFahrenheitFromKelvin();  
    }  
}
```



Section: Volume A
Explanation

Explanation/Reference:

QUESTION 31

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

- E. RSA
- F. Rfc2898DeriveBytes

Correct Answer: A

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

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.

References:

http://msdn.microsoft.com/en-us/library/92f9ye3s.aspx#hash_values

QUESTION 32

DRAG DROP

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.
- The LogLine () method must be called 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:

```
private static decimal CalculateInterest(decimal loanAmount, int loanTerm, decimal loanRate)
{
    decimal interestAmount = loanAmount * loanRate * loanTerm;
    if (DEBUG)
        LogLine("Interest Amount : ", interestAmount.ToString("c"));
    return interestAmount;
}
public static void LogLine(string message, string detail)
{
    Console.WriteLine("Log: {0} = {1}", message, detail);
}
```

Correct Answer:

```

private static decimal CalculateInterest(decimal loanAmount, int loanTerm, decimal loanRate)
{
    decimal interestAmount = loanAmount * loanRate * loanTerm;
    #if DEBUG
        LogLine("Interest Amount : ", interestAmount.ToString("c"));
    #endif
    return interestAmount;
}
public static void LogLine(string message, string detail)
{
    Console.WriteLine("Log: {0} = {1}", message, detail);
}

```

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 33

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.

NOTE: Each correct selection is worth one point.

- 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: Volume A

Explanation

Explanation/Reference:

Explanation:

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.

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

QUESTION 34

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 ADVANCED build configuration must run all three methods.
- The BASIC 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();

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

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 35

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);`

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

Correct Answer: A

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

`AdjustToUniversal` parses `s` and, if necessary, converts it to UTC.

Note: The `DateTime.TryParse` method converts the specified string representation of a date and time to its `DateTime` equivalent using the specified culture-specific format information and formatting style, and returns a value that indicates whether the conversion succeeded.

QUESTION 36

DRAG DROP

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 **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.
- Create a **PerformanceCounterPermissionEntryCollection** collection.
- Get the **CategoryName** property of the **PerformanceCounterPermissionEntry** class.

Section: Volume A Explanation

Explanation/Reference:

Explanation:

```
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 37

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.

NOTE: Each correct selection is worth one point.

- A. AssemblyKeyNameAttribute
- B. ObfuscateAssemblyAttribute
- C. AssemblyDelaySignAttribute
- D. AssemblyKeyFileAttribute
- E. AssemblyFlagsAttribute
- F. AssemblyConfigurationAttribute

Correct Answer: CD

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

To delay-sign an assembly:

1. Get the public key portion of the key pair from the organization that will do the eventual signing. Typically this key is in the form of an .snk file, which can be created using the Strong Name tool (Sn.exe) provided by the Windows SDK.
2. Annotate the source code for the assembly with two custom attributes from System.Reflection:
 - AssemblyDelaySignAttribute, which indicates that delay signing is being used by passing true as a parameter to its constructor.
 - AssemblyKeyFileAttribute, which passes the name of the file containing the public key as a parameter to its constructor.

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 38

DRAG DROP

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
10             return _inventory;
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:

Code Segments

if (_inventory != null) _inventory = new Inventory();
lock (_lock)
if (_inventory == null) _inventory = new Inventory();
if (_inventory == null)
if (_inventory != null)

Answer Area

Answer Area

if (_inventory == null)
lock (_lock)
if (_inventory == null) _inventory = new Inventory();

Correct Answer:

Code Segments

if (_inventory != null) _inventory = new Inventory();
if (_inventory != null)

Answer Area

Section: Volume A Explanation

Explanation/Reference:

Explanation:

After taking a lock you must check once again the `_inventory` field to be sure that other threads didn't instantiated it in the meantime.

QUESTION 39

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 a 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)]
```

A. Option A

B. Option B

C. Option C

D. Option D

Correct Answer: A

Section: Volume A

Explanation

Explanation/Reference:**QUESTION 40**

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 user to the BookTracker instance. What should you do?

C 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;
```

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

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

C 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(bookTracker);
```

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

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

Insert the following code segment at line 18:

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

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

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 41

DRAG DROP

You are implementing a method that creates an instance of a class named **User** and adds the user to the users list. The **User** class contains a public event named **Renamed**. The following code segment defines the

Renamed event:

```
Public event EventHandler<RenameEventArgs> Renamed;
```

You need to create an event handler for the **Renamed** event by using a lambda expression.

You have the following code:

```
List< User > users = new List< User >();
public void ADDUser(string name)
{
    User user = new User (name);
    Target 1
    {
        Log("User {0} was renamed to {1}", e.oldName, e.Name);
    };
    Target 2
}
```

Which code segments should you include in Target 1 and Target 2 to complete the code? To answer, drag the appropriate code segments to the correct targets. 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.

NOTE: Each correct selection is worth one point.

Select and Place:

Code Segments

```
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);
```

Answer Area

Target 1:

Target 2:

Correct Answer:

Code Segments

```
user.Renamed -= delegate(object sender,  
RenamedEventArgs e)  
  
user.Renamed -= (sender, e) =>  
  
user.Renamed += delegate(object sender,  
RenamedEventArgs e)  
  
users[0] = user;  
  
users.Insert(user);
```

Answer Area

Target 1:

```
user.Renamed += (sender, e) =>
```

Target 2:

```
users.Add(user);
```

Section: Volume A**Explanation****Explanation/Reference:****QUESTION 42**

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: Volume A****Explanation****Explanation/Reference:****Explanation:**

Assembly.LoadFile - Loads the contents of an assembly file on the specified path.

References: <http://msdn.microsoft.com/en-us/library/b61s44e8.aspx>

QUESTION 43

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: Volume A

Explanation

Explanation/Reference:

Explanation:

The GC.KeepAlive method 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.

The KeepAlive method performs no operation and produces no side effects other than extending the lifetime of the object passed in as a parameter.

QUESTION 44

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: Volume A

Explanation

Explanation/Reference:

Explanation:

The `GetData()` method should be private. It would then only be visible within the Person class.

QUESTION 45

DRAG DROP

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("\l");
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("\l");
var sb = new StringBuilder();
sb.Append("First Line");
sb.AppendLine();
sb.Append("Second Line");
sb.Append(String.Empty);
```

Section: Volume A Explanation

Explanation/Reference:

Explanation:

Box 1:

```
var sb = new StringBuilder();
```

First we create the variable.

Box 2:

```
sb.Append("First Line");
```

We create the first text line.

Box 3:

```
sb.AppendLine();
```

We add a blank line.

The `StringBuilder.AppendLine` method appends the default line terminator to the end of the current `StringBuilder` object.

Box 4:

```
sb.Append("Second Line");
```

Finally, we add the second line.

QUESTION 46

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`
`{`
 `...`
`}`

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

Correct Answer: AC

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

When applied to a class, the sealed modifier prevents other classes from inheriting from it.

References: [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 47

DRAG DROP

You are developing a class named **ExtensionMethods**.

You need to ensure that the **ExtensionMethods** class implements the `IsEmail()` extension 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(@"^([\w\.-]+@[.\w\.-]+(\.\.\w{2,3})+$");  
        return regex.IsMatch(str);  
    }  
}
```

Correct Answer:

```
public static class ExtensionMethods  
{  
    public static bool IsEmail(  
        this String str  
    )  
    {  
        var regex = new Regex(@"^([\w\.-]+@[.\w\.-]+(\.\.\w{2,3})+$");  
        return regex.IsMatch(str);  
    }  
}
```

Section: Volume A
Explanation

Explanation/Reference:

QUESTION 48

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.Deserialize(json, typeof(Name))`;
- B. Return `ser.ConvertToType<Name>(json)`;
- C. Return `ser.Deserialize<Name>(json)`;
- D. Return `ser.ConvertToType(json, typeof (Name))`;

Correct Answer: C

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 49

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 sqlSelectCustomers = "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            while (sqlDataReader.Read())
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: Volume A

Explanation

Explanation/Reference:

Explanation:

SqlConnection.Open - Opens a database connection with the property settings specified by the ConnectionString.

SqlDataReader.Read - Advances the SqlDataReader to the next record.

References:

<http://msdn.microsoft.com/en-us/library/system.data.sqlclient.sqlconnection.open.aspx>

<http://msdn.microsoft.com/en-us/library/system.data.sqlclient.sqldatareader.read.aspx>

QUESTION 50

DRAG DROP

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")]
....
```

```
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:

```
[XmlRoot("Customer", Namespace = "http://customer")]
```

```
[XmlElement("ProspectId")]
```

```
[XmlChoiceIdentifier]
```

```
[XmlArrayItem]
```

```
[XmlRoot("Prospect", Namespace = "http://prospect")]
```

```
public class Customer
```

```
{
```

```
    [XmlAttribute("ProspectId")]
```

```
    public Guid Id { get; set; }
```

```
    [XmlElement("FullName")]
```

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

```
    public DateTime DateOfBirth { get; set; }
```

```
    [XmlAttribute]
```

```
    public int Tin { get; set; }
```

```
}
```

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

References: <http://msdn.microsoft.com/en-us/library/3dkta8ya.aspx>

QUESTION 51

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);`

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

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

`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.

References: <http://msdn.microsoft.com/en-us/library/system.net.webclient.uploadvaluestaskasync.aspx>

QUESTION 52

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: Volume A

Explanation

Explanation/Reference:

Explanation:

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

QUESTION 53

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 items 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: Volume A

Explanation

Explanation/Reference:

Explanation:

SortedDictionary<TKey, TValue> - Represents a collection of key/value pairs that are sorted by key based on the associated IComparer<T> implementation.

References: <http://msdn.microsoft.com/en-us/library/ms132319.aspx>

QUESTION 54

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))`
-
- A. Option A
 - B. Option B
 - C. Option C
 - D. Option D

Correct Answer: A

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

`Int32.TryParse` - Converts the string representation of a number to its 32-bit signed integer equivalent. A return value indicates whether the conversion succeeded.

Incorrect Answers:

B, C: These will throw an exception when user enters non-integer value.

D: This is exactly the opposite what we want to achieve.

References: <http://msdn.microsoft.com/en-us/library/f02979c7.aspx>

QUESTION 55

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: Volume A

Explanation

Explanation/Reference:

Explanation:

By default, the `Debug.Assert` method works only in debug builds.

Incorrect:

Not D: Use the `Trace.Assert` method if you want to do assertions in release builds.

Reference:

<https://docs.microsoft.com/en-us/dotnet/api/system.diagnostics.debug.assert>

QUESTION 56

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: Volume A

Explanation

Explanation/Reference:

Explanation:

There is no such constraint (unless you define one explicitly) RELEASE.

References: <http://stackoverflow.com/questions/507704/will-if-release-work-like-if-debug-does-in-c>

QUESTION 57

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.

NOTE: Each correct selection is worth one point.

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> GetValidEmailAddreses(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;
}`

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.Value).ToList();
}`

D. `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()).ToL
}`

Correct Answer: BC

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 58

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.MultiInstance, 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: Volume A

Explanation

Explanation/Reference:

Explanation:

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".

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

QUESTION 59

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. Aes
- B. Rfc2898DeriveBytes
- C. DES
- D. HMACSHA512

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

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.

References:

http://msdn.microsoft.com/en-us/library/92f9ye3s.aspx#hash_values

QUESTION 60

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. SuppressFinalize()
- C. collect()
- D. RemoveMemoryPressure()

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 61

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;`
-
- A. Option A
 - B. Option B
 - C. Option C
 - D. Option D

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 62

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. WaitForFullGCCComplete()
- B. SuppressFinalize()
- C. WaitForFullGCApproach()
- D. WaitForPendingFinalizers()

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 63

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:

```
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: Volume A

Explanation

Explanation/Reference:

Explanation:

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.

References:

[https://docs.microsoft.com/en-us/previous-versions/visualstudio/visual-studio-2012/ms182363\(v=vs.110\)](https://docs.microsoft.com/en-us/previous-versions/visualstudio/visual-studio-2012/ms182363(v=vs.110))

QUESTION 64

DRAG DROP

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.

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:

The screenshot shows a programming interface with two main panes separated by a vertical split bar. On the left pane, there is a list of method names in yellow boxes: `ReadLineAsync()`, `ReadToEndAsync()`, `await`, `async`, `ReadLine()`, `ReadToEnd()`, and `ToString()`. On the right pane, there is a code editor with the following C# code:

```
public [ ] void GetData(WebResponse response)
{
    string urlText;
    var sr = new StreamReader(response.GetResponseStream());
    urlText = [ ] await sr.[ ];
}
```

The code editor has several empty yellow boxes where methods can be dragged from the left pane. The first empty box corresponds to the `public` keyword, the second to the `void` keyword, the third to the `sr` variable, and the fourth to the `ToString()` call.

Correct Answer:

The screenshot shows the same programming interface as above, but with the correct solution implemented. The code in the editor now looks like this:

```
public async [ ] void GetData(WebResponse response)
{
    string urlText;
    var sr = new StreamReader(response.GetResponseStream());
    urlText = await [ ] await sr.[ ] ReadToEndAsync();
}
```

The correct answers are: the `public` keyword is followed by `async`; the `void` keyword is followed by the empty box; the `sr` variable is followed by `ReadToEndAsync()`; and the `ToString()` call is removed.

Section: Volume A Explanation

Explanation/Reference:

QUESTION 65

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 Book
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 18:

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

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

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

Insert the following code segment at line 18:

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

- 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 14:

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

Insert the following code segment at line 18:

```
AddBookCallback callback = PrintBookCount;
```

Correct Answer: A

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 66

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 within the operation, and set the `Task.StartOnError` property to `true`.
- B. Create a `TaskFactory` object and call the `ContinueWhenAll()` method of the object.
- C. Create a task by calling the `Task.ContinueWith()` method.
- D. Use the `TaskScheduler` class to create a task and call the `TryExecuteTask()` method on the class.
- E. Create a `TaskCompletionSource<T>` object and call the `TrySetException()` method of the object.
- F. Examine the `Task.Status` property immediately after the call to the `Task.Run()` method.
- G. Create a task inside the existing `Task.Run()` method by using the `AttachedToParent` option.

Correct Answer: C

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

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.

Reference: <http://msdn.microsoft.com/en-us/library/dd270696.aspx>

QUESTION 67

You have the following code. (Line numbers are included for reference only.)

```
01 double x, y;  
02 x = 0.0;  
03 y = 0.0;  
04 Console.WriteLine(x/y);
```

What is the output of line 04?

- A. Error
- B. 0
- C. null
- D. NaN

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

References: <https://www.dotnetperls.com/divide>

QUESTION 68

DRAG DROP

You have the following code:

```
public static void DeserializeJsonData(MemoryStream stream1)  
{  
    DataContractJsonSerializer serializer =  
        new DataContractJsonSerializer(Target 1(Target 2));  
    CompanyInfo cn = (CompanyInfo)Target 3.ReadObject(stream1);
```

You need to deserialize the *stream1* parameter into the *CompanyInfo* class.

How should you complete the code? To answer, drag the appropriate code elements to the correct targets.

Each code element 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.

NOTE: Each correct selection is worth one point.

Select and Place:

Code Segments	Answer Area
CompanyInfo	Target 1:
Encoding.UTF8.GetBytes	Target 2:
JSONObject	Target 3:
ReadObject	
serializer	
typeof	

Correct Answer:

Code Segments	Answer Area
	Target 1: typeof
Encoding.UTF8.GetBytes	Target 2: CompanyInfo
JSONObject	Target 3: serializer
ReadObject	

Section: Volume A

Explanation

Explanation/Reference:

References:

<https://docs.microsoft.com/en-us/dotnet/framework/wcf/feature-details/how-to-serialize-and-deserialize-json-data>

QUESTION 69

HOTSPOT

You are developing a method named **Method1** for a class named **Class1**.

The method receives an integer parameter named *Parameter1* and returns to a decimal value.

You need to ensure that calls to **Method1** support being executed on separate threads.

How should you complete the method signature? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

▼	▼	Method1 (int parameter1)
async	decimal	
await	Task	
delegate	Task <decimal>	

Correct Answer:

Answer Area

▼	▼	Method1 (int parameter1)
async	decimal	
await	Task	
delegate	Task <decimal>	

Section: Volume A

Explanation

Explanation/Reference:

Reference: <https://docs.microsoft.com/en-us/dotnet/csharp/async>

QUESTION 70

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

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 71

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.)

NOTE: Each correct selection is worth one point.

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;

- A. Option A
- B. Option B
- C. Option C
- D. Option D
- E. Option E
- F. Option F

Correct Answer: EF

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 72

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. RemoveMemoryPressure()
- B. ReRegisterForFinalize()
- C. WaitForFullGCComplete()
- D. KeepAlive()
- E. Collect()

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 73

You have the following C# code.

```
StringBuilder sb = new StringBuilder(reallyLongString);
```

The `reallyLongString` variable is a string in which a very long string is stored.

You need to identify whether a string stored in an object named `StringToFind` is within the `StringBuilder` `sb` object.

Which code should you use?

- A. `sb.Equals(stringToFind);`
- B. `sb.ToString().IndexOf(stringToFind);`
- C. `sb.ToString().CompareTo(stringToFind);`
- D. `sb.ToString().Substring(stringToFind.Length);`

Correct Answer: A

Section: Volume A

Explanation

Explanation/Reference:

References:

https://docs.microsoft.com/en-us/dotnet/api/system.text.stringbuilder.equals?view=netframework-4.7.2#System_Text_StringBuilder_Equals_System_Text_StringBuilder

QUESTION 74

DRAG DROP

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 **PerformanceCounterPermissionEntry** objects to the collection by calling the **Add()** method of the collection.

Add the **CounterCreationData** objects to the collection by calling the **Add()** method of the collection.

Create a **CounterCreationDataCollection** collection. Then create the counters as **CounterCreationData** objects and set the necessary properties.

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.

Correct Answer:

Add the **PerformanceCounterPermissionEntry** objects to the collection by calling the **Add()** method of the collection.

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.

Create a **PerformanceCounterPermissionEntryCollection** collection.

Get the **CategoryName** property of the **PerformanceCounterPermissionEntry** class.

Section: Volume A Explanation

Explanation/Reference:

Explanation:

Note:

Example:

```
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 75

You are developing an application. The application calls a method that returns an array of integers named customerIds.

You define an integer variable named customerIdToRemove and assign a value to it. You declare an array named filteredCustomerIds.

You have the following requirements.

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

You need to create a LINQ query to meet the requirements.

Which code segment should you use?

- A. `int[] filteredCustomerIds = customerIds.Distinct().OrderByDescending(x => x).ToArray();`
- B. `int[] filteredCustomerIds = customerIds.Where(value => value != customerIdToRemove).OrderByDescending(x => x).ToArray();`
- C. `int[] filteredCustomerIds = customerIds.Distinct().Where(value => value != customerIdToRemove).OrderByDescending(x => x).ToArray();`
- D. `int[] filteredCustomerIds = customerIds.Where(value => value != customerIdToRemove).OrderBy(x => x).ToArray();`

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

Correct Answer: C

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 76

DRAG DROP

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 Log(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.

You have the following code:

```

try
{
    DoWork();
}
catch Target 1
{
    Log(ex);
}
catch Target 2
{
    Log(ex);
}
catch Target 3
{
    Log(ex);
}

```

Which code segments should you include in Target 1, Target 2, and Target 3 to complete the code? To answer, drag the appropriate code segments to the correct targets. 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.

NOTE: Each correct selection is worth one point.

Select and Place:

Code segments
(AdventureWorksValidationException ex)
(AdventureWorksException ex)
(Exception ex)
(AdventureWorksDbException ex)

Answer area

Target 1:	
Target 2:	
Target 3:	

Correct Answer:

Code segments
(Exception ex)

Answer area

Target 1:	(AdventureWorksValidationException ex)
Target 2:	(AdventureWorksDbException ex)
Target 3:	(AdventureWorksException ex)

Section: Volume A
Explanation

Explanation/Reference:

QUESTION 7

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.IValidatableObject 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 Validation 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;
}
```

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 78

DRAG DROP

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 (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: Volume A Explanation

Explanation/Reference:

QUESTION 79 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.

If the user belongs to only the Administrators group, the following code will return a value of true:

user.UserGroup == Group.Administrators

If the user belongs to only the Supervisors group, the following code will return a value of true:

user.UserGroup != Group.Administrators

Correct Answer:

Yes **No**

A user can be a member of more than one of the groups.



If the user belongs to only the Administrators group, the following code will return a value of true:

```
user.UserGroup == Group.Administrators
```



If the user belongs to only the Supervisors group, the following code will return a value of true:

```
user.UserGroup != Group.Administrators
```



Section: Volume A

Explanation

Explanation/Reference:

QUESTION 80

HOTSPOT

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 ...

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

Section: Volume A
Explanation

Explanation/Reference:

QUESTION 81

HOTSPOT

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.

NOTE: Each correct selection is worth one point

Hot Area:

	Yes	No
LastName will be serialized after firstName.	<input type="radio"/>	<input type="radio"/>
The namespace used in the serialized XML will be Individual.	<input type="radio"/>	<input type="radio"/>
The lastName node will always appear in the serialized XML.	<input type="radio"/>	<input type="radio"/>

Correct Answer:

	Yes	No
LastName will be serialized after firstName.	<input checked="" type="radio"/>	<input type="radio"/>
The namespace used in the serialized XML will be Individual.	<input type="radio"/>	<input checked="" type="radio"/>
The lastName node will always appear in the serialized XML.	<input type="radio"/>	<input checked="" type="radio"/>

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

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 82

DRAG DROP

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 run in the shortest amount of time.

Which four code blocks should you use to develop the solution? To answer, move the appropriate code blocks from the list of code blocks to the answer area and arrange them in the correct order.

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;
}

(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 =
```

```
(from c in customers
where ValidateCustomer(c)
select c).AsParallel().ToList();
```

Section: Volume A
Explanation

Explanation/Reference:

Explanation:

Note:

ParallelEnumerable.AsParallel Method

Enables parallelization of a query.

We parallelize the execution of the ValidateCustomer instances.

QUESTION 83

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: Volume A
Explanation

Explanation/Reference:

QUESTION 84

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 = ((**int[]**)array1)[0];
- C. var2 = **Convert.ToInt32(array1[0]);**
- D. var2 = array1[0] **is int;**

Correct Answer: C

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 85

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: Volume A

Explanation

Explanation/Reference:

Explanation:

The **checked** keyword is used to explicitly enable overflow checking for integral-type arithmetic operations and conversions.

References:

<https://docs.microsoft.com/en-us/dotnet/csharp/language-reference/keywords/checked>

<https://docs.microsoft.com/en-us/dotnet/api/system.overflowexception?view=netframework-4.7.2>

QUESTION 86

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: Volume A

Explanation

Explanation/Reference:

Explanation:

```
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");
}
```

References: <http://msdn.microsoft.com/en-us/library/vstudio/system.diagnostics.eventlogtracelistener>

QUESTION 87

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

```
01  class 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
13                  ("Select sqlName, sqlColor from Animals", fooSqlConn);
14              fooSqlConn.Open();
15              using (SqlDataReader fooSqlReader = fooSqlCmd.ExecuteReader())
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))`
-
- A. Option A
 - B. Option B
 - C. Option C

D. Option D

Correct Answer: B

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 88

HOTSPOT

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.

NOTE: Each correct selection is worth one point.

Hot Area:

output = string.Format("Temperature at on : ", date, temp);

{0:t}	{0:d}	{0}
{1:t}	{1:d}	{1}
{0:hh:mm}	{1:dd/mm/yyyy}	{0:N2}
{1:hh:mm}	{0:mm/dd/yyyy}	{1:N2}

Correct Answer:

output = string.Format("Temperature at on : ", date, temp);

{0:t}	{0:d}	{0}
{1:t}	{1:d}	{1}
{0:hh:mm}	{1:dd/mm/yyyy}	{0:N2}
{1:hh:mm}	{0:mm/dd/yyyy}	{1:N2}

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 89**HOTSPOT**

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",
    new[] { 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: Volume A Explanation

Explanation/Reference:

QUESTION 90 HOTSPOT

You are creating a C# application named Application1 that will process IoT data from 100,000 devices. Each IoT device can submit hundreds of data transactions per second.

Application1 runs on Windows Server.

You need to create a performance counter in Windows Server that will display the number of data transactions processed per second.

How should you complete the code? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

```
var countersDC = new
    
    CounterCreationData();
    CounterCreationDataCollection();
    PerformanceCounter();
```



```
var IOTDateRate = new
    
    CounterCreationData();
    CounterCreationDataCollection();
    PerformanceCounter();
```



```
IOTDateRate.CounterName = "Data Trans/Sec";
```



```
IOTDateRate.CounterHelp = "Data transactions per second";
```



```
IOTDateRate.CounterType = PerformanceCounterType.
    
    CountPerTimeInterval64;
    NumberOfItems64;
    RateOfCountsPerSecond64;
```



```
countersDC.Add(IOTDateRate);
```



```
PerformanceCounterCategory.Create("Application1", "Application1 category for
IOT data", PerformanceCounterCategoryType.SingleInstance, countersDC);
```

Correct Answer:

Answer Area

```
var countersDC = new
    
    CounterCreationData();
    CounterCreationDataCollection();
    PerformanceCounter();
```



```
var IOTDateRate = new
    
    CounterCreationData();
    CounterCreationDataCollection();
    PerformanceCounter();
```



```
IOTDateRate.CounterName = "Data Trans/Sec";
```



```
IOTDateRate.CounterHelp = "Data transactions per second";
```



```
IOTDateRate.CounterType = PerformanceCounterType.
    
    CountPerTimeInterval64;
    NumberOfItems64;
    RateOfCountsPerSecond64;
```



```
countersDC.Add(IOTDateRate);
```



```
PerformanceCounterCategory.Create("Application1", "Application1 category for
IOT data", PerformanceCounterCategoryType.SingleInstance, countersDC);
```

Section: Volume A

Explanation

Explanation/Reference:

References: [https://msdn.microsoft.com/en-us/library/system.diagnostics.performancecountertype\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.diagnostics.performancecountertype(v=vs.110).aspx)

QUESTION 91

DRAG DROP

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(root);  
  
from c in db.Contacts  
orderby c.ContactId  
select new XElement("contact",  
    new XAttribute("contactId", c.ContactId)  
    new XElement("firstName", c.FirstName),  
    new XElement("lastName", c.LastName))  
);
```

Correct Answer:

```
XNamespace ew = "ContactList";  
 XElement root = new XElement(ew + "Root");  
  
Console.WriteLine(root);  
  
XAttribute contacts =  
    new XAttribute("contacts",  
  
 from c in db.Contacts  
orderby c.ContactId  
select new XElement("contact",  
    new XAttribute("contactId", c.ContactId)  
    new XElement("firstName", c.FirstName),  
    new XElement("lastName", c.LastName))  
);
```

Section: Volume A

Explanation

Explanation/Reference:

QUESTION 92

You have an assembly named Assembly1 that is written in C#. Assembly1 has a method named Method1.

You add a new method named Method2 to Assembly1. Method2 is a newer version of Method1 and must be used by applications in the future.

You need to ensure that if a developer builds a project that uses Method1, the developer is notified that Method1 is deprecated.

What should you do?

- A. Set an #if DEPRECATED preprocessor directive above Method1. Set a #endif preprocessor directive after Method1.
- B. Set a #pragma warning disable preprocessor inside of Method1.
- C. Mark Method1 with an ObsoleteAttribute attribute.
- D. Mark Method1 with a Conditional attribute that is set to WARNING.
- E. Set a #warning preprocessor directive inside of Method1.

Correct Answer: C

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

ObsoleteAttribute is applicable to all program elements except assemblies, modules, parameters, and return values. Marking an element as obsolete informs users that the element will be removed in future versions of the product.

Reference:

<https://docs.microsoft.com/en-us/dotnet/api/system.obsoleteattribute?view=netframework-4.7.2>

QUESTION 93

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. XmlSerlizer serializer = new XmlSerlizer();
- D. var serializer = new JavaScriptSerializer();

Correct Answer: D

Section: Volume A

Explanation

Explanation/Reference:

Explanation:

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 94

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: Volume A

Explanation

Explanation/Reference:

Explanation:

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

QUESTION 95

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 = (int)array1[0];
- C. var2 = ((int[])array1)[0];
- D. var2 = array1[0] as int;

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 96

You need to write a method that retrieves data from a Microsoft Access 2013 database.

The method must meet the following requirements:

- It must be read-only.
- You must be able to use the data before the entire data set is retrieved.
- You must 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: Volume B

Explanation

Explanation/Reference:

Explanation:

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 97

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: Volume B

Explanation

Explanation/Reference:

QUESTION 98

DRAG DROP

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);  
  
    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: Volume B Explanation

Explanation/Reference:

QUESTION 99 DRAG DROP

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;
    switch (memberCode)
    {
        case 0:
            memberType = "Non-Member";
            break;
        case 1:
            memberType = "Member";
            break;
        default:
            memberType = "Invalid";
            break;
    }
    return memberType;
}
```

Correct Answer:

default
switch
break
case

```
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: Volume B
Explanation

Explanation/Reference:

QUESTION 100**HOTSPOT**

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 Interface1.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 Interface1.Method2(decimal amount)
```

Section: Volume B
Explanation

Explanation/Reference:

QUESTION 101

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: Volume B
Explanation

Explanation/Reference:

QUESTION 102

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.

NOTE: Each correct selection is worth one point.

- A. AssemblyTitleAttribute
- B. AssemblyCultureAttribute
- C. AssemblyVersionAttribute
- D. AssemblyKeyNameAttribute
- E. AssemblyFileVersion
- F. AssemblyProductAttribute
- G. AssemblyDelaySignAttribute
- H. AssemblyCompanyAttribute

Correct Answer: BC

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

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.

Reference:

<https://docs.microsoft.com/en-us/dotnet/framework/app-domains/assembly-names>

QUESTION 103

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: Volume B

Explanation

Explanation/Reference:

QUESTION 104

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: Volume B

Explanation

Explanation/Reference:

QUESTION 105

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);
- A. Option A

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

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 106

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: Volume B

Explanation

Explanation/Reference:

QUESTION 107

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: Volume B

Explanation

Explanation/Reference:

QUESTION 108

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: Volume B

Explanation

Explanation/Reference:

QUESTION 109

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: Volume B

Explanation

Explanation/Reference:

QUESTION 110

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: Volume B

Explanation

Explanation/Reference:

QUESTION 111

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: Volume B

Explanation

Explanation/Reference:

Explanation:

IEnumerable

IDisposable Interface

Exposes an enumerator, which supports a simple iteration over a non-generic collection.

Defines a method to release allocated resources.

The primary use of this interface is to release unmanaged resources.

QUESTION 112

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
    {
    }
```

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 113

DRAG DROP

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.

Which four code blocks should you use to develop the solution? To answer, move the appropriate code blocks from the list of code blocks to the answer area and arrange them in the correct order.

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 (SqlException ex) {  
  
        LogHelper.Log(ex);  
  
        throw;  
  
    }  
  
    catch (FileNotFoundException ex) {  
  
        throw new FileNotFoundException();  
  
        throw ex;  
  
        throw new SqlException();  
    }  
}
```

Section: Volume B Explanation

Explanation/Reference:

Explanation:

Note:

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 114

HOTSPOT

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.

When the application runs, "First" will always appear before "Second".

When the application runs, "Third" will be displayed once.

Correct Answer:

Yes **No**

If there are no subscribers to the SendMessage event, the Execute method on the Alert class will throw an exception.

When the application runs, "First" will always appear before "Second".

When the application runs, "Third" will be displayed once.

Section: Volume B
Explanation

Explanation/Reference:

QUESTION 115
HOTSPOT

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.

NOTE: Each correct selection is worth one point.

Hot Area:

	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"/>

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: Volume B
Explanation

Explanation/Reference:

QUESTION 116

HOTSPOT

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:

	Yes	No
All of the objects derived from MyCustomerClass have CustomerID as a property.	<input type="radio"/>	<input type="radio"/>
All of the objects derived from MyCustomerClass have CompanyName as a property.	<input type="radio"/>	<input type="radio"/>
All of the objects derived from MyCustomerClass have State as a property.	<input type="radio"/>	<input type="radio"/>

Correct Answer:

	Yes	No
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 checked="" type="radio"/>	<input type="radio"/>

**Section: Volume B
Explanation**

Explanation/Reference:

Explanation:

Note:

CustomerID is declared private.

CompanyName is declared protected.

State is declared protected.

The protected keyword is a member access modifier. A protected member is accessible from within the class in which it is declared, and from within any class derived from the class that declared this member.

QUESTION 117

HOTSPOT

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;Password=p@ssw0rd";
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...

15
16
17
18
19

The adapter object gets disposed at line..

15
16
17
18
19

Correct Answer:

The database connection gets closed at line...

15
16
17
18
19

The adapter object gets disposed at line..

15
16
17
18
19

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 118

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. Derived classes
- C. Named parameters
- D. Enumeration
- E. Interface
- F. Lambda expressions

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Method overloading means creating two or more methods 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 119

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] is int;
- C. var2 = Convert.ToInt32(array1[0]);
- D. var2 = ((int[])array1)[0];

Correct Answer: C

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 120

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

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Explanation

Explanation/Reference:

Explanation:

- **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 121

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: Volume B

Explanation

Explanation/Reference:

Explanation:

- **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 122

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: Volume B

Explanation

Explanation/Reference:

Explanation:

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 123

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: Volume B

Explanation

Explanation/Reference:

QUESTION 124

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: Volume B

Explanation

Explanation/Reference:

Explanation:

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 125

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();
```

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 126

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: Volume B

Explanation

Explanation/Reference:

QUESTION 127

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: Volume B

Explanation

Explanation/Reference:

QUESTION 128

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];
}
```

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 129

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: Volume B

Explanation

Explanation/Reference:

QUESTION 130

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: Volume B

Explanation

Explanation/Reference:

QUESTION 131

You have a C# application named App1 that invokes a method in an external assembly named Assembly1. Assembly1 is written in C++ and is natively compiled by using a debug build.

When you debug App1, you do not see any debug information for Assembly1.

You need to ensure that when you debug App1, you see the debug information for Assembly1.

What should you do?

- A. On the Debugging page of the configuration properties for the C++ project, set the Debugger Type to **Native Only**.
- B. On the Debugging page of the configuration properties for the C++ project, set the Debugger Type to **Mixed**.
- C. On the Debug page of the project properties for App1, click **Enable native code debugging**.
- D. In the project properties for App1, set the working directory to the same directory as Assembly1.

Correct Answer: B

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Explanation

Explanation/Reference:

Reference: <https://msdn.microsoft.com/en-us/library/kcw4dzyf.aspx>

QUESTION 132

HOTSPOT

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 };
```

Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the code.

NOTE: Each correct selection is worth one point.

Hot Area:

The output collection will contain ...
object(s).

A dropdown menu containing the numbers 0, 1, 2, 3, and 4.

The sorted property of the output
collection will be the ... type.

A dropdown menu containing the words byte, int, string, and 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

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Explanation

Explanation/Reference:

QUESTION 133

DRAG DROP

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 lines of code from the list of lines of code 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();
```

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Explanation/Reference:

Explanation:

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 134

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

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Explanation

Explanation/Reference:

Explanation:

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

QUESTION 135

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();
- E. binary.WriteEndElement();
- F. ms.Close();
- G. ms.Flush();

Correct Answer: D

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Explanation

Explanation/Reference:

Explanation:

Flush() flushes whatever is in the buffer to the underlying streams and also flushes the underlying stream. We should flush the binary stream with the binary.Flush() command.

Example:

By default, the DataContractSerializer encodes objects into a stream using a textual representation of XML.

However, you can influence the encoding of the XML by passing in a different writer. The sample creates a binary writer by calling CreateBinaryWriter. It then passes the writer and the record object to the serializer when it calls WriteObjectContent. Finally, the sample flushes the writer.

```
MemoryStream stream2 = new MemoryStream();
```

```
XmIDictionaryWriter binaryDictionaryWriter = XmIDictionaryWriter.CreateBinaryWriter(stream2);
serializer.WriteObject(binaryDictionaryWriter, record1);
binaryDictionaryWriter.Flush();
```

References:

<https://docs.microsoft.com/en-us/dotnet/api/system.xml.xmldictionarywriter>
<https://docs.microsoft.com/en-us/dotnet/framework/wcf/samples/datacontractserializer-sample>

QUESTION 136

DRAG DROP

You have the following C# code.

```
public class Vendor
{
    public double TotalPrice {get;set;}
}

public class Partner : Vendor{}
```

You create a function named **getDiscount** that has the following method signature. (Line numbers are included for reference only.)

```
01 public static double getDiscount(Vendor vendor)
02 {
03     switch(vendor)
04     {
05
06     }
07 }
```

You need to modify **getDiscount** to return the amount of the discount. The solution must meet the following requirements:

- If the `vendor` object is a type of `Partner` object and `TotalPrice` is greater than 1,000, the discount must be 30 percent.
- If the `vendor` object is a type of `Partner` object and `TotalPrice` is less than or equal to 1,000, the discount must be 20 percent.
- If the `vendor` object is NOT a type of `Partner` object, the discount must be 10 percent.
- If the `vendor` object is null, an exception must be raised.

Which four code blocks should you use to complete the switch statement at line 05? To answer, move the appropriate code blocks from the list of code blocks to the answer area and arrange them in the correct order.

NOTE: Each correct selection is worth one point.

Select and Place:

Code Blocks

```
case Partner p:  
    return p.TotalPrice * 0.70;
```

Answer Area

```
case Partner p when p.TotalPrice <= 1000: return p.TotalPrice * 0.80;
```

```
case null: throw new  
ArgumentNullException(nameof  
(vendor));
```

```
case Vendor v when  
  vendor.TotalPrice <= 1000: return  
    v.TotalPrice * 0.80;
```

```
case Partner p when p.TotalPrice >  
1000: return p.TotalPrice * 0.80;
```

```
case Partner p when p is null:  
throw new  
ArgumentNullException(nameof(p));
```

```
case Vendor v: return v.TotalPrice  
* 0.90;
```

Correct Answer:

Code Blocks

```
case Vendor v when  
  vendor.TotalPrice <= 1000: return  
    v.TotalPrice * 0.80;
```

```
case Partner p when p.TotalPrice >  
1000: return p.TotalPrice * 0.80;
```

```
case Partner p when p is null:  
throw new  
ArgumentNullException(nameof(p));
```

Answer Area

```
case Partner p when p.TotalPrice <= 1000: return p.TotalPrice * 0.80;
```

```
case Partner p:  
    return p.TotalPrice * 0.70;
```

```
case Vendor v: return v.TotalPrice  
* 0.90;
```

```
case null: throw new  
ArgumentNullException(nameof  
(vendor));
```

Section: Volume B**Explanation****Explanation/Reference:**

References:

<https://docs.microsoft.com/en-us/dotnet/csharp/pattern-matching#when-clauses-in-case-expressions>**QUESTION 137****HOTSPOT**

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);
```

Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the code.

NOTE: Each correct selection is worth one point.

Hot Area:

Line 07 of the method will display ...

A dropdown menu with a blue border and a small downward arrow icon. Inside, there are five horizontal lines, each containing a number: 0, 1, 2, 3, and 4.

Line 09 of the method will display ...

A dropdown menu with a blue border and a small downward arrow icon. Inside, there are four horizontal lines, each containing a user name: User1, User2, User3, and User4.

Correct Answer:

Line 07 of the method will display ...

A dropdown menu with a blue border and a small downward arrow icon. Inside, there are five horizontal lines, each containing a number: 0, 1, 2, 3, and 4. The last line, containing the number 4, is highlighted with a green background.

Line 09 of the method will display ...

A dropdown menu with a blue border and a small downward arrow icon. Inside, there are four horizontal lines, each containing a user name: User1, User2, User3, and User4. The third line, containing the user name User3, is highlighted with a green background.

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 138

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

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

Correct Answer: A

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Explanation

Explanation/Reference:

Explanation:

Contains a positive integer or a floating point number with exactly two characters after the decimal point.

Regular expression: `\\d+(\\.\\d\\d)?`

`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 139

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 = from i in items  
            groupby i into grouped  
            where grouped.Key > 80  
            select i;
```

 - C.

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

 - D.

```
var result = items.Skip(80);
```
-
- A. Option A
 - B. Option B
 - C. Option C

D. Option D

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 140

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 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: D

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

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 141

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: Volume B

Explanation

Explanation/Reference:**QUESTION 142**

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.

NOTE: Each correct selection is worth one point.

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

Correct Answer: AB

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

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 143

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:

```
static decimal CalculateInterest(decimal amount, decimal rate, int term)
{
    return amount * rate * term;
}
static decimal ProcessLoan()
{
    CalculateLoanInterest loanInterestProcessor = CalculateInterest;
    return loanInterestProcessor(4500m, 0.065m, 4);
}
```

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: Volume B

Explanation

Explanation/Reference:

QUESTION 144

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
- E. Option E
- F. Option F

Correct Answer: BD

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 145

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: Volume B

Explanation

Explanation/Reference:

QUESTION 146

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 the goal? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- 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: Volume B

Explanation

Explanation/Reference:

QUESTION 147

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: Volume B

Explanation

Explanation/Reference:

QUESTION 148

You develop a class named MyClass. MyClass has a method that uses a COM object.

You need to ensure that when MyClass is instantiated by using the using keyword, the COM object is released at the end of the using scope.

Which interface should you implement?

- A. ISerializable
- B. IDisposable
- C. ICloneable
- D. IFormattable

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

Reference: [https://msdn.microsoft.com/en-us/library/system.idisposable\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.idisposable(v=vs.110).aspx)

QUESTION 149

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: Volume B

Explanation

Explanation/Reference:

QUESTION 150

DRAG DROP

You create an assembly named Assembly1.dll.

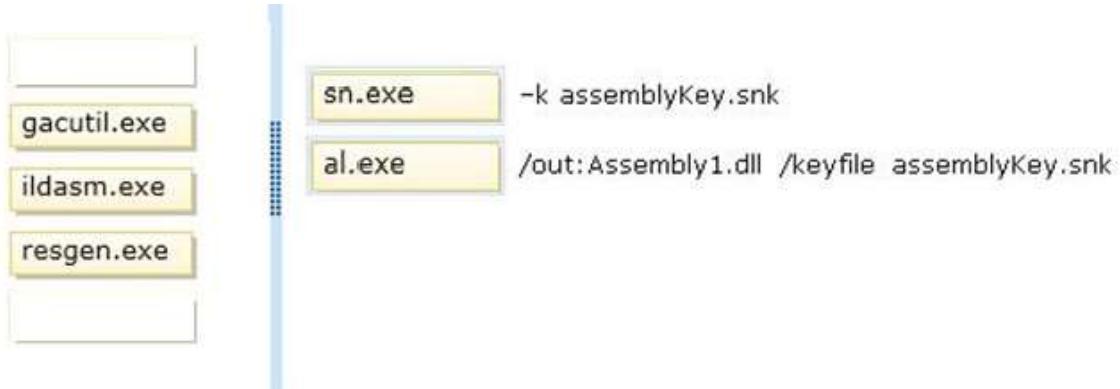
You need to ensure that Assembly1.dll can be deployed to the global assembly cache (GAC).

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: Volume B
Explanation

Explanation/Reference:

QUESTION 151
DRAG DROP

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: Volume B Explanation

Explanation/Reference:

Explanation:

Note:

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).

References:

<https://docs.microsoft.com/en-us/dotnet/api/system.data.sqlclient.sqlconnection.beginTransaction?view=netframework-4.7.2>

QUESTION 152

DRAG DROP

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:

Answer Area

.Skip(2)

.First(10)

.Take(10)

var page = items

.Take(1)

.Skip(30)

int page = items

.Skip(20)

Correct Answer:

Answer Area

.Skip(2)

.First(10)

.Take(1)

.Skip(30)

int page = items

var page = items

.Skip(20)

.Take(10)

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Note:

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 153

DRAG DROP

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: Volume B
Explanation

Explanation/Reference:

QUESTION 154

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 be later being 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 = 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: Volume B

Explanation

Explanation/Reference:

QUESTION 155

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: Volume B

Explanation

Explanation/Reference:

QUESTION 156

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.

NOTE: Each correct selection is worth one point.

```

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

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Explanation

Explanation/Reference:

Explanation:

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 157

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?

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

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

Correct Answer: C

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 158

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: Volume B

Explanation

Explanation/Reference:

QUESTION 159

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: Volume B

Explanation

Explanation/Reference:

QUESTION 160

You are creating a class by using C#. The class will manage writing log entries to a file.

You have the following code. (Line numbers are included for reference only.)

```
c01 using System;
c02 using System.IO;
c03
c04 public class LogWriter : IDisposable
c05 {
c06
c07 StreamWriter log;
c08 public LogWriter(string filepath)
c09 {
c10 log = File.AppendText(filepath);
c11 }
c12 public void Log(string logEntry)
c13 {
c14 await log.WriteLineAsync(logEntry);
c15 }
c16 protected virtual void Dispose(bool disposing)
c17 {
c18
c19 if (disposing)
c20 {
c21 log.Flush();
c22 log.Dispose();
c23 }
c24
c25 }
c26 public void Dispose()
c27 {
c28 Dispose(true);
c29 GC.SuppressFinalize(this);
c30 }
c31 }
```

You test the class by using the following code.

```
t01 static void Main(string[] args)
t02 {
t03     using (LogWriter lw = new LogWriter("logfile.txt")) {
t04         lw.Log("new log entry");
t05     lw.Dispose();
t06 }
t07 }
```

When you run the text, you receive the following error message: "System.ObjectDisposedException: 'Cannot write to a closed TextWriter.'"

You need to ensure that `LogWriter` closes the log file properly without raising an exception.

Which three actions should you perform? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- A. Add `bool disposed=false;` at line c06.
- B. Change line c19 to `if(disposed)`.
- C. Add `if (disposed) return;` at line c18.
- D. Remove line t05.
- E. Add `disposed=true;` at line c24.
- F. Remove line c21.

Correct Answer: ACE

Section: Volume B

Explanation

Explanation/Reference:

References: <https://docs.microsoft.com/en-us/dotnet/standard/design-guidelines/dispose-pattern>

QUESTION 161

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: C

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

- 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 Answers:

B: The MatchCollection.GetEnumerator method returns an enumerator that iterates through a collection. However, To iterate through the members of the collection, you should use the collection iteration (foreach) instead of retrieving the enumerator that is returned by the GetEnumerator method.

References: [https://msdn.microsoft.com/en-us/library/system.text.regularexpressions.matchcollection\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.text.regularexpressions.matchcollection(v=vs.110).aspx)

QUESTION 162

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: Volume B

Explanation

Explanation/Reference:

Explanation:

`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" };  
  
IQueryable<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 163

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: Volume B

Explanation

Explanation/Reference:

Explanation:

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

QUESTION 164

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: Volume B

Explanation

Explanation/Reference:

QUESTION 165

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: Volume B

Explanation

Explanation/Reference:

QUESTION 166

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: Volume B

Explanation

Explanation/Reference:

QUESTION 167

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:

	Yes	No
OrderID	<input type="radio"/>	<input type="radio"/>
OrderDate	<input type="radio"/>	<input type="radio"/>
CustomerName	<input type="radio"/>	<input type="radio"/>

Correct Answer:

	Yes	No
OrderID	<input type="radio"/>	<input checked="" type="radio"/>
OrderDate	<input type="radio"/>	<input checked="" type="radio"/>
CustomerName	<input checked="" type="radio"/>	<input type="radio"/>

Section: Volume B
Explanation

Explanation/Reference:

QUESTION 168

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: Volume B

Explanation

Explanation/Reference:

Explanation:

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 169

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: Volume B

Explanation

Explanation/Reference:

Explanation:

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 170

DRAG DROP

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:

```
string statusText;
switch (statusCode)
{
    case 0:
        statusText = "Error";
    case 1:
        statusText = "Success";
    default:
        statusText = "Unauthorized";
}
return statusText;
```

Correct Answer:

```
string statusText;
switch (statusCode)
{
    case 0:
        statusText = "Error";
        break;
    case 1:
        statusText = "Success";
        break;
    default :
        statusText = "Unauthorized";
        break;
}
return statusText;
```

Section: Volume B
Explanation

Explanation/Reference:

QUESTION 171

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)`

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 172

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: Volume B

Explanation

Explanation/Reference:

QUESTION 173

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.

NOTE: Each correct selection is worth one point.

- A.

```
class UserResources : 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

- E. Option E
- F. Option F

Correct Answer: AC

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

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 174

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. source.Cancel();

Correct Answer: C

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 175

HOTSPOT

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: Volume B

Explanation

Explanation/Reference:

References:

<https://www.returngis.net/en/2014/12/save-console-writeline-output-to-a-file-with-c/>

QUESTION 176

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(ArithmeticException e) {Console.WriteLine("Arithmetic 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: Volume B

Explanation

Explanation/Reference:

QUESTION 177

You are developing an application that will manage the inventory of a warehouse. The application includes a method named **FindItem**.

Users must be able to locate item records by using the item identifier, item name, or a combination of the two values.

You need to implement the `FindItem()` method to meet the requirement.

Which two sets of method signatures can you use to achieve this goal? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point

A.

```
public static Item FindItem(int id)
public static Item FindItem(string name)
public static Item FindItem(Int32 id)
```

B.

```
public static Item FindItem(int id)
public static Item FindItem(string name)
public static Item FindItem(int? id)
```

C.

```
public static Item FindItem(int id)
public static Item FindItem(string name)
public static Item FindItem(int id, String name)
```

D.

```
public static Item FindItem(int id)
public static Item FindItem(string name)
public static void FindItem(int id)
```

Correct Answer: BC

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 178

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()).ToList();
}
```
- 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: Volume B

Explanation

Explanation/Reference:

Explanation:

- **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 179

DRAG DROP

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.)

```
01 protected void WriteData(string filename, string data)  
02 {  
03  
04 }
```

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();

writer = new StreamWriter(fileName);

writer.Write(data);

writer.Close();

Section: Volume B
Explanation

Explanation/Reference:

Explanation:

Note:

StreamWriter Constructor (String)

Initializes a new instance of the StreamWriter class for the specified file by using the default encoding and buffer size.

QUESTION 180

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 assembly attributes.
- B. Use the **EdmGen.exe** command-line tool.
- C. Set the configuration mode to **Release** when building the application.
- D. Use the **gacutil.exe** command-line tool.

Correct Answer: A

Section: Volume B
Explanation

Explanation/Reference:

QUESTION 181

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: Volume B
Explanation

Explanation/Reference:

Explanation:

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

QUESTION 182

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: Volume B

Explanation

Explanation/Reference:

QUESTION 183

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: Volume B

Explanation

Explanation/Reference:

Explanation:

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 /delsign 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—it's 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 184

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: Volume B

Explanation

Explanation/Reference:

Explanation:

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 185

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();

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

Correct Answer: C

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 186

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 segment:

```
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 segment:

```
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 segment:

```
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: Volume B

Explanation

Explanation/Reference:

QUESTION 187

You have an assembly named Assembly named Assembly1 that is written in C#.

Your company plans to sell Assembly =1 to customers. The customers might debug Assembly1.

You need to minimize the amount of information contained within the debug symbols that are shipped with Assembly1.

How should you create the debug symbols for Assembly1?

- A. Create a new PDB file by running `pdbcopy.exe`.
- B. Build `Assembly1` by using a Debug configuration.
- C. On the Build page of the project properties for `Assembly1`, click Define TRACE constant and clear Define DEBUG constant.
- D. Build `Assembly1` by using a Release configuration.

Correct Answer: C

Section: Volume B

Explanation

Explanation/Reference:

Reference: <https://docs.microsoft.com/en-us/dotnet/csharp/language-reference/preprocessor-directives/preprocessor-define>

QUESTION 188

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: Volume B

Explanation

Explanation/Reference:

QUESTION 189

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: Volume B

Explanation

Explanation/Reference:

QUESTION 190

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: Volume B

Explanation

Explanation/Reference:

QUESTION 191

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: Volume B

Explanation

Explanation/Reference:

QUESTION 192

You are developing an application that will manage customer records. The application includes a method named **FindCustomer**.

Users must be able to locate customer records by using the customer identifier, customer name, or a combination of the two values.

You need to implement the `FindCustomer()` method to meet the requirement.

Which two sets of method signatures can you use to achieve this goal? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- A public static Customer FindCustomer(int id)
public static Customer FindCustomer(string name)
public static Customer FindCustomer(int id, String name)
- B public static Customer FindCustomer(int id)
public static Customer FindCustomer(string name)
public static void FindCustomer(int id)
- C. public static Customer FindCustomer(int id)
public static Customer FindCustomer(string name)
public static Customer FindCustomer(Int32 id)
- D. public static Customer FindCustomer(int id)
public static Customer FindCustomer(string name)
public static Customer FindCustomer(int? id)

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

Correct Answer: AB

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Incorrect Answers:

D: int? means it is a "boxed" integer value. The integer can have null value.

References:

<https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/classes-and-structs/static-classes-and-static-class-members>

QUESTION 193

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: Volume B

Explanation

Explanation/Reference:

QUESTION 194

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 = 17.13m } },
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 = 28.15m });
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: Volume B

Explanation

Explanation/Reference:

QUESTION 195

You are developing an application by using C#. The application includes a method named `SendMessage`. The `SendMessage()` method requires a string input.

You need to replace "Hello" with "Goodbye" in the parameter that is passed to the `SendMessage()` method.

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

- A. `var message = "Hello World";
SendMessage(message.Replace("Goodbye", "Hello"));`
- B. `var message = "Hello World";
SendMessage(message.Replace("Hello", "Goodbye"));`
- C. `var message = "Hello World";
message = message.Replace("Hello", "Goodbye");
SendMessage(message);`
- D. `var message = "Hello World";
message.Replace("Goodbye", "Hello");
SendMessage(message);`

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

Correct Answer: BC

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

- The first parameter should be Hello.
- String.Replace Method (String, String)

Returns a new string in which all occurrences of a specified string in the current instance are replaced with another specified string.

This method does not modify the value of the current instance. Instead, it returns a new string in which all occurrences of oldValue are replaced by newValue.

QUESTION 196

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

```
interface IHome
{
    void Start();
}

interface IOffice
{
    void Start();
}
```

You need to implement both `Start()` methods in a derived class named `UseStart` that uses the `Start()` method of each interface.

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

- A. `var starter = new UseStart();
((IHome, IOffice)starter).Start();`
- B. `class UseStart : IHome, IOffice
{
 public void IHome.Start()
 {
 ...
 }

 public void IOffice.Start()
 {
 ...
 }
}`
- C. `class UseStart : IHome, IOffice
{
 void IHome.Start()
 {
 ...
 }

 void IOffice.Start()
 {
 ...
 }
}`
- D. `var starter = new UseStart();
((IHome)starter).Start();
((IOffice)starter).Start();`

- E. `var starter = new UseStart();
starter.Start(IHome);
starter.Start(IOffice);`
- F. `var starter = new UseStart();
starter.Start();`

Correct Answer: CD

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

C:

Implementing Multiple Interfaces

A class can implement multiple interfaces using the following syntax:

C#

```
public class CDAndDVDCComboPlayer : ICDPlayer, IDVDPlayer
```

If a class implements more than one interface where there is ambiguity in the names of members, it is resolved using the full qualifier for the property or method name. In other words, the derived class can resolve the conflict by using the fully qualified name for the method to indicate to which interface it belongs

In C#, both inheritance and interface implementation are defined by the : operator, equivalent to extends and implements in Java. The base class should always be leftmost in the class declaration.

QUESTION 197

HOTSPOT

You are creating a method named **getThankYou** that accepts four parameters and returns a formatted string.

The **getThanksYou** method has the following signature.

```
public string getThankYou(string firstName,  
                           string lastName,  
                           int orderNumber,  
                           float price)  
{  
}  
}
```

The method needs to return a formatted string as shown in the following example.

Thank you Ben Smith for order 1234. The total price is \$321.05.

The current culture when the method executes is en-US.

How should you complete the code? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

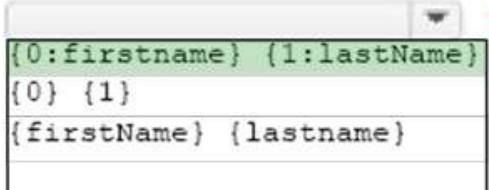
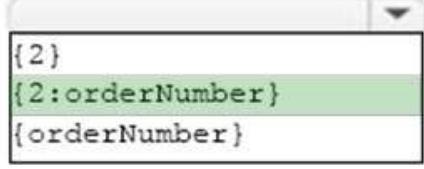
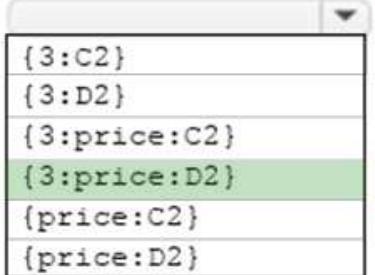
```
public string getThankYou(string firstName,
                          string lastName,
                          int orderNumber,
                          decimal price)
{
    return $"Thank you for +
{0:firstname} {1:lastName}
{0} {1}
{firstName} {lastname}

$'order
{2}
{2:orderNumber}
{orderNumber}

$'The total price is
{3:C2}
{3:D2}
{3:price:C2}
{3:price:D2}
{price:C2}
{price:D2}
};
```

Correct Answer:

Answer Area

```
public string getThankYou(string firstName,
                          string lastName,
                          int orderNumber,
                          decimal price)
{
    return $"Thank you  for" +
           $"'order  .
           $"'The total price is  ";
}
```

Section: Volume B Explanation

Explanation/Reference:

QUESTION 198

You have the following class definition.

```

public class ProcessManagement
{
    public int DegreeOfParallelism;
    private int NumberOfTasks = 0;
    public void SpawnTasks()
    {
        if (DegreeOfParallelism>20) { DegreeOfParallelism = 20};
        while (NumberOfTasks != DegreeOfParallelism)
        {
            CreateNewTask();
            NumberOfTasks++;
        }
    }
}

```

You discover that when you execute the following code, the `SpawnTasks` method enters an infinite loop.

```

ProcessManagement pm = new ProcessManagement();
pm.DegreeOfParallelism = -1;
pm.SpawnTasks();

```

You need to prevent the `SpawnTasks` method from entering an infinite loop.

Which two changes should you make to the code? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- A. Add a property to the `ProcessManagement` class. Modify the property to allow only positive values to be stored in the `DegreeOfParallelism` member variable.
- B. Add a property to the `ProcessManagement` class. Modify the property to allow only positive values to be stored in the `NumberOfTasks` member variable.
- C. Change the accessor of the `ProcessManagement` class to `internal`.
- D. Change the accessor of the `DegreeOfParallelism` member variable to `private`.
- E. Change the accessor of the `SpawnTasks` method to `private`.

Correct Answer: AB

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 199

DRAG DROP

You are developing an application that will write string values to a file. The application includes the following code segment. (Line numbers are included for reference only.)

```

01 protected void ProcessFile(string fileName, string value)
02 {
03
04 }

```

You need to ensure that the `ProcessFile()` method will write string values 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:

```
streamWriter.WriteLine(value);  
  
streamWriter = new StreamWriter(fileName);  
  
streamWriter.Open();  
  
streamWriter.Close();  
  
StreamWriter streamWriter = null;
```

Correct Answer:

```
StreamWriter streamWriter = null;  
  
streamWriter = new StreamWriter(fileName);  
  
streamWriter.WriteLine(value);  
  
streamWriter.Close();
```

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Note:

StreamWriter.Null Field

Provides a StreamWriter with no backing store that can be written to, but not read from.

Incorrect Answers:

Not StreamWriter.Open();

The StreamWriter Class does not have any method named Open.

QUESTION 200

You are implementing a method named `ProcessFile` that retrieves data files from web servers and FTP servers. The `ProcessFile()` method has the following method signature:

```
Public void ProcessFile(Guid dataFileId, string dataFileUri)
```

Each time the `ProcessFile()` method is called, it must retrieve a unique data file and then save the data file to disk.

You need to complete the implementation of the `ProcessFile()` method. Which code segment should you use?

- A.

```
WebResponse response;
StreamReader reader;
WebRequest request = WebRequest.Create(dataFileUri);
using(response = request.GetResponse())
{
    reader = new StreamReader(response.GetResponseStream());
    response.Close();
}
using (StreamWriter writer = new StreamWriter (dataField + ".dat"))
{
    writer.Write(reader.ReadToEnd());
}
```
- B.

```
FileWebRequest request = FileWebRequest.Create(dataFileUri) as FileWebRequest;
using (FileWebResponse response = request.GetResponse() as FileWebResponse)
using (StreamReader reader = new StreamReader(response.GetResponseStream()))
using (StreamWriter writer = new StreamWriter(dataField + ".dat"))
{
    writer.Write(reader.ReadToEnd());
}
```
- C.

```
WebRequest request = WebRequest.Create(dataFileUri)
using (WebResponse response = request.GetResponse
using (Stream responseStream = response.GetResponseStream())
{
    StreamWriter writer = new StreamWriter (responseStream);
    writer.Write(dataField + ".dat");
}
```
- D.

```
WebRequest request = WebRequest.Create(dataFileUri)
using (WebResponse response = request.GetResponse
using (StreamReader reader = new StreamReader(response.GetResponseStream()))
using (StreamWriter writer = new StreamWriter(dataField + ".dat"))
{
    writer.Write(reader.ReadToEnd());
}
```

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

`WebRequest.Create Method (Uri)`

Initializes a new `WebRequest` instance for the specified URI scheme.

Example:

1. To request data from a host server

Create a `WebRequest` instance by calling `Create` with the URI of the resource.

C#

```
WebRequest request = WebRequest.Create("http://www.contoso.com/");
```

2. Set any property values that you need in the WebRequest. For example, to enable authentication, set the Credentials property to an instance of the NetworkCredential class.

C#

```
request.Credentials = CredentialCache.DefaultCredentials;
```

3. To send the request to the server, call GetResponse. The actual type of the returned WebResponse object is determined by the scheme of the requested URI.

C#

```
WebResponse response = request.GetResponse();
```

4. To get the stream containing response data sent by the server, use the GetResponseStream method of the WebResponse.

C#

```
Stream dataStream = response.GetResponseStream();
```

QUESTION 201

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 assembly attributes.
- B. Use the csc.exe /target:Library option when building the application.
- C. Use the xsd.exe command-line tool.
- D. Use the EdmGen.exe command-line tool.

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

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

- (A) 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 the Assembly Linker (Al.exe) provided by the Windows SDK.
- 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.)

QUESTION 202

You are developing an application that will manage customer records. The application includes a method named `FindCustomer`.

Users must be able to locate customer records by using the customer identifier or customer name.

You need to implement the `FindCustomer()` method to meet the requirement.

Which two sets of method signatures can you use to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- A.

```
public static Customer FindCustomer(int id)
public static Customer FindCustomer(string id)
public static void FindCustomer(int id)
```
 - B.

```
public static Customer FindCustomer(int id)
public static Customer FindCustomer(string id)
public static Customer FindCustomer(int id, string name)
```
 - C.

```
public static Customer FindCustomer(int id)
public static Customer FindCustomer(string id)
public static Customer FindCustomer(Int32 id)
```
 - D.

```
public static Customer FindCustomer(int id)
public static Customer FindCustomer(string id)
public static Customer FindCustomer(int? id)
```
- A. Option A
B. Option B
C. Option C
D. Option D

Correct Answer: BD

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 203

You need to write a method that combines an unknown number of strings. The solution must minimize the amount of memory used by the method when the method executes.

What should you include in the code?

- A. The String.Concat method
- B. The StringBuilder.Append method
- C. The + operator
- D. The += operator

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

The StringBuilder.Append method appends the string representation of a specified object to this instance.

Incorrect Answers:

A: String.Concat Method concatenates one or more instances of String, or the String representations of the values of one or more instances of Object. However, all strings to concatenate must be given as parameters. In this scenario we have an unknown number of string and therefore cannot pass them as parameters.

References: <https://coders-corner.net/2014/08/20/concatenate-strings-in-c-operator-vs-string-concat-vs-stringbuilder/>

QUESTION 204

You are modifying an existing application.

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

```
class Loan
{
    public Loan(decimal amount, int term, decimal rate)
    {
        Term = term;
        Amount = amount;
        Rate = rate;
    }
    public decimal Amount { get; set; }
    public decimal Rate { get; set; }
    public int Term { get; set; }
}

class Customer
{
    public Customer(string firstName, string lastName, Collection<Loan> loans)
    {
        FirstName = firstName;
        LastName = lastName;
        LoanCollection = loans;
    }
    public string FirstName { get; set; }
    public string LastName { get; set; }
    public Collection<Loan> LoanCollection { get; set; }
}
```

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

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

You create a largeCustomerLoans collection to store the Loan objects by using the following code segment:

```
Collection<Loan> largeCustomerLoans = new Collection<Loan>();
```

All loans with an Amount value greater than or equal to 4000 must be tracked.

You need to populate the largeCustomerLoans collection with Loan objects.

Which code segment should you use?

C A. `foreach (Customer customer in customerCollection)`
{
 `foreach (Loan loan in customer.LoanCollection)`
 {
 `if (loan.Amount >= 4000m)`
 {
 `customer.LoanCollection.Add(loan);`
 }
 }
}

C B. `foreach (Loan customer in customerCollection)`
{
 `foreach (Loan loan in largeCustomerLoans)`
 {
 `if (loan.Amount >= 4000m)`
 {
 `largeCustomerLoans.Add(loan);`
 }
 }
}

C C. `foreach (Loan loan in largeCustomerLoans)`
{
 `foreach (Customer customer in customerCollection)`
 {
 `if (loan.Amount >= 4000m)`
 {
 `customer.LoanCollection.Add(loan);`
 }
 }
}

C D. `foreach (Customer customer in customerCollection)`
{
 `foreach (Loan loan in customer.LoanCollection)`
 {
 `if (loan.Amount >= 4000m)`
 {
 `largeCustomerLoans.Add(loan);`
 }
 }
}

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

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Must add to the largeCustomerLoans collection, not the customerLoanCollection.

We iterate through each customer in customerCollection and check each loan belonging to this customer.

QUESTION 205

DRAG DROP

You have the following code.

```
public class Product
{
    public string Name { get; set; }
    public int CategoryID { get; set; }
}
public class Category
{
    public int ID { get; set; }
    public string Name { get; set; }
}
List<Category> categories = new List<Category>()
{
    new Category() { ID = 1, Name = "Food" },
    new Category() { ID = 2, Name = "Clothing" },
};
List<Product> products = new List<Product>()
{
    new Product() { Name = "Strawberry", CategoryID = 1 },
    new Product() { Name = "Banana", CategoryID = 1 },
    new Product() { Name = "Pants", CategoryID = 2 },
};
var productsWithCategories =
    Target 1 product in products
    Target 2 category in categories
        Target 3 product.CategoryID Target 4 category.ID
    select new
    {
        Name = product.Name,
        Category = category.Name
    };

```

You need to return all of the products and their associated categories.

How should you complete the code? To answer, drag the appropriate code elements to the correct targets. Each code element 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.

NOTE: Each correct selection is worth one point.

Select and Place:

Code Segments

&&
equals
from
join
on
select
where

Answer Area

Target 1:

--

Target 2:

--

Target 3:

--

Target 4:

--

Correct Answer:**Code Segments**

&&
select
where

Answer Area

Target 1:

from

Target 2:

join

Target 3:

on

Target 4:

equals

Section: Volume B**Explanation****Explanation/Reference:**

Explanation:

Example: Join operations create associations between sequences that are not explicitly modeled in the data sources. For example, you can perform a join to find all the customers and distributors who have the same location. In LINQ the join clause always works against object collections instead of database tables directly.

C#

```
var innerJoinQuery =  
from cust in customers  
join dist in distributors on cust.City equals dist.City  
select new { CustomerName = cust.Name, DistributorName = dist.Name };
```

Reference: <https://msdn.microsoft.com/en-us/library/bb397927.aspx><https://msdn.microsoft.com/en-us/library/bb397927.aspx>**QUESTION 206**

DRAG DROP

You are developing a C# application. The application includes a class named Rate. The following code segment implements the Rate class:

```
public class Rate
{
    public string Category { get; set; }
    public DateTime Date { get; set; }
    public decimal Value { get; set; }
```

You define a collection of rates named rateCollection by using the following code segment:

```
Collection<Rate> rateCollection = new Collection<Rate>();
```

The application receives an XML file that contains rate information in the following format:

```
<?xml version="1.0" encoding="utf-8" ?>
<RateSheet>
    <rate category="buyout" date="2012-03-22">
        <value>0.0375</value>
    </rate>
    <rate category="fixed" date="2012-03-23">
        <value>0.0475</value>
    </rate>
</RateSheet>
```

You need to parse the XML file and populate the rateCollection collection with Rate objects.

You have the following code:

```

using (XmlReader reader = XmlReader.Create(new StringReader(rateXML)))
{
Target 1
{
    Rate rate = new Rate();
Target 2
    rate.Category = reader.Value;
Target 3
    DateTime rateDate;
    if (DateTime.TryParse(reader.Value, out rateDate))
    {
        rate.Date = rateDate;
    }
Target 4
    decimal value;
    if (decimal.TryParse(reader.ReadElementContentAsString(), out value))
    {
        rate.Value = value;
    }
    rateCollection.Add(rate);
}
}

```

Which code segments should you include in Target 1, Target 2, Target 3 and Target 4 to complete the code? (To answer, drag the appropriate code segments to the correct targets 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:

Code Segments	Answer Area
while(reader.ReadToFollowing("RateSheet"))	Target 1: <div style="border: 1px dashed gray; height: 20px; width: 150px; margin-bottom: 5px;"></div> Code Segment
while(reader.ReadToFollowing("rate"))	Target 2: <div style="border: 1px dashed gray; height: 20px; width: 150px; margin-bottom: 5px;"></div> Code Segment
reader.MoveToElement();	Target 3: <div style="border: 1px dashed gray; height: 20px; width: 150px; margin-bottom: 5px;"></div> Code Segment
reader.MoveToFirstAttribute();	Target 4: <div style="border: 1px dashed gray; height: 20px; width: 150px; margin-bottom: 5px;"></div> Code Segment
reader.MoveToContent();	
reader.MoveToNextAttribute();	
reader.ReadToFollowing("value");	

Correct Answer:

Code Segments	Answer Area
while(reader.ReadToFollowing("RateSheet"))	Target 1: while(reader.ReadToFollowing("rate"))
	Target 2: reader.MoveToFirstAttribute();
	Target 3: reader.MoveToNextAttribute();
	Target 4: reader.MoveToElement();
reader.MoveToContent();	
reader.ReadToFollowing("value");	

Section: Volume B Explanation

Explanation/Reference:

Explanation:

* Target 1: The element name is rate not Ratesheet.

The Xmlreader readToFollowing reads until the named element is found.

* Target 2:

The following example gets the value of the first attribute.

```
reader.ReadToFollowing("book");
reader.MoveToFirstAttribute();
string genre = reader.Value;
Console.WriteLine("The genre value: " + genre);
```

* Target 3, Target 4:

The following example displays all attributes on the current node.

C#VB

```
if (reader.HasAttributes) {
    Console.WriteLine("Attributes of <" + reader.Name + ">");
    while (reader.MoveToNextAttribute()) {
        Console.WriteLine(" {0}={1}", reader.Name, reader.Value);
    }
    // Move the reader back to the element node.
    reader.MoveToElement();
}
```

The XmlReader.MoveToElement method moves to the element that contains the current attribute node.

Reference: XmlReader Methods

[https://msdn.microsoft.com/en-us/library/System.Xml.XmlReader_methods\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/System.Xml.XmlReader_methods(v=vs.110).aspx)

QUESTION 207

You have the following code. (Line numbers are included for reference only.)

```
01 List<Product> products = new List<Product>()
02 {
03     new Product() { Name = "Strawberry", CategoryID = 1 },
04     new Product() { Name = "Banana", CategoryID = 1 },
05 };
06 List<Product> B_Products = (List<Product>)
07 {
08     from product in products
09     where (product.Name.StartsWith("B"))
10     select new { Name = product.Name }
11 };
```

When you execute the code, you get an exception.

You need to ensure that B_Products contain all of the products that start with the letter "B".

What should you do?

- C A. Replace line 06 with the following code.

```
Product[] B_Products = (Product[])
```

- C B. Replace line 10 with the following code.

```
select product.Name
```

- C C. Replace line 06 with the following code.

```
Array<Product> B_Products = (Array <Product>)
```

- C D. Replace line 10 with the following code.

```
select product
```

A. Option A

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

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Simply select the product items.

QUESTION 208

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.Skip(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.Take(80);`

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

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Example: All number larger than 15 from a list using the var query = from num in numbers... construct:

```
var largeNumbersQuery = numbers2.Where(c => c > 15);
```

Reference: How to: Write LINQ Queries in C#

<https://msdn.microsoft.com/en-us/library/bb397678.aspx>

QUESTION 209

DRAG DROP

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.

You have the following code:

```
Target 1
class Name
{
  Target 2
  public string FirstName { get; set; }
  Target 3
  public string LastName { get; set; }
}
```

Which attributes should you include in Target 1, Target 2 and Target 3 to complete the code? (To answer, drag the appropriate attributes to the correct targets 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:

Attributes

[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")]



Answer Area

Target 1:

Attribute

Target 2:

Attribute

Target 3:

Attribute

Correct Answer:

Attributes

[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")]
• • • •

Answer Area

Target 1:

[DataContract(Namespace="http://www.contoso.com/2012/06")]

Target 2:

[DataMember(Order=10)]

Target 3:

[DataMember]

Section: Volume B Explanation

Explanation/Reference:

Explanation:

Target 1: The DataContractAttribute.Namespace Property gets or sets the namespace for the data contract for the type. Use this property to specify a particular namespace if your type must return data that complies with a specific data contract.

Target2, target3: We put Order=10 on FirstName to ensure that LastName is ordered first.

Note:

The basic rules for data ordering include:

- If a data contract type is a part of an inheritance hierarchy, data members of its base types are always first in the order.
- Next in order are the current type's data members that do not have the Order property of the DataMemberAttribute attribute set, in alphabetical order.
- Next are any data members that have the Order property of the DataMemberAttribute attribute set. These are ordered by the value of the Order property first and then alphabetically if there is more than one member

of a certain Order value. Order values may be skipped.

Reference: Data Member Order

[https://msdn.microsoft.com/en-us/library/ms729813\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/ms729813(v=vs.110).aspx)

[https://msdn.microsoft.com/en-us/library/system.runtime.serialization.datacontractattribute.namespace\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.runtime.serialization.datacontractattribute.namespace(v=vs.110).aspx)

QUESTION 210

You have the following code. (Line numbers are included for reference only).

```
01 public async void ProcessWrite()
02 {
03     string filePath = @"temp2.txt";
04     string text = "Hello World\r\n";
05     await WriteTextAsync(filePath, text);
06 }
07 private async Task WriteTextAsync(string filePath, string text)
08 {
09     byte[] encodedText = Encoding.Unicode.GetBytes(text);
10     using (FileStream sourceStream = new FileStream(
·         filePath, FileMode.Append, FileAccess.Write,
·         FileShare.None, bufferSize: 4096, useAsync: true))
11     {
12     }
13 }
14 }
```

You need to complete the WriteTextAsync method. The solution must ensure that the code is not blocked while the file is being written.

Which code should you insert at line 12?

- A. `async sourceStream.Write(encodedText, 0, encodedText.Length);`
- B. `async sourceStream.WriteAsync(encodedText, 0, encodedText.Length);`
- C. `await sourceStream.Write(encodedText, 0, encodedText.Length);`
- D. `await sourceStream.WriteAsync(encodedText, 0, encodedText.Length);`

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

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

```
await sourceStream.WriteAsync(encodedText, 0, encodedText.Length);
```

The following example has the statement `await sourceStream.WriteAsync(encodedText, 0, encodedText.Length);`, which is a contraction of the following two statements:

```
Task theTask = sourceStream.WriteAsync(encodedText, 0, encodedText.Length);  
await theTask;
```

Example: The following example writes text to a file. At each await statement, the method immediately exits. When the file I/O is complete, the method resumes at the statement that follows the await statement. Note that the `async` modifier is in the definition of methods that use the `await` statement.

```
public async void ProcessWrite()  
{  
    string filePath = @"temp2.txt";  
    string text = "Hello World\r\n";  
  
    await WriteTextAsync(filePath, text);  
}  
  
private async Task WriteTextAsync(string filePath, string text)  
{  
    byte[] encodedText = Encoding.Unicode.GetBytes(text);  
  
    using (FileStream sourceStream = new FileStream(filePath,  
        FileMode.Append, FileAccess.Write, FileShare.None,  
        bufferSize: 4096, useAsync: true))  
    {  
        await sourceStream.WriteAsync(encodedText, 0,  
            encodedText.Length);  
    };  
}
```

Reference: Using Async for File Access (C# and Visual Basic)

<https://msdn.microsoft.com/en-us/library/jj155757.aspx>

QUESTION 211

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
10         };
11         counters.Add(ccdCounter1);
12         var ccdCounter2 = new CounterCreationData
13         {
14             CounterName = "Counter2",
15             CounterType = PerformanceCounterType.SampleBase
16         };
17         counters.Add(ccdCounter2);
18         PerformanceCounterCategory.Create("Contoso", "Help string",
19             PerformanceCounterCategoryType.MultiInstance, 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: C

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

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: $((N_1 - N_0) / (D_1 - D_0)) \times 100$, 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 CachePin Read Hits %.

References:

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

QUESTION 212

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 reverse order in which they are placed into the collection.

You need to meet the requirements.

What should you do?

- A. 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.
- B. 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.
- C. Create a `System.Collections.Stack` collection. Use the `Push()` method to add `TheaterCustomer` objects to the collection. Use the `Pop()` method to pass the objects to the `ProcessTheaterCustomer()` method.
- D. Create a `System.Collections.Queue` collection. Use the `Enqueue()` method to add `TheaterCustomer` objects to the collection. Use the `Peek()` method to pass the objects to the `ProcessTheaterCustomer()` method.

Correct Answer: C

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

A stack is the appropriate collection here. In computer science, a stack or LIFO (last in, first out) is an abstract data type that serves as a collection of elements, with two principal operations: push, which adds an element to the collection, and pop, which removes the last element that was added.

Reference: [https://en.wikipedia.org/wiki/Stack_\(abstract_data_type\)](https://en.wikipedia.org/wiki/Stack_(abstract_data_type))

QUESTION 213

DRAG DROP

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.

You have the following code:

```

public class Data
{
    Target 1
    public Data(int count)
    {
        for (int i = 0; i < count; i++)
        {
            Target 2
        }
    }
}

```

Which code segments should you include in Target 1 and Target 2 to complete the code? To answer, drag the appropriate code segments to the correct targets. 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:

Code Segments	Answer Area
<code>static Dictionary<int, WeakReference> _data;</code>	Target 1: Code Segment
<code>static Dictionary<int, Int32> _data;</code>	Target 2: Code Segment
<code>_data.Add(i, new WeakReference(new Class(i * 2), false));</code>	
<code>_data.Add(i, (Int32)(i * 2));</code>	

Correct Answer:

Code Segments	Answer Area
	Target 1: <code>static Dictionary<int, WeakReference> _data;</code>
<code>static Dictionary<int, Int32> _data;</code>	Target 2: <code>_data.Add(i, new WeakReference(new Class(i * 2), false));</code>
<code>_data.Add(i, (Int32)(i * 2));</code>	

Section: Volume B Explanation

Explanation/Reference:

Explanation:

WeakReference influences the garbage collector. Most objects that are referenced must be kept in memory until they are unreachable. But with WeakReference, objects that are referenced can be collected.

Example: C# program that uses WeakReference

```

using System;
using System.Text;

```

```

class Program
{
/// <summary>
/// Points to data that can be garbage collected any time.
/// </summary>
static WeakReference _weak;

static void Main()
{
// Assign the WeakReference.
_weak = new WeakReference(new StringBuilder("perls"));

```

Reference: <http://www.dotnetperls.com/weakreference>

QUESTION 214

DRAG DROP

You are developing a class named Temperature.

You need to ensure that collections of Temperature objects are sortable.

You have the following code:

Target 1

{

```

    public double Fahrenheit { get; set; }
    public int Target 2
        (object obj)
    {
        if (obj == null) return 1;
        var otherTemperature = obj as Temperature;
        if(otherTemperature != null)
            return Target 3
        throw new ArgumentException("Object is not a Temperature");
    }
}

```

Which code segments should you include in Target 1, Target 2 and Target 3 to complete the code? To answer, drag the appropriate code segments to the correct targets. 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.

NOTE: Each correct selection is worth one point.

Select and Place:

Code Segments	Answer Area
<code>public class Temperature : IComparable</code>	Target 1: Code Segment
<code>public class Temperature : IComparer</code>	Target 2: Code Segment
<code>CompareTo</code>	Target 3: Code Segment
<code>Equals</code>	
<code>this.Fahrenheit.CompareTo(otherTemperature.Fahrenheit);</code>	
<code>otherTemperature.CompareTo(this.Fahrenheit);</code>	

Correct Answer:

Code Segments	Answer Area
<code>public class Temperature : IComparable</code>	Target 1: <code>public class Temperature : IComparable</code>
<code>public class Temperature : IComparer</code>	Target 2: <code>CompareTo</code>
<code>CompareTo</code>	Target 3: <code>otherTemperature.CompareTo(this.Fahrenheit);</code>
<code>Equals</code>	
<code>this.Fahrenheit.CompareTo(otherTemperature.Fahrenheit);</code>	
<code>otherTemperature.CompareTo(this.Fahrenheit);</code>	

Section: Volume B Explanation

Explanation/Reference:

Explanation:

Note:

Target 1:

The role of `IComparable` is to provide a method of comparing two objects of a particular type. This is necessary if you want to provide any ordering capability for your object.

Incorrect: The role of `IComparer` is to provide additional comparison mechanisms. For example, you may want to provide ordering of your class on several fields or properties, ascending and descending order on the same field, or both.

Target 2, Target 3:

Example:

```
// Implement IComparable CompareTo method - provide default sort order.
int IComparable.CompareTo(object obj)
{
    car c=(car)obj;
    return String.Compare(this.make,c.make);
}
```

Reference: How to use the `IComparable` and `IComparer` interfaces in Visual C#
<https://support.microsoft.com/en-us/kb/320727>

QUESTION 215 DRAG DROP

You have the following class. (Line numbers are included for reference only.)

```

01 public class MyClass
02 {
03     public int AddNumb(int numb1, int numb2)
04     {
05         int result = numb1 + numb2;
06         return result;
07     }
08     public int SubNumb(int numb1, int numb2)
09     {
10         int result = numb1 - numb2;
11         return result;
12     }
13     public string doOperation(
14         string operationName, int numb1, int numb2)
15     {
16         object[] mParam = new object[] { numb1, numb2 };
17     }
18 }

```

You need to complete the doOperation method to meet the following requirements:

- If AddNumb is passed as the operationName parameter, the AddNumb function is called.
- If SubNumb is passed as the operationName parameter, the SubNumb function is called.

Which four code blocks should you insert at line 16 to develop the solution? To answer, move the appropriate code blocks from the list of code blocks to the answer area and arrange them in the correct order.

Select and Place:

Code Blocks

```
MethodInfo myMethodInfo = myTypeObj.GetMethod
(operationName);
```

```
return myClassObj(mParam).ToString();
```

```
return myMethodInfo.Invoke
(myClassObj, mParam).ToString();
```

```
Type myTypeObj = myClassObj.GetType();
```

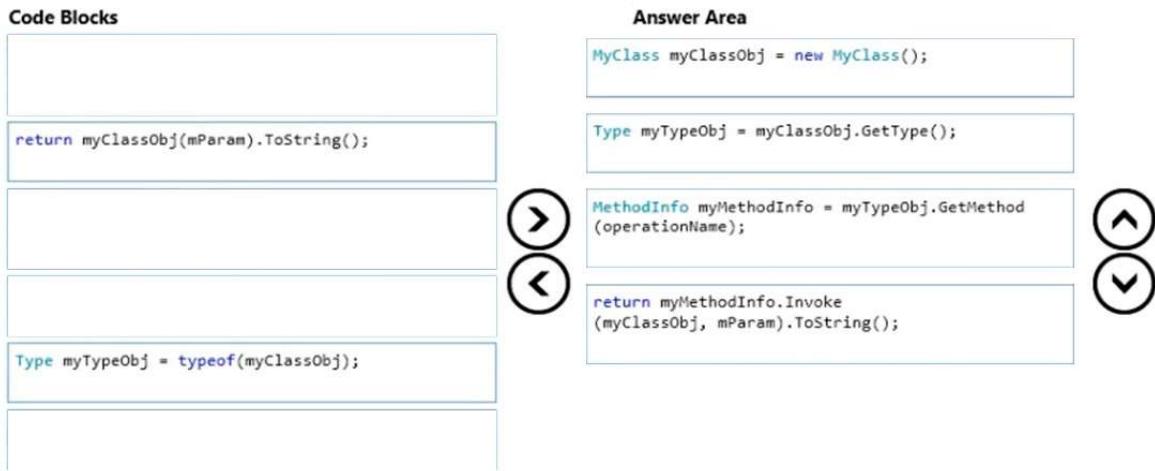
```
Type myTypeObj = typeof(myClassObj);
```

```
MyClass myClassObj = new MyClass();
```

Answer Area



Correct Answer:



Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Note:

target 2:

GetType() is a method you call on individual objects, to get the execution-time type of the object.

References: What is the difference of getting Type by using GetType() and typeof()?

<http://stackoverflow.com/questions/11312111/when-and-where-to-use-gettype-or-typeof>

QUESTION 216

HOTSPOT

A developer designs an interface that contains the following code:

```
public class Class1 : Class2
{
}
public interface INewInterface
{
    void Method1();
}
public class Class2 : INewInterface
{
    void INewInterface.Method1()
    {
        throw new NotImplementedException();
    }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

Hot Area:

Statement	Yes	No
If you call Method1 from an instance of Class2, an exception will be thrown.	<input type="radio"/>	<input type="radio"/>
If you cast an instance of Class1 into INewInterface, an exception will be thrown.	<input type="radio"/>	<input type="radio"/>
Class2 uses an implicit implementation of INewInterface.	<input type="radio"/>	<input type="radio"/>

Correct Answer:

Statement	Yes	No
If you call Method1 from an instance of Class2, an exception will be thrown.	<input checked="" type="radio"/>	<input type="radio"/>
If you cast an instance of Class1 into INewInterface, an exception will be thrown.	<input type="radio"/>	<input checked="" type="radio"/>
Class2 uses an implicit implementation of INewInterface.	<input type="radio"/>	<input checked="" type="radio"/>

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 217

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

```
01 public class Connection
02 {
03     public static Connection Create()
04     {
05         return new Connection();
06     }
07
08 }
```

You need to ensure that new instances of Connection can be created only by other classes by calling the Create method. The solution must allow classes to inherit from Connection.

What should you do?

- A. Replace line 01 with the following code:

```
public abstract class Connection
```

- B. Replace line 01 with the following code:

```
public static class Connection
```

- C. Insert the following code at line 07:

```
private Connection() {}
```

- D. Insert the following code at line 07:

```
protected Connection() {}
```

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

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

The following list provides the main features of a static class:

- Contains only static members.
- Cannot be instantiated.
- Is sealed.
- Cannot contain Instance Constructors.

Creating a static class is therefore basically the same as creating a class that contains only static members and a private constructor. A private constructor prevents the class from being instantiated.

Reference: Static Classes and Static Class Members (C# Programming Guide)

<https://msdn.microsoft.com/en-us/library/79b3xss3.aspx>

QUESTION 218

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?

- C A.

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

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

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

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

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

D. Option D

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

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

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

References:

<https://docs.microsoft.com/en-us/dotnet/csharp/language-reference/keywords/double>

QUESTION 219

DRAG DROP

You write the following code.

```
List<Type> types = (Target 1.CurrentDomain.GetAssemblies()
    .Target 2(t => t.GetTypes())
    .Where(t => t.IsClass && t.Assembly == this.GetType().Target3)).ToList<Type>();
```

You need to get the list of all the types defined in the assembly that is being executed currently.

How should you complete the code? To answer, drag the appropriate code elements to the correct targets. Each code element 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.

NOTE: Each correct selection is worth one point.

Select and Place:

Code segments

AppDomain

Assembly

IsClass

Select

SelectMany

Answer Area

Target 1:

Target 2:

Target 3:

Correct Answer:

Code segments		Answer Area
		Target 1: AppDomain
IsClass	Select	Target 2: SelectMany
		Target 3: Assembly

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

The AppDomain.CurrentDomain.GetAssemblies() gives you all assemblies loaded in the current application domain.

The Assembly class provides a GetTypes() method to retrieve all types within that particular assembly.

Example: Using Linq:

```
IEnumerable<Type> types =
from a in AppDomain.CurrentDomain.GetAssemblies()
from t in a.GetTypes()
select t;
```

Reference: <http://stackoverflow.com/questions/4692340/find-types-in-all-assemblies>

QUESTION 220

You have the following C# code.

```
int c = 3, d = 4, e = 5;
Console.WriteLine(--c * d - ++e);
```

What is the output of the code?

- A. -4
- B. -3
- C. 2
- D. 3
- E. 7

Correct Answer: C

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 221

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.GetEnumerator();`
- B. `result = (List<string>) myMatches.SyncRoot;`
- C. `result = (from System.Text.RegularExpressions.Match m in myMatches
select m.Value).ToList<string>();`
- D. `result = (from System.Text.RegularExpressions.Match m in myMatches
where !m.Success
select m.Value).ToList<string>();`

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

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

The MatchCollection.GetEnumerator method returns an enumerator that iterates through a collection.

Note:

The MatchCollection Class represents the set of successful matches found by iteratively applying a regular expression pattern to the input string.

Reference: MatchCollection.GetEnumerator Method

[https://msdn.microsoft.com/en-us/library/system.text.regularexpressions.matchcollection.getenumerator\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.text.regularexpressions.matchcollection.getenumerator(v=vs.110).aspx)

QUESTION 222

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. Specify the /define compiler option.
- C. Run the Assembly Linker tool from the Windows Software Development Kit (Windows SDK).
- D. Decorate the code by using the [assembly:AssemblyDelaySignAttribute(true)] attribute.

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

You can specify the compiler settings for your application in several ways:

- The property pages
- The command line
- #CONST (for Visual Basic) and #define (for C#)

Note: You can have either the Trace or Debug conditional attribute turned on for a build, or both, or neither. Thus, there are four types of build: Debug, Trace, both, or neither. Some release builds for production deployment might contain neither; most debugging builds contain both.

Reference: How to: Compile Conditionally with Trace and Debug

[https://msdn.microsoft.com/en-us/library/64yxa344\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/64yxa344(v=vs.110).aspx)

QUESTION 223

You are creating a console application named Appl.

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

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

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

`JavaScriptSerializer().Deserialize`

Converts the specified JSON string to an object of type T.

Example:

```
string json = File.ReadAllText(Environment.CurrentDirectory + @"\JSON.txt");
```

```
Company company = new System.Web.Script.Serialization.JavaScriptSerializer().Deserialize<Company>(
```

Reference: C# - serialize object to JSON format using JavaScriptSerializer

<http://matijabozicevic.com/blog/csharp-net-development/csharp-serialize-object-to-json-format-using-javascriptserialization>

QUESTION 224

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

NOTE: Each correct selection is worth one point.

- 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 01:

```
[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 10:

```
[Conditional ("DEBUG")]
```

- E. Insert the following code segment at line 01:

```
#if DEBUG
```

- Insert the following code segment at line 10:

```
#endif
```

- F. Insert the following code segment at line 10:

```
[Conditional ("RELEASE")]
```

- G. Insert the following code segment at line 05:

```
#if DEBUG
```

- Insert the following code segment at line 07:

```
#endif
```

Correct Answer: DG

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

D: Also, it's worth pointing out that you can use [Conditional("DEBUG")] attribute on methods that return void to have them only executed if a certain symbol is defined. The compiler would remove all calls to those methods if the symbol is not defined:

```
[Conditional ("DEBUG")]
void PrintLog() {
    Console.WriteLine ("Debug info");
}

void Test() {
    PrintLog();
}
```

G: 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
```

References:

<http://stackoverflow.com/questions/2104099/c-sharp-if-then-directives-for-debug-vs-release>

QUESTION 225

You have a class named Customer and a variable named customers.

You need to test whether the customers variable is a generic list of Customer objects.

Which line of code should you use?

- A. `if(customers.GetType() is List<Customer>[])`
- B. `if(customers is List<Customer>[])`
- C. `if(customers.GetType() is List<Customer>)`
- D. `if(customers is List<Customer>)`

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

If you want to check if it's an instance of a generic type:

```
return list.GetType().IsGenericType;  
If you want to check if it's a generic List<T>:
```

```
return list.GetType().GetGenericTypeDefinition() == typeof(List<>);
```

Reference: Testing if object is of generic type in C#

<http://stackoverflow.com/questions/982487/testing-if-object-is-of-generic-type-in-c-sharp>

QUESTION 226

DRAG DROP

You have the following code.

```
string MessageString = "This is the original message!";
```

You need to store the SHA1 hash value of MessageString in a variable named HashValue.

Which code should you use? Develop the solution by selecting and arranging the required code blocks in the correct order. You may not need all of the code blocks.

Select and Place:

Code Blocks

```
byte[] HashValue = SHhash.ComputeHash  
(MessageBytes);  
  
SHA1Managed SHhash = new SHA1Managed();  
  
UnicodeEncoding UE = new UnicodeEncoding();  
  
MessageBytes.GetHashCode();  
  
byte[] MessageBytes = UE.GetBytes  
(MessageString);
```

Answer Area






Correct Answer:

The screenshot shows a software interface for editing C# code. On the left, there is a vertical scrollable window titled "Code Blocks" containing the following code block:

```
MessageBytes.GetHashCode();
```

To the right of this window is a vertical toolbar with two circular buttons: a top one with a right-pointing arrow and a bottom one with a left-pointing arrow. To the right of the toolbar is another vertical scrollable window titled "Answer Area" containing the following code blocks:

```
UnicodeEncoding UE = new UnicodeEncoding();  
byte[] MessageBytes = UE.GetBytes(MessageString);  
SHA1Managed SHhash = new SHA1Managed();  
byte[] HashValue = SHhash.ComputeHash(MessageBytes);
```

On the far right of the interface are two large circular arrows: an upward-pointing arrow at the top and a downward-pointing arrow at the bottom.

Section: Volume B
Explanation

Explanation/Reference:

QUESTION 227

You have a C# application.

The application requires 500 MB of available memory.

You need to identify whether there is enough available memory when the application starts.

Which class should you use?

- A. OutOfMemoryException
- B. MemoryStream
- C. PerformanceCounter
- D. DiagnosticsConfigurationHandler

Correct Answer: C

Section: Volume B
Explanation

Explanation/Reference:

QUESTION 228

DRAG DROP

You are developing a function that takes a parameter named aParam as a string input.

You need to convert aParam to a Double. If the conversion cannot be completed, the function should return 0.

```
public double convertTheDouble(string aParam)
{
    Target 1 result;
    if (!Target 2.TryParse(aParam, Target 3 result))
        return 0;
    return result;
}
```

How should you complete the code? To answer, drag the appropriate code elements to the correct targets. Each code element 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.

NOTE: Each correct selection is worth one point.

Select and Place:

The screenshot shows a 'Select and Place' interface. On the left, under 'Code Segments', there are five items: 'double', 'out', 'Parse', 'ref', and 'TryParse'. On the right, under 'Answer Area', there are three targets labeled 'Target 1', 'Target 2', and 'Target 3', each with a dashed rectangular placeholder. A vertical split bar is positioned between the code segments and the answer area.

Correct Answer:

The screenshot shows the correct answers for the 'Select and Place' interface. The 'Code Segments' pane remains the same. In the 'Answer Area', 'Target 1' contains 'double', 'Target 2' contains 'double', and 'Target 3' contains 'out'. The vertical split bar is still present.

Section: Volume B
Explanation

Explanation/Reference:

QUESTION 229

HOTSPOT

You are building an application in Microsoft Visual Studio 2013.

You have the following code.

```
#define DEBUG

using System;
using System.Diagnostics;

public class TestClass
{
    [Conditional("DEBUG")]
    public void LogData()
    {
        Trace.Write("LogData1");
    }
    public void RunTestClass()
    {
        this.LogData();

#if (DEBUG)
        Trace.Write("LogData2");
#endif
    }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

Statement	Yes	No
When RunTestClass executes, LogData1 will be written if the application starts in DEBUG mode.	<input type="radio"/>	<input checked="" type="radio"/>
When RunTestClass executes, LogData2 will be written if the application starts in DEBUG mode.	<input checked="" type="radio"/>	<input type="radio"/>
When RunTestClass executes, LogData2 will be written if the application starts in RELEASE mode.	<input type="radio"/>	<input checked="" type="radio"/>

Correct Answer:

Statement	Yes	No
When RunTestClass executes, LogData1 will be written if the application starts in DEBUG mode.	<input type="radio"/>	<input checked="" type="radio"/>
When RunTestClass executes, LogData2 will be written if the application starts in DEBUG mode.	<input checked="" type="radio"/>	<input type="radio"/>
When RunTestClass executes, LogData2 will be written if the application starts in RELEASE mode.	<input type="radio"/>	<input checked="" type="radio"/>

Section: Volume B
Explanation

Explanation/Reference:

QUESTION 230

HOTSPOT

You have the following code:

```
[DataContract]
public class Class1
{
    string oneValue;
    [DataMember]
    public string OneValue
    {
        get { return oneValue; }
        set { oneValue = value; }
    }
    public Class1(string _oneValue)
    {
        oneValue = _oneValue;
    }
}
[DataContract]
public class Class2
{
    List<string> values;
    [DataMember]
    public List<string> Values;
    {
        get { return Values; }
        set { values = value; }
    }
    public Class2(List<string> _values)
    {
        values = _values;
    }
    public Class2()
    {
    }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

Statement	Yes	No
Class1 can be serialized by using the BinaryFormatter class.	<input type="radio"/>	<input checked="" type="radio"/>
Class2 can be serialized by using the BinaryFormatter class.	<input checked="" type="radio"/>	<input type="radio"/>
Class2 can be serialized by using the DataContractSerializer class.	<input type="radio"/>	<input checked="" type="radio"/>

Correct Answer:

Statement	Yes	No
Class1 can be serialized by using the BinaryFormatter class.	<input type="radio"/>	<input checked="" type="radio"/>
Class2 can be serialized by using the BinaryFormatter class.	<input checked="" type="radio"/>	<input type="radio"/>
Class2 can be serialized by using the DataContractSerializer class.	<input type="radio"/>	<input checked="" type="radio"/>

Section: Volume B
Explanation

Explanation/Reference:

QUESTION 231

DRAG DROP

You have a class named Customer and a class named Order.

The customer class has a property named Orders that contains a list of Order objects.

The Order class has a property named OrderDate that contains the date of the Order.

You need to create a LINQ query that returns all of the customers who had at least one order during the year 2005.

You write the following code.

```
List<Customer> customersWithOrdersIn2005 =  
    customers.Target 1(c => c.Orders.Target 2(  
        o Target 3 o.OrderDate.Year Target 4 2005)).ToList();
```

How should you complete the code? To answer, drag the appropriate code elements to the correct targets. Each code element 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.

NOTE: Each correct selection is worth one point..

Select and Place:

The interface consists of two main sections: 'Code Segments' on the left and 'Answer Area' on the right. A vertical split bar separates the two sections, with a blue handle indicating it can be dragged. The 'Code Segments' section contains six input fields: '==' (highlighted in yellow), '=>' (highlighted in yellow), 'Any' (highlighted in yellow), 'Join' (highlighted in yellow), 'Select' (highlighted in yellow), and 'Where' (highlighted in yellow). The 'Answer Area' section contains four target boxes labeled 'Target 1', 'Target 2', 'Target 3', and 'Target 4', each preceded by a 'Target' label and a dotted line for dragging.

Correct Answer:

The screenshot shows a user interface for a coding exercise. On the left, under 'Code Segments', there are several dropdown menus. One dropdown has 'Any' selected, and another has 'Select' selected. On the right, under 'Answer Area', there are four target fields labeled 'Target 1' through 'Target 4'. The answers are: Target 1: 'Where', Target 2: 'Join', Target 3: '=>', and Target 4: '=='.

Target	Value
Target 1:	Where
Target 2:	Join
Target 3:	=>
Target 4:	==

Section: Volume B Explanation

Explanation/Reference:

QUESTION 232

HOTSPOT

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, int value)
{
    Dictionary<string, int> data = CreateTestData();
    return data.Contains(new KeyValuePair<string,int>(searchTerm,value));
}
```

Use the drop-down lists to select the answer choice that completes each statement.

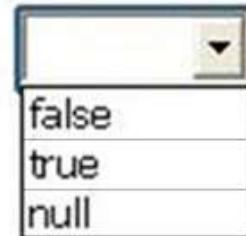
Hot Area:

If the search term is set to “Finance”, and value is set to 0, the result will be [answer choice].



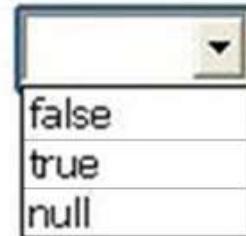
A dropdown menu interface with a blue border and a small downward arrow in the top right corner. Inside, there are three horizontal lines representing menu items, with the text "false", "true", and "null" written vertically next to them.

If the search term is set to “Accounting”, and value is set to 1, the result will be [answer choice].



A dropdown menu interface with a blue border and a small downward arrow in the top right corner. Inside, there are three horizontal lines representing menu items, with the text "false", "true", and "null" written vertically next to them.

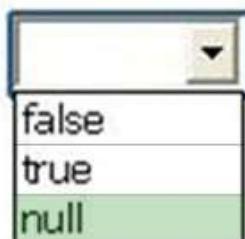
If the search term is set to “Accounting”, and value is set to 2, the result will be [answer choice].



A dropdown menu interface with a blue border and a small downward arrow in the top right corner. Inside, there are three horizontal lines representing menu items, with the text "false", "true", and "null" written vertically next to them.

Correct Answer:

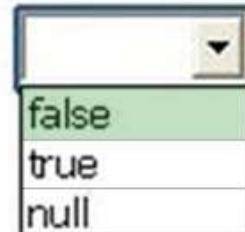
If the search term is set to “Finance”, and value is set to 0, the result will be [answer choice].



If the search term is set to “Accounting”, and value is set to 1, the result will be [answer choice].



If the search term is set to “Accounting”, and value is set to 2, the result will be [answer choice].



Section: Volume B Explanation

Explanation/Reference:

QUESTION 233

You plan to create a list of customers named customers. Each customer will have a name and a key. The name and key will be strings.

You will use the following code to retrieve customers from the list.

```
customers[aKey].toString();
```

You need to identify which class must be used to declare the customers list. The solution must ensure that each key is unique.

Which class should you identify?

- A. ArrayList
- B. Dictionary
- C. List
- D. Array

Correct Answer: B
Section: Volume B

Explanation

Explanation/Reference:

QUESTION 234

HOTSPOT

You have a C# application named Application1 that contains the following code:

```
protected class Customer
{
    public string FirstName { get; set; }
    public string LastName { get; set; }
}
protected static List<Customer> customers = new List<Customer>();
```

The `customers` object is populated with data.

You need to create a LINQ query that will group `Customer` objects by the first letter of the customers' last name. The query must return `Customer` objects.

How should you complete the LINQ query? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

```
var queryGroup = from c in customers
                  group
```

c
customers
FirstLetter

by

```
new { FirstLetter =
```

c.LastName
c.LastName[0]
customers[0].LastName
customers[0].LastName[0]

```
into customersGroup
```

```
orderby customersGroup
```

.customers[0].LastName[0]
.FirstOrDefault().LastName[1]
.Key.FirstLetter

```
select customersGroup;
```

Correct Answer:

Answer Area

```
var queryGroup = from c in customers
                  group c by
                    c.FirstLetter
                  into customersGroup
                  orderby customersGroup
                  select customersGroup;
```

The code demonstrates LINQ query syntax. The first dropdown shows the grouping key 'c' highlighted. The second dropdown shows the projection key 'c.FirstLetter' highlighted. The third dropdown shows the ordering key 'Key.FirstLetter' highlighted.

Section: Volume B Explanation

Explanation/Reference:

References:

<https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/concepts/linq/basic-linq-query-operations>

<https://docs.microsoft.com/en-us/dotnet/csharp/language-reference/keywords/group-clause>

<https://docs.microsoft.com/en-us/dotnet/csharp/language-reference/keywords/orderby-clause>

QUESTION 235

You are developing a Windows Forms (WinForms) application. The application displays a TreeView that has 1,000 nodes.

You need to ensure that if a user expands a node, and then collapses the TreeView, the node object is kept in memory unless the Garbage Collector requires additional memory.

Which object should you use to store the node?

- A. GC
- B. Handle
- C. Cache
- D. WeakReference

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:References: <https://msdn.microsoft.com/en-us/library/ms404247.aspx>**QUESTION 236**

You have the following line of code.

```
Type type1 = typeof(Myclass);
```

You need to create an object named obj that has a type of type1.

Which line of code should you use?

- A. `object obj = Activator.CreateInstance("type1".GetType());`
 - B. `type1 obj = Activator.CreateInstance(type1);`
 - C. `type1 obj = Activator.CreateInstance("type1".GetType());`
 - D. `object obj = Activator.CreateInstance(type1);`
-
- A. Option A
 - B. Option B
 - C. Option C
 - D. Option D

Correct Answer: B**Section: Volume B****Explanation****Explanation/Reference:****QUESTION 237**

DRAG DROP

You need to validate whether string strJson is a valid JSON string.

You write the following code:

```
var serializer = new Target 1();
var result = serializer.Target 2<Dictionary<string, object>>(strJson);
```

How should you complete the code? To answer, drag the appropriate code elements to the correct targets in the answer area. Each code element 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.

NOTE: Each correct selection is worth one point.**Select and Place:**

Code segments

DataContractJsonSerializer
Deserialize
JavaScriptSerializer
ReadObject
SerializationInfo
Serialize
XmlSerializer

Answer Area

Target 1:

Target 2:

Correct Answer:

Code segments

[redacted]
Deserialize
JavaScriptSerializer
[redacted]
SerializationInfo
Serialize
XmlSerializer

Answer Area

Target 1:DataContractJsonSerializer

Target 2:ReadObject

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

```
serializer = new DataContractJsonSerializer();
var result = serializer.ReadObject<Dictionary<string, object>>(StrJson);
```

QUESTION 238

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. #define DEBUG
    Console.WriteLine("Entering debug mode");
#define RELEASE
    Console.WriteLine("Entering release mode")

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

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

D. if(System.Reflection.Assembly.GetExecutingAssembly().IsDefined
    (typeof(System.Diagnostics.Debugger), false))
    Console.WriteLine("Entering debug mode");
else
    Console.WriteLine("Entering release mode")

```

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 239

You plan to debug an application remotely by using Microsoft Visual Studio 2013.

You set a breakpoint in the code.

When you compile the application, you get the following error message: "The breakpoint will not currently be hit. No symbols have been loaded for this document."

You need to ensure that you can debug the application remotely.

What should you do?

- A. Modify the AssemblyInfo.cs file.
- B. Copy .exe files to the Symbols folder on the local computer.
- C. Copy .cs files to the remote server.
- D. Use .NET Remote Symbol Loading.

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:References: <https://msdn.microsoft.com/en-us/library/y7f5zaaa.aspx>**QUESTION 240**

DRAG DROP

You have the following code.

```
public Target 1 Target 2 < string> GetAsync(string uri)
{
    var httpClient = new HttpClient();
    var content = Target 3 httpClient.Target 4(uri);
    return await Task .Run(() => content);
}
```

You need to complete the method to return the content as a string.

How should you complete the code? To answer, drag the appropriate code elements to the correct targets. Each code element 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.

NOTE: Each correct selection is worth one point.

Select and Place:

Code Segments

async

await

GetString

GetStringAsync

Task

Answer Area

Target 1:

Target 2:

Target 3:

Target 4:

Correct Answer:

Code Segments	Answer Area
	Target 1: <input type="text"/>
	Target 2: <input type="text"/>
GetString	Target 3: <input type="text"/>
	Target 4: <input type="text"/>

Section: Volume B

Explanation

Explanation/Reference:

References: <https://docs.microsoft.com/en-us/dotnet/csharp/async>

QUESTION 241

HOTSPOT

You are developing an application in C#.

You need to implement a custom exception for the application.

You have the following code.

```
Public class CustomException : Target 1
{
    public CustomException(string msg) : Target 2(msg)
    {
        MessageBox.Show(msg);
    }
}
```

How should you complete the code? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Target 1:

base
delegate
Exception
inherit
this

Target 2:

base
ErrorProvider
Exception
inherit
SystemException
this

Correct Answer:

Target 1:

base
delegate
Exception
inherit
this

Target 2:

base
ErrorProvider
Exception
inherit
SystemException
this

Section: Volume B**Explanation****Explanation/Reference:****QUESTION 242**

You are creating an assembly named Assembly1 by using the Class Library project template in Microsoft Visual Studio. Assembly1 is used by a C# application named App1.

You do not have access to the Visual Studio project for App1.

You need to ensure that you can debug Assembly1.

What should you configure in the project properties?

- A. On the Application page, set the Output type to **Windows Application**.
- B. On the Build page, click **Allow unsafe code**.
- C. On the Debug page, set the **Start external program** option for App1.
- D. On the Debug page, click **Enable native code debugging**.

Correct Answer: C

Section: Volume B**Explanation****Explanation/Reference:**

Reference: <https://msdn.microsoft.com/en-us/library/2wcdezs5.aspx>

QUESTION 243

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. Specify the /define compiler option.
- B. Decorate the code by using the `[DebuggerDisplay("Mydebug")]` attribute.
- C. Decorate the code by using the `[assembly:AssemblyDelaySignAttribute(true)]` attribute.
- D. Run the Assembly Linker tool from the Windows Software Development Kit (Windows SDK).

Correct Answer: A

Section: Volume B**Explanation****Explanation/Reference:****QUESTION 244**

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

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Use a lambda expression in a method-based query by using the Enumerable.Where standard query operator.

.Equals() is intended to communicate value equality — do the two probably different object instances referred to by the two variables have the same value, for some definition of "same" that you provide by overloading the method.

Incorrect:

Not A: For reference types, == is intended to communicate reference equality — do the two variables refer to the same object instance.

Reference:

<https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/statements-expressions-operators/how-to->

[use-lambda-expressions-in-a-query](#)

QUESTION 245

You are developing an application.

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

Which type of delegate should you use?

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

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 246

You have the following code.

```
List<string> myData = new List<string>();
```

```
    myData.Add("string1");
    myData.Add("string2");
    myData.Add("string3");
```

You need to remove all of the data from the myData list.

Which code should you use?

- A. for (int i = 0; i <= myData.Count; i++)
 myData.RemoveAt(i);
- B. while (myData.Count != 0)
 myData.RemoveAt(0);
- C. foreach(string currentString in myData) myData.Remove(currentString);
- D. for (int i = 0; i <= myData.Count; i++)
 myData.RemoveAt(0);

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 247

DRAG DROP

You have the following code.

```
int input = Convert.ToInt32(Console.ReadLine());  
string classify;  
classify = (Target1 Target2 Target3) Target4 "positive" : "negative";
```

You need to ensure that the classify string contains the next “positive” if the input number is more than zero and “negative” if the input number is less than or equal to zero.

How should you complete the code? To answer, drag the appropriate code elements to the correct targets in the answer area. Each code element 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:

Code Segments

&

:

?

<

>

0

input

Answer Area

Target 1:

Code element

Target 2:

Code element

Target 3:

Code element

Target 4:

Code element

Correct Answer:

Code Segments

&

:

<

0

?

Answer Area**Target 1:**

input

Target 2:

>

Target 3:

0

Target 4:

?

Section: Volume B**Explanation****Explanation/Reference:**References: <http://kb.itvedant.com/c>**QUESTION 248****DRAG DROP**

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 populate the `urlText` text box with 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.

You have the following code:

```
private Target 1 void GetData(WebResponse response)
{
    var streamReader = new StreamReader(response.GetResponseStream());
    urlText.Text = Target 2 streamReader. Target 3
}
```

Which objects should you include in Target 1, Target 2, and Target 3 to complete the code? To answer, drag the appropriate objects to the correct targets. 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.

NOTE: Each correct selection is worth one point.

Select and Place:

Answer area

ReadLineAsync
();

Target 1:

Object

ReadToEndAsync
();

Target 2:

Object

await

Target 3:

Object

async

ReadLine();

ReadToEnd();

ToString();

Correct Answer:

Answer area

ReadLineAsync
();

Target 1: **async**

ReadLine();

Target 2: **await**

ReadToEnd();

Target 3: **ReadToEndAsync**
();

ToString();

Section: Volume B Explanation

Explanation/Reference:

QUESTION 249 HOTSPOT

You have the following C# code. (Line numbers are included for reference only.)

```
01 int a = 1;
02 int b = 2;
03 Console.WriteLine(a == --b && a == b++);
04 Console.WriteLine(a == --b || a == b++);
05 Console.WriteLine(a == --b && a == b++);
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Statements	Yes	No
The output of line 03 is True.	<input type="radio"/>	<input type="radio"/>
The output of line 04 is True.	<input type="radio"/>	<input type="radio"/>
The output of line 05 is True.	<input type="radio"/>	<input type="radio"/>

Correct Answer:

Answer Area

Statements	Yes	No
The output of line 03 is True.	<input type="radio"/>	<input checked="" type="radio"/>
The output of line 04 is True.	<input checked="" type="radio"/>	<input type="radio"/>
The output of line 05 is True.	<input type="radio"/>	<input checked="" type="radio"/>

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 250

HOTSPOT

You are writing a code to handle exceptions for a C# application.

You need to identify different ways to handle an exception named ex.

Which line of code should you use for each task? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Rethrow the original exception and keep the exception type.

throw;
throw ex;
throw new Exception();

Rethrow the original exception type and reset the exception stack trace.

throw;
throw ex;
throw new Exception();

Reset the exception stack trace and reset the exception type.

throw;
throw ex;
throw new Exception();

Correct Answer:

Answer Area

Rethrow the original exception and keep the exception type.

throw;
throw ex;
throw new Exception();

Rethrow the original exception type and reset the exception stack trace.

throw;
throw ex;
throw new Exception();

Reset the exception stack trace and reset the exception type.

throw;
throw ex;
throw new Exception();

Section: Volume B

Explanation

Explanation/Reference:

References: <https://blogs.msdn.microsoft.com/perfworld/2009/06/15/how-can-i-throw-an-exception-without-losing-the-original-stack-trace-information-in-net/>

QUESTION 251

DRAG DROP

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 ContosoException : System.Exception {...}
public class ContosoDbException : Contoso.Exception {...}
public class ContosoValidationException : Contoso.Exception {...}
```

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 (ContosoException ex) {...}
static void Log (ContosoValidationException ex) {...}
```

The application must meet the following requirements:

- When `ContosoValidationException` exceptions are caught, log the information by using the static `void Log(ContosoValidationException ex)` method.
- When `ContosoDbException` or other `ContosoException` exceptions are caught, log the information by using the static `void Log(ContosoException ex)` method.
- When generic exceptions are caught, log the information by using the static `void Log(Exception ex)` method.

You need to meet the requirements.

You have the following code:

```
try
{
    DoWork();
}
catch Target1
{
    Log(ex);
}
catch Target2
{
    Log(ex);
}
catch Target3
{
    Log(ex);
}
```

Which code segments should you include in Target 1, Target 2 and Target 3 to complete the code? (To answer, drag the appropriate code segments to the correct targets 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:

Code Segments

- (ContosoValidationException ex)
- (ContosoException ex)
- (Exception ex)
- (ContosoDbException ex)

Answer Area

- Target 1:
- Target 2:
- Target 3:

Correct Answer:

Code Segments

-
-
- (Exception ex)
-

Answer Area

- Target 1:
- Target 2:
- Target 3:

Section: Volume B

Explanation

Explanation/Reference:

Catch the most specific exception first.

QUESTION 252

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have the following C# code. (Line numbers are included for reference only.)

```
01 int[] intArray = { 1, 2, 3, 4, 5 };
02
03 foreach (var item in intArray)
04 {
05     Console.WriteLine(item);
06 }
```

You need the foreach loop to display a running total of the array elements, as shown in the following list.

3
6
10
15

Solution: You insert the following code segment at line 02:

```
int sum = 0;
for (int i=0; i < intArray.Length;)
{
    sum += intArray[i];
    intArray[i++] = sum;
    Console.WriteLine(sum);
}
```

Does this meet the goal?

- A. Yes
- B. No

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Console.WriteLine is repeated twice.

QUESTION 253

HOTSPOT

You have the following code.

```
public class Order
{
    public int OrderId { get; set; }
    public DateTime { get; set; }
    public Order(int orderId, DateTime OrderDate)
    {
        OrderId = orderId;
        OrderDate = OrderDate;
    }
}
public class OrderDetails : Order
{
    public string ProductName { get; set; }
    public OrderDetails(string productName, int orderId, DateTime orderDate)
        : base(OrderId, OrderDate)
    {
        ProductName = ProductName;
    }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

Hot Area:

Answer Area

Statement	Yes	No
The OrderId property is inherited by OrderDetails.	<input type="radio"/>	<input type="radio"/>
A new property named ProductName is added to the Order constructor.	<input type="radio"/>	<input type="radio"/>
OrderId and OrderDate are required parameters when you create OrderDetails objects.	<input type="radio"/>	<input type="radio"/>

Correct Answer:

Answer Area

Statement	Yes	No
The OrderId property is inherited by OrderDetails.	<input checked="" type="radio"/>	<input type="radio"/>
A new property named ProductName is added to the Order constructor.	<input type="radio"/>	<input checked="" type="radio"/>
OrderId and OrderDate are required parameters when you create OrderDetails objects.	<input checked="" type="radio"/>	<input type="radio"/>

Section: Volume B

Explanation

Explanation/Reference:

References: <https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/classes-and-structs/inheritance>

QUESTION 254

You need to create a method that can be called by using a varying number of parameters.

What should you use?

- A. enumeration
- B. Language-Integrated Query (LINQ) query expressions

- C. interface
- D. optional parameters
- E. named parameters

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 255

DRAG DROP

You are developing a class named **ExtensionMethods**.

You need to ensure that the **ExtensionMethods** class implements the `IsEmail()` extension method on string objects.

You have the following code:

```
Target 1
{
    public static bool IsEmail(
        Target 2
    )
{
    var regex = new Regex (@"^([\w\.-]+@[[\w\.-]+(\.\.\w){2,3})+$");
    return regex.IsMatch(str);
}
}
```

Which code segments should you include in Target 1 and Target 2 to complete the code? To answer, drag the appropriate code segments to the correct targets. 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.

NOTE: Each correct answer is worth one point.

Select and Place:

Code Segments	Answer Area
<code>public static class ExtensionMethods</code>	Target 1: <input type="text"/> Code Segment
<code>public class ExtensionMethods</code>	Target 2: <input type="text"/> Code Segment
<code>this String str</code>	
<code>String str</code>	
<code>protected static class ExtensionMethods</code>	

Correct Answer:

Code Segments	Answer Area
public class ExtensionMethods	Target 1: public static class ExtensionMethods
String str	Target 2: this String str
protected static class ExtensionMethods	

Section: Volume B
Explanation

Explanation/Reference:

QUESTION 256

HOTSPOT

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;Password=p@ssw0rd";
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 .StoreProcedure;
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 }
```

Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the code.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

The database connection gets closed at line [answer choice]

	▼
15	
16	
17	
18	
19	

The adapter object gets disposed at line [answer choice]

	▼
15	
16	
17	
18	
19	

Correct Answer:

Answer Area

The database connection gets closed at line [answer choice]

	▼
15	
16	
17	
18	
19	

The adapter object gets disposed at line [answer choice]

	▼
15	
16	
17	
18	
19	

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Box 1: 19

Closing the using statement on line 3.

Box 2: 17

Closing the using statement on line 11.

QUESTION 257

HOTSPOT

You have the following C# code. (Line numbers are included for reference only.)

```
01 int a = 1;  
02 int b = 2;  
03 Console.WriteLine(a == --b && a == b++);  
04 Console.WriteLine(a == --b || a == b++);  
05 Console.WriteLine(a == --b && b == a++);
```

For each of the following statements, select Yes if the statement is true. Otherwise, select False.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Statements	Yes	No
The output of line 03 is True.	<input type="radio"/>	<input type="radio"/>
The output of line 04 is True.	<input type="radio"/>	<input type="radio"/>
The output of line 05 is True.	<input type="radio"/>	<input type="radio"/>

Correct Answer:

Answer Area

Statements	Yes	No
The output of line 03 is True.	<input type="radio"/>	<input checked="" type="radio"/>
The output of line 04 is True.	<input checked="" type="radio"/>	<input type="radio"/>
The output of line 05 is True.	<input type="radio"/>	<input checked="" type="radio"/>

Section: Volume B
Explanation

Explanation/Reference:

QUESTION 258

DRAG DROP

You have an application that uses paging. Each page displays five items from a list.

You need to display the second page.

Which three code blocks should you use to develop the solution? To answer, move the appropriate code blocks from the list of code blocks to the answer area and arrange them in the correct order.

Select and Place:

Code Snippets

.Take(1)

.Skip(2)

.First(5)

.Skip(5)

.Skip(1)

.Take(5)

var page = items

int page = items

Answer Area

1

2

3



Correct Answer:

Code Snippets

```
.Take(1)
```

```
.Skip(2)
```

```
.First(5)
```

```
.Skip(1)
```

```
var page = items
```

Answer Area

1 `int page = items`

2 `.Skip(5)`

3 `.Take(5)`

**Section: Volume B
Explanation****Explanation/Reference:**

References: <https://stackoverflow.com/questions/2380413/paging-with-linq-for-objects>

QUESTION 259

You are developing a C# application named Application1 by using Microsoft Visual Studio 2017.

You plan to compare the memory usage between different builds of Application1.

You need to record the memory usage of each build.

What should you use from Visual Studio?

- A. IntelliTrace
- B. Memory Usage from Performance Profiler
- C. Performance Wizard from Performance Profiler
- D. Code Analysis

Correct Answer: B**Section: Volume B
Explanation****Explanation/Reference:**

Reference: [https://msdn.microsoft.com/en-US/library/dn645469\(VS.140\).aspx](https://msdn.microsoft.com/en-US/library/dn645469(VS.140).aspx)

QUESTION 260

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

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

You need to populate the **Customer** class with the data returned from the web service.

Which code segment should you use?

- A.

```
IFormatter formatter = new BinaryFormatter();
Stream stream = new FileStream(CustomerAsJson, FileMode.Open, FileAccess.Read,
Customer customerFromJson = (Customer)formatter.Deserialize(stream);
stream.Close();
```
- B.

```
DataContractJsonSerializer jsSerializer = new DataContractJsonSerializer(typeof(Customer));
using (MemoryStream stream = new MemoryStream(Encoding.UTF8.GetBytes(CustomerAsJson)))
{
    Customer customerFromJson = (Customer)jsSerializer.readObject(stream);
}
```
- C.

```
XmlSerializer xmlSerializer = new XmlSerializer(typeof(Customer));
using (MemoryStream stream = new MemoryStream(Encoding.UTF8.GetBytes(CustomerAsJson)))
{
    Customer customerFromJson = (Customer)xmlSerializer.Deserialize(stream);
}
```
- D.

```
DataContractJsonSerializer jsSerializer = new DataContractJsonSerializer(typeof(Customer));
using (MemoryStream stream = new MemoryStream(Encoding.UTF8.GetBytes(CustomerAsJson)))
{
    Customer customerFromJson = new Customer();
    jsSerializer.WriteObject(stream, customerFromJson);
}
```

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 261

DRAG DROP

You need to write code that will display value1, and then value2 in the console.

You write the following code:

```
string settings = "value1;value2" ;
foreach (Target 1 val Target 2 settings. Target 3 (Target 4))
{
    Console.WriteLine(val);
}
```

How should you complete the code? To answer, drag the appropriate code elements to the correct targets. Each code element 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.

NOTE: Each correct selection is worth one point.

Select and Place:

Code Segments

";"

";'

current

in

Intersect

Split

string

Answer Area

Target 1:

Target 2:

Target 3:

Target 4:

Correct Answer:

Code Segments

' ; '
current
Intersect

Answer Area

Target 1:	string
Target 2:	in
Target 3:	Split
Target 4:	";"

**Section: Volume B
Explanation****Explanation/Reference:****QUESTION 262**

DRAG DROP

You are creating a method by using C#. The method will accept three strings as parameters. The parameters are named `string1`, `string2`, and `string3`. The parameter values range from 5,000 to 15,000 characters.

The method will have the following signature.

```
public bool StringCompare(string string1, string string2, string string3)  
{  
}  
}
```

You need to ensure that `StringCompare` only returns `true` if `string1` concatenated to `string2` is equal to `string3`. The comparison must be case-insensitive. The solution must ensure that `StringCompare` executes as quickly as possible.

Which three code blocks should you use to develop the solution? To answer, move the appropriate code blocks from the list of code blocks to the answer area and arrange them in the correct order.

NOTE: Each correct selection is worth one point.

Select and Place:

Code Blocks

```
string concatStrings = string1 + string2;

bool result = concatStrings.ToString().
    Equals(string3, StringComparison.CurrentCultureIgnoreCase);

StringBuilder concatStrings = new
    StringBuilder(string1); concatStrings.Append(string2);

bool result = (concatStrings.ToString().ToUpper() == string3.ToUpper());

return result;

bool result = (String.Compare(concat-
    Strings.ToString(), string3, false) == 0);
```

Answer Area**Correct Answer:****Code Blocks**

```
string concatStrings = string1 + string2;

bool result = concatStrings.ToString().
    Equals(string3, StringComparison.CurrentCultureIgnoreCase);

StringBuilder concatStrings = new
    StringBuilder(string1); concatStrings.Append(string2);

bool result = (String.Compare(concat-
    Strings.ToString(), string3, false) == 0);
```

Answer Area

```
string concatStrings = string1 + string2;

bool result = (concatStrings.ToString().ToUpper() == string3.ToUpper());

return result;
```

**Section: Volume B
Explanation****Explanation/Reference:**

References: <https://docs.microsoft.com/en-us/dotnet/csharp/how-to/compare-strings>

QUESTION 263

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have the following C# code. (Line numbers are included for reference only.)

```
01 int[] intArray = { 1, 2, 3, 4, 5 };
02
03 foreach (var item in intArray)
04 {
05     Console.WriteLine(item);
06 }
```

You need the foreach loop to display a running total of the array elements, as shown in the following output.

```
1
3
6
10
15
```

Solution: You insert the following code at line 02:

```
int sum = 0;
foreach (var item in intArray)
{
    sum += item;
}
```

Does this meet the goal?

- A. Yes
- B. No

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 264

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have the following C# code. (Line numbers are included for reference only.)

```
01 int[] intArray = { 1, 2, 3, 4, 5 };  
02  
03 foreach (var item in intArray)  
04 {  
05     Console.WriteLine(item);  
06 }
```

You need the foreach loop to display a running total of the array elements, as shown in the following output.

```
1  
3  
6  
10  
15
```

Solution: You insert the following code at line 02:

```
int sum = 0;  
for (int i=0; i < intArray.Length;)  
{  
    sum += intArray[i];  
    intArray[i++] = sum;  
}
```

Does this meet the goal?

- A. Yes
- B. No

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 265

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have the following C# code. (Line numbers are included for reference only.)

```
01 int[] intArray = { 1, 2, 3, 4, 5 };
02
03 foreach (var item in intArray)
04 {
05     Console.WriteLine(item);
06 }
```

You need the foreach loop to display a running total of the array elements, as shown in the following output.

```
1
3
6
10
15
```

Solution: You insert the following code at line 02:

```
for (int i = 0; i < intArray.Length ; i++)
{
    intArray[i] += intArray[i];
}
```

Does this meet the goal?

- A. Yes
- B. No

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Doubles intArray values: 2,4,6,8,10

QUESTION 266

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

```
01 class Tree
02 {
03     public string Description { get; set; }
04     public string Color { get; set; }
05     public int Id { get; set; }
06     public decimal Height { get; set; }
07 }
08 Dictionary<int, Tree> trees = new Dictionary<int, Tree>
09 {
10     { 111, new Tree { Description = "Fern", Color = "Green", Id = 211, Height = 22.23m } },
11     { 112, new Tree { Description = "Evergreen", Color = "Green", Id = 317, Height = 11.13m } },
12     { 113, new Tree { Description = "Birch", Color = "White", Id = 198, Height = 7.91m } },
13     { 114, new Tree { Description = "Ash", Color = "Gray", Id = 192, Height = 17.13m } },
14     { 115, new Tree { Description = "Crabapple", Color = "Pink", Id = 196, Height = 8.45m } }
15 };
16
17 trees.Add(115, new Tree { Description = "Maple", Color = "Red", Id = 214, Height = 28.15m });
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. `foreach (Tree tree in trees.Values.Where(t => t.Id != 115))`
 - B. `if (!trees.ContainsKey(115))`
 - C. `foreach (int key in trees.Keys.Where(k => k != 115))`
 - D. `foreach (KeyValuePair<int, Tree> key in trees.Where(t => t.Key != 115))`
- A. Option A
 - B. Option B
 - C. Option C
 - D. Option D

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Use if statement with ContainsKey method to check if dictionary already contains the specified key.

References:

[https://msdn.microsoft.com/en-us/library/kw5aaea4\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/kw5aaea4(v=vs.110).aspx)

<https://www.c-sharpcorner.com/UploadFile/mahesh/how-to-find-a-key-in-a-dictionary-with-C-Sharp/>

QUESTION 267

You have two assemblies named **Assembly1** and **Assembly2** that are written in C#. **Assembly1** loads **Assembly2** by executing the following code.

```
Assembly myDll = Assembly.Load(  
    "Assembly2, Version=1.0.2.4, Culture=neutral, PublicKeyToken=7e35aa32c18d3d61"  
)
```

You create a new project in Microsoft Visual Studio to build a new assembly that will replace **Assembly2**. The new assembly has the same name and version as the original **Assembly2** assembly.

When you execute the code, **Assembly1** cannot load **Assembly2**.

What should you do to ensure that **Assembly1** can load **Assembly2**?

- A. Modify the project properties.
Click **Sign the assembly** and select a new key file.
- B. Change the version of the new Assembly2 assembly to 1.0.2.5
- C. Add the new **Assembly2** assembly to the global assembly cache.
- D. Run the **al.exe** command to sign **Assembly2**.
Use the same key file used for the original **Assembly2** assembly.

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

Reference:

<https://docs.microsoft.com/en-us/dotnet/framework/app-domains/how-to-sign-an-assembly-with-a-strong-name>

<https://docs.microsoft.com/en-us/dotnet/framework/tools/al-exe-assembly-linker>

QUESTION 268

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have the following C# code. (Line numbers are included for reference only.)

```
01 int[] intArray = { 1, 2, 3, 4, 5 };
02
03 foreach (var item in intArray)
04 {
05     Console.WriteLine(item);
06 }
```

You need the foreach loop to display a running total of the array elements, as shown in the following list.

1
3
6
10
15

Solution: You insert the following code at line 02:

```
for (int i = 1; i < intArray.Length; i++)
{
    intArray[i] += intArray[i-1];
}
```

Does this meet the goal?

- A. Yes
- B. No

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 269

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

```
01 static int Count(System.Threading.CancellationToken ct)
02 {
03     var countSoFar = 0;
04     while (!ct.IsCancellationRequested)
05         countSoFar++;
06     return countSoFar;
07 }
08 static void Main(string[] args)
09 {
10     var cancellationTokenSource = new
11         System.Threading.CancellationTokenSource();
12     var task =
13         System.Threading.Tasks.Task.Factory.StartNew<int>(() 
14             => Count(cancellationTokenSource.Token));
15     Console.WriteLine("Press[Enter] to stop counting.");
16     Console.ReadLine();
17 }
```

You need to ensure that the application cancels counting when the user presses the Enter key.

Which code segment should you insert at line 14?

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

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

CancellationTokenSource.Dispose() releases all resources used by the current instance of the CancellationTokenSource class.

Reference:

[https://docs.microsoft.com/en-us/previous-versions/windows/silverlight/dotnet-windows-silverlight/dd321629\(v=vs.95\)](https://docs.microsoft.com/en-us/previous-versions/windows/silverlight/dotnet-windows-silverlight/dd321629(v=vs.95))

QUESTION 270

HOTSPOT

You are evaluating the following C# method.

```
static void ProtectData(byte[] messageBytes)
{
    SHA1Managed SHhash = new SHA1Managed();
    byte[] Protectvalue = SHhash.ComputeHash(messageBytes);
    SendDataToReceiver(ProtectValue);
}
```

The messageBytes data is unknown by the receiver until the data is received.

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

Statements	Yes	No
The data sent to the receiver is protected from tampering by other parties during transit.	<input type="radio"/>	<input type="radio"/>
The receiver can validate the identity of the sender.	<input type="radio"/>	<input type="radio"/>
The receiver can view the original data that passed into the messageBytes variable after the SendDataToReceiver method is called.	<input type="radio"/>	<input type="radio"/>

Correct Answer:

Statements	Yes	No
The data sent to the receiver is protected from tampering by other parties during transit.	<input type="radio"/>	<input checked="" type="radio"/>
The receiver can validate the identity of the sender.	<input checked="" type="radio"/>	<input type="radio"/>
The receiver can view the original data that passed into the <code>messageBytes</code> variable after the <code>SendDataToReceiver</code> method is called.	<input checked="" type="radio"/>	<input type="radio"/>

Section: Volume B
Explanation

Explanation/Reference:
 Explanation:

QUESTION 271
 HOTSPOT

You have the following class definitions.

```
class Shape { }
class Rectangle : Shape
{
    public Rectangle(int width, int height)
    {
        Width = width;
        Height = height;
    }
    public int Width { get; set; }
    public int Height { get; set; }
}
```

There might be other classes derived from Shape.

You are creating an application that evaluates whether an object is a square, a rectangle, or another shape.

You need to implement a switch statement that meets the following requirements:

- If the shape variable is of the Rectangle type, and the width and the height are **NOT** equal, the output must be Rectangle.
- If the shape variable is of the Rectangle type, and the width and the height are equal, the output must be Square.
- If the shape variable is of any other Shape derived type, the output must be Unknown .

- If the shape variable does **NOT** refer to an object, the output must be `Empty`.

How should you complete the code? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

```
switch (shape)
{
    case Rectangle s
        if
        is
        when
        where
            (s.Width == s.Height) :
                Console.WriteLine("Square");
                break;

    case
        Rectangle _:
        Rectangle r when (!r.Width.Equals(r.Height))
        Rectangle r when (r.Width != r.Height):
        Rectangle r when (r.Width == r.Height):
        Rectangle r when (r.Width.Equals(r.Height)):

        Console.WriteLine("Rectangle");
        break;

    case default:
    case void:
    default:
    null:
        Console.WriteLine("Unknown");
        break;
}

Console.WriteLine("Empty");
break;
}
```

Correct Answer:

Answer Area

```
switch (shape)
{
    case Rectangle s
        if
        is
        when
        where
            (s.Width == s.Height):
                Console.WriteLine("Square");
                break;

    case
        Rectangle _:
        Rectangle r when (!r.Width.Equals(r.Height))
        Rectangle r when (r.Width != r.Height):
        Rectangle r when (r.Width == r.Height):
        Rectangle r when (r.Width.Equals(r.Height)):

        Console.WriteLine("Rectangle");
        break;

    case default:
    case void:
    default:
        null:
            Console.WriteLine("Unknown");
            break;

    case default:
    case null:
        null:
        void:
            Console.WriteLine("Empty");
            break;
}
```

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Reference: <https://docs.microsoft.com/en-us/dotnet/csharp/language-reference/keywords/switch>

QUESTION 272

HOTSPOT

You are developing an application in C#.

You need to create an anonymous method.

You write the following code segment.

```
Target 1 Target 2 AddNumbers(int x, int y);
AddNumbers add = Target 3(int x, int y)
{
    return x + y;
};
```

How should you complete the code? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Target 1:

	▼
class	
delegate	
protected	
public	

Target 2:

	▼
class	
delegate	
int	
void	

Target 3:

	▼
class	
delegate	
int	
interface	
void	

Correct Answer:

Answer Area

Target 1:

class
delegate
protected
public

Target 2:

class
delegate
int
void

Target 3:

class
delegate
int
interface
void

Section: Volume B
Explanation

Explanation/Reference:
Explanation:

Reference: <https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/statements-expressions-operators/anonymous-methods>

QUESTION 273
DRAG DROP

You have an application that contains the following class definitions.

```
public class Customer
{
    public string Name;
    public int Age;
}
public class Customers : IEnumerable<Customer>
{
    private List<Customer> customers = new List<Customer>();
    public void AddCustomer(Customer c)
    {
        customers.Add(c);
    }
    public IEnumerator<Customer> GetEnumerator()
    {
        return ((IEnumerable<Customer>)customers)
            .GetEnumerator();
    }
    IEnumerator IEnumerable.GetEnumerator()
    {
        return ((IEnumerable<Customer>)customers).GetEnumerator();
    }
}
```

You need to ensure that the Customers class can be initialized by using the following code.

```
var customers = new Customers()
{
    new Customer{Name="Neil", Age=45 },
    new Customer{Name="Jon", Age=43 },
    new Customer{Name="Peter", Age=98 }
};
```

Which code should you add to the application? To answer, drag the appropriate values to the correct targets. Each value 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.

NOTE: Each correct selection is worth one point.

Select and Place:

Code Segments	Answer Area
Add	
AddCustomer	<code>{</code> public static void Value (this Customers cs, Customer c) => cs. Value (c); <code>}</code>
AddItem	
Customer	
Customers	

< >

Correct Answer:

Code Segments	Answer Area
Add	
	<code>public static class CustomersExtensions</code> <code>{</code> public static void AddCustomer (this Customers cs, Customer c) => cs. AddItem (c); <code>}</code>
Customer	
Customers	

< >

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

QUESTION 274

You have a collection of **Product** objects named products. Each **Product** has a category.

You need to determine the longest name for each category.

You write the following code.

```
var longestNamesByCategory = products.GroupBy(p => p.Category).
    Select(g => new {Category = g.Key, LongestName = g.Select(p =>
    p.Name).Target 1 ((s, t) => t.Length > s.Length ? t : s)});
```

Which keyword should you use for Target 1?

- A. Group
- B. Where

- C. Aggregate
- D. Select

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

QUESTION 275

You have the following C# code that manipulates a string.

```
string str = "This is a random sentence.";  
  
string result = str.Substring(0,str.LastIndexOf("is")) +  
str.Substring(str.IndexOf("random"));
```

What is the value of result after the code executes?

- A. This is a sentence.
- B. Thrandom random a random sentence.
- C. This is a is sentence.
- D. This random sentence.

Correct Answer: D

Section: Volume B

Explanation

Explanation/Reference:

Reference: <https://docs.microsoft.com/en-us/dotnet/api/system.string.substring?view=netframework-4.7.2>

QUESTION 276

DRAG DROP

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 have the following code:

```

public class LoanCollection Target 1
{
    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];
        }
    }
}

Target 2
{
    Target 3
}
}

```

Which code segments should you include in Target 1, Target 2, and Target 3 to complete the code? To answer, drag the appropriate code segments to the correct targets. 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.

NOTE: Each correct selection is worth one point.

Select and Place:

Code Segments

: 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();

Answer Area

Target1:

Target2:

Target3:

Correct Answer:

Code Segments

```
: IComparable;  
  
: IDisposable;  
  
public int CompareTo(object obj());  
public void Dispose();  
  
_loanCollection[0].Amount++;  
  
return obj == null ? 1 : _loanCollection.Length;
```

Answer Area

Target1:

```
: IEnumerable;
```

Target2:

```
public IEnumerator GetEnumerator();
```

Target3:

```
return _loanCollection.GetEnumerator();
```

**Section: Volume B
Explanation****Explanation/Reference:**

Explanation:

Target 1: IEnumerable

Incorrect Answers:

IDisposable: Provides a mechanism for releasing unmanaged resources.

IComparable: Defines a generalized type-specific comparison method that a value type or class implements to order or sort its instances.

Target 2: public IEnumerator GetEnumerator()

Note:

The following code example demonstrates the implementation of the IEnumerable and IEnumerator interfaces for a custom collection. In this example, members of these interfaces are not explicitly called, but they are implemented to support the use of foreach (for each in Visual Basic) to iterate through the collection.

```
// Collection of Person objects. This class  
// implements IEnumerable so that it can be used  
// with ForEach syntax.  
public class People : IEnumerable  
{  
    private Person[] _people;  
    public People(Person[] pArray)  
    {  
        _people = new Person[pArray.Length];  
  
        for (int i = 0; i < pArray.Length; i++)  
        {  
            _people[i] = pArray[i];  
        }  
    }  
}
```

```
// Implementation for the GetEnumerator method.
```

```
IEnumerator IEnumerable.GetEnumerator()
{
    return (IEnumerator) GetEnumerator();
}
```

Target 3: return _loanCollection.GetEnumerator();
Use the return statement

Reference:

<https://docs.microsoft.com/en-us/dotnet/api/system.collections.ienumerator>

QUESTION 277

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

- It must be read-only.
- You must be able to use the data before the entire data set is retrieved.
- You must minimize the amount of system overhead and the amount of memory usage.

Which type of object should you use in the method?

- A. DbDataAdapter
- B. DbDataReader
- C. typed DataSet
- D. OleDbDataAdapter

Correct Answer: B

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

The DbDataReader class reads a forward-only stream of rows from a data source.

Reference: DbDataReader Class

[https://msdn.microsoft.com/en-us/library/system.data.common.dbdatareader\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.data.common.dbdatareader(v=vs.110).aspx)

QUESTION 278

DRAG DROP

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.

You have the following code:

Target 1

```
public class Customer
{
    Target 2
    public Guid Id { get; set; }
    Target 3
    public string Name { get; set; }
    public DateTime DateOfBirth { get; set; }
    Target 4
    public int Tin { get; set; }
}
```

Which code segments should you include in Target 1, Target 2, Target 3, and Target 4 to complete the code? To answer, drag the appropriate code segments to the correct targets. 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:

Code segments

[XmlAttribute("CustomerId")]
[XmlElement("ProspectId")]
[XmlAttribute("ProspectId")]
[XmlElement("ProspectId")]
[XmlChoiceIdentifier]
[XmlAttribute]
[XmlElement("FullName")]

Answer Area

Target 1:

Target 2:

Target 3:

Target 4:

Correct Answer:

Answer Area	
Code segments	
[XmlAttribute("CustomerId")]	Target 1: [XmlAttribute("ProspectId")]
	Target 2: [XmlElement("FullName")]
[XmlElement("ProspectId")]	Target 3: [XmlElement("ProspectId")]
[XmlChoiceIdentifier]	Target 4: [XmlAttribute("CustomerId")]
[XmlArrayItem]	

Section: Volume B Explanation

Explanation/Reference:

Explanation:

QUESTION 279

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. Decorate the code by using the **[DebuggerDisplay("Mydebug")]** attribute.
- C. Decorate the code by using the **[assembly:AssemblyDelaySignAttribute(true)]** attribute.
- D. Configure the **Define DEBUG** constant setting in Microsoft Visual Studio.

Correct Answer: D

Section: Volume B Explanation

Explanation/Reference:

QUESTION 280

A public class named **Message** has a method named **SendMessage**. The **SendMessage()** method is leaking memory.

```

public class Message
{
    private unsafe IntPtr _IntPtr;

    public unsafe void SendMessage(string messageToSend)
    {
        try
        {
            byte[] msg = Encoding.Unicode.GetBytes(messageToSend);
            _IntPtr = Marshal.AllocHGlobal(msg.Length);
            byte* memBytePtr = (byte*)_IntPtr.ToPointer();
            UnmanagedMemoryStream writeStream = new UnmanagedMemoryStream
                (memBytePtr, msg.Length, msg.Length, FileAccess.Write);
            writeStream.Write(msg, 0, msg.Length);
            writeStream.Close();
        }
        catch (Exception e)
        {
            Console.WriteLine(e);
        }
    }
}

```

A **try...catch** block in the **SendMessage()** method does not release resources after the method returns.

You need to ensure that the method releases all resources properly.

What should you do?

- Add a **finally** statement and implement the **gc.collect()** method.
- Modify the **Message** class to use the **IDisposable** interface.
- Remove the **try...catch** block and allow the errors to propagate.
- Replace the **try...catch** block with a **using** statement.

Correct Answer: A

Section: Volume B

Explanation

Explanation/Reference:

Reference: https://docs.microsoft.com/en-us/dotnet/api/system.gc.collect?redirectedfrom=MSDN&view=netframework-4.7.2#System_GC_Collect

QUESTION 281

HOTSPOT

You are evaluating the following C# method.

```

static void ProtectData(byte[] messageBytes, RSAParameters RSAKeys)
{
    RSACryptoServiceProvider RSA = new RSACryptoServiceProvider();
    RSA.ImportParameters(RSAKeys);
    RSAPKCS1SignatureFormatter RSAFormatter = new RSAPKCS1SignatureFormatter(RSA);
    RSAFormatter.SetHashAlgorithm("SHA1");
    byte[] ProtectValue = RSAFormatter.CreateSignature(messageBytes);
    SendDataToReceiver(ProtectedValue);
}

```

The receiver of the data has a copy of the public key.

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Statements	Yes	No
A third-party can alter the message in transit without the knowledge of the receiver.	<input type="radio"/>	<input type="radio"/>
The receiver can validate the identity of the sender.	<input type="radio"/>	<input checked="" type="radio"/>
The receiver can view the original data that passed into the messageBytes variable after the SendDataToReceiver method is called.	<input checked="" type="radio"/>	<input type="radio"/>

Correct Answer:

Answer Area

Statements	Yes	No
A third-party can alter the message in transit without the knowledge of the receiver.	<input checked="" type="radio"/>	<input type="radio"/>
The receiver can validate the identity of the sender.	<input checked="" type="radio"/>	<input type="radio"/>
The receiver can view the original data that passed into the messageBytes variable after the SendDataToReceiver method is called.	<input checked="" type="radio"/>	<input type="radio"/>

Section: Volume B

Explanation

Explanation/Reference:

Explanation:

Box 1: No

Box 2: Yes

In cryptography, a public key certificate, also known as a digital certificate or identity certificate, is an electronic document used to prove the ownership of a public key. The certificate includes information about the key, information about the identity of its owner (called the subject), and the digital signature of an entity that has verified the certificate's contents (called the issuer). If the signature is valid, and the software examining the

certificate trusts the issuer, then it can use that key to communicate securely with the certificate's subject.

Box 3: Yes

References:

<https://docs.microsoft.com/en-us/dotnet/api/system.security.cryptography.rsapkcs1signatureformatter.createsignature>

https://en.wikipedia.org/wiki/Public_key_certificate

QUESTION 282

You have an assembly named Assembly1 that is written in C#. Assembly1 has a method named Method1.

You add a new method named Method2 to Assembly1. Method2 is a newer version of Method1 and must be used by applications in the future.

You need to ensure that if a developer builds a project that uses Method1, the developer is notified that Method1 is deprecated.

What should you do?

- Set an #if DEPRECATED preprocessor directive above Method1. Set a #endif preprocessor directive after Method1.
- Set a #pragma warning disable preprocessor inside of Method1.
- Mark Method1 with an ObsoleteAttribute attribute.
- Modify Method1 to return an exception.

Correct Answer: C

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Explanation

Explanation/Reference:

Explanation:

ObsoleteAttribute is applicable to all program elements except assemblies, modules, parameters, and return values. Marking an element as obsolete informs users that the element will be removed in future versions of the product.

Reference:

<https://docs.microsoft.com/en-us/dotnet/api/system.obsoleteattribute?view=netframework-4.7.2>

QUESTION 283

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 greater than 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

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Explanation

Explanation/Reference:

Explanation:

By default, the `Debug.Assert` method works only in debug builds.

Incorrect Answers:

D: Use the `Trace.Assert` method if you want to do assertions in release builds.

Reference:

<https://docs.microsoft.com/en-us/dotnet/api/system.diagnostics.debug.assert>