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**70-486**

***Developing ASP.NET 4.5 MVC Web Applications***

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## Question Set 1

### QUESTION 1

#### Question 6

You are testing an ASP.NET application. The test plan requires that tests run against the application's business layer. You need to use the test project template that meets this requirement.

Which template should you use?

- A. Web Test Project
- B. Load Test Project
- C. Unit Test Project
- D. Coded Test Project

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

### QUESTION 2

#### Question 7

You are authoring unit tests. The unit tests must test code that consumes sealed classes. You need to create, maintain, and inject dependencies in the unit tests.

Which isolation method should you use?

- A. T4 text templates and code generation
- B. Stub types
- C. Shim types
- D. Hard-coded implementation

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

<http://msdn.microsoft.com/en-us/library/hh549176.aspx>

Shim types are one of two technologies that the Microsoft Fakes Framework uses to let you easily isolate components under test from the environment. Shims

divert calls to specific methods to code that you write as part of your test. Many methods return different results dependent on external conditions, but a shim is under the control of your test and can return consistent results at every call. This makes your tests much easier to write.

### QUESTION 3

#### Question 8

You are developing an ASP.NET MVC web application that includes the following method.

```
public double AccountBalance(double currentBalance, double transactionAmount)
{
    double finalBalance = 0.00;
    finalBalance = currentBalance + transactionAmount;
    return finalBalance;
}
```

You need to test the AccountBalance method. Which unit test should you use?

- A. 

```
[TestMethod()]
private void AccountBalanceTest()
{
    double currentBalance = 175.05;
    double transactionAmount = 76.03;
    double finalBalance = 251.08;
    double result = 0.00;

    result = AccountBalance(currentBalance, transactionAmount);
    Assert.AreEqual(finalBalance, result);
}
```
- B. 

```
[TestMethod()]
public void AccountBalanceTest()
{
    double currentBalance = 175.05;
    double transactionAmount = 76.03;
    double finalBalance = 251.08;
    double result = 0.00;

    result = AccountBalance(currentBalance, transactionAmount);
    Assert.IsTrue(finalBalance, result);
}
```

- C. 

```
[TestMethod()]
public void AccountBalanceTest()
{
    double currentBalance = 175.05;
    double transactionAmount = 76.03;
    double finalBalance = 251.08;
    double result = 0.00;

    result = AccountBalance(currentBalance, transactionAmount);
    Assert.AreEqual(finalBalance, result);
}
```
- D. 

```
[UnitTest()]
public void AccountBalanceTest()
{
    double currentBalance = 175.05;
    double transactionAmount = 76.03;
    double finalBalance = 251.08;
    double result = 0.00;

    result = AccountBalance(currentBalance, transactionAmount);
    Assert.AreEqual(finalBalance, result);
}
```

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

<http://msdn.microsoft.com/en-us/magazine/cc163665.aspx>

[http://msdn.microsoft.com/en-us/library/microsoft.visualstudio.testtools.unittesting.assert.areequal\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/microsoft.visualstudio.testtools.unittesting.assert.areequal(v=vs.110).aspx)

#### QUESTION 4

##### Question 9

You are developing an ASP.NET MVC application by using Visual Studio 2012. The application throws and handles exceptions when it runs.

You need to examine the state of the application when exceptions are thrown. What should you do?

- A. From the Debug menu in Visual Studio 2012, select Exceptions. Enable the Thrown check box for Common Language Runtime Exceptions.
- B. From the DEBUG menu in Visual Studio 2012, select Attach to Process. Select the IIS process.

- C. From the Debug menu in Visual Studio 2012, select Exceptions. Disable the User-unhandled check box for Common Language Runtime Exceptions.
- D. From the TOOLS menu in Visual Studio 2012, click Customize. Click the Commands tab and select Debug.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## QUESTION 5

### Question 10

You are developing an ASP.NET MVC news aggregation application that will be deployed to servers on multiple networks. The application must be compatible with multiple browsers. A user can search the website for news articles.

You must track the page number that the user is viewing in search results. You need to program the location for storing state information about the user's search.

What should you do?



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- A. Store search results and page index in Session.
- B. Use Application state to store search terms and page index.
- C. Use QueryString to store search terms and page index.
- D. Store search results and page index in TempData

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## QUESTION 6

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**Question 11**

You are developing an ASP.NET MVC application. The application is deployed in a web farm and is accessed by many users.

The application must handle web server failures gracefully. The servers in the farm must share the state information. You need to persist the application state during the session.

What should you implement?

- A. A state server
- B. Cookieless sessions
- C. A web garden on the web servers
- D. An InProc session

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**QUESTION 7****Question 12**

You are developing an ASP.NET MVC application that displays stock market information. The stock market information updates frequently and must be displayed in real-time. You need to eliminate unnecessary header data, minimize latency, and transmit data over a full-duplex connection. What should you do?

- A. Implement long-running HTTP requests.
- B. Instantiate a MessageChannel object on the client.
- C. Implement WebSockets protocol on the client and the server.
- D. Configure polling from the browser.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**QUESTION 8****Question 13**

You are designing a distributed application that runs on the Windows Azure platform.

The application must store a small amount of insecure global information that does not change frequently. You need to configure the application to meet the requirements.

Which server-side state management option should you use?  
(Each correct answer presents a complete solution. Choose all that apply.)

- A. Windows Azure application state
- B. Sql Azure
- C. Profile properties of the Windows Azure application
- D. Windows Azure session state

**Correct Answer:** AB

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## QUESTION 9

### Question 14

You are developing an ASP.NET MVC application that has pages for users who browse the site with Windows Phone 7.

The pages for Windows Phone 7 include the following files:

- `_Layout.WP7.cshtml`
- `Index.WP7.cshtml`

You need to update the application so that it renders the customized files correctly to Windows Phone 7 users.

How should you update the `Application_Start` method?

(To answer, drag the appropriate line of code to the correct location or locations. Each line of code 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:**

```
DefaultDisplayMode("WP7")
```

```
("Windows Phone OS",
```

```
StringComparison.OrdinalIgnoreCase
```

```
DefaultDisplayMode("Mobile")
```

```
("Mobile",
```

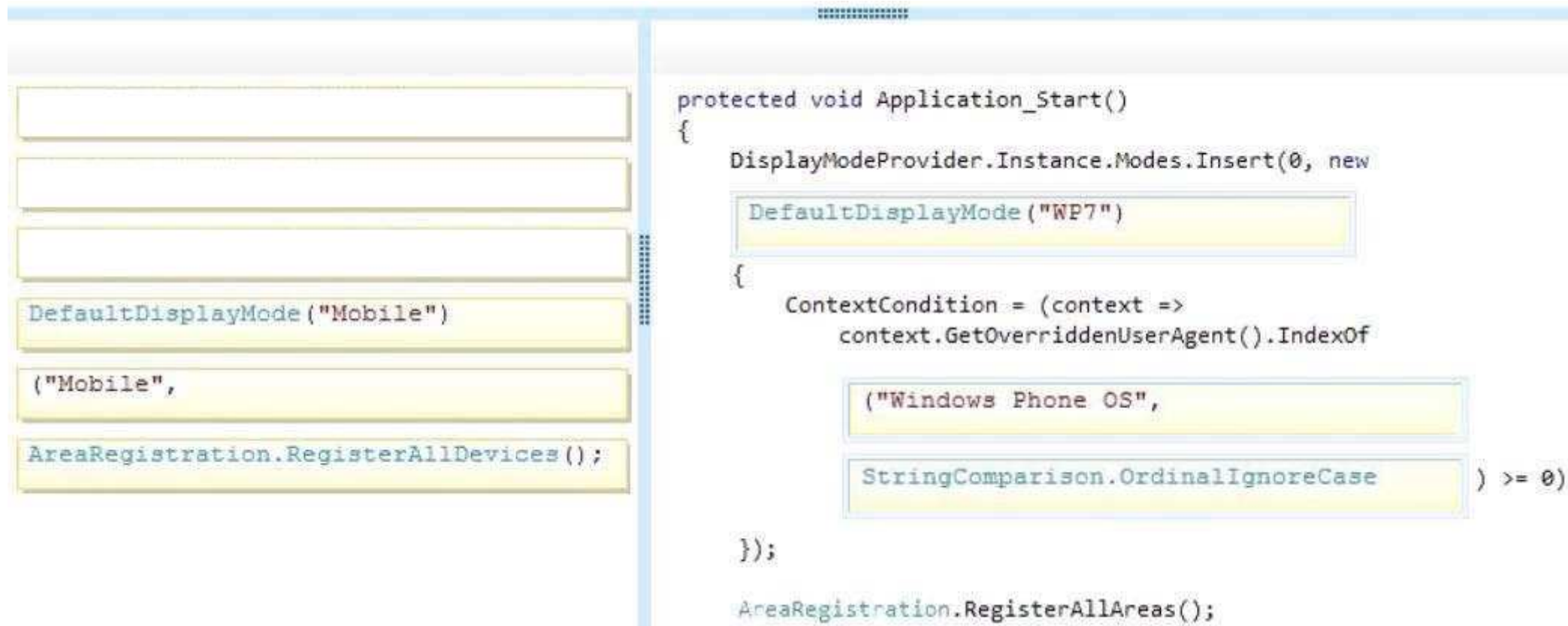
```
AreaRegistration.RegisterAllDevices();
```

```
protected void Application_Start()
{
    DisplayModeProvider.Instance.Modes.Insert(0, new
    {
        ContextCondition = (context =>
            context.GetOverriddenUserAgent().IndexOf
            (
                "Windows Phone OS"
            ) >= 0)
    });

    AreaRegistration.RegisterAllAreas();
}
```

Correct Answer:





Section: [none]

Explanation

Explanation/Reference:

<http://techbrij.com/1013/display-mode-mobile-tablet-tv-aspnet-mvc>

#### QUESTION 10

##### Question 15

You are developing an ASP.NET MVC web application for viewing a photo album. The application is designed for devices that support changes in orientation, such as tablets and smartphones.

The application displays a grid of photos in portrait mode. When the orientation changes to landscape, each tile in the grid expands to include a description. The HTML that creates the gallery interface resembles the following markup.

The CSS used to style the tiles in landscape mode is as follows.

```
<ul class="gallery">
  <li>
    
    <div>Description</div>
  </li>
</ul>
```

The CSS used to style the tiles in portrait mode is as follows.

```
ul.gallery > li {
  width: 100px;
}

ul.gallery > li > div {
  display: none;
}
```

If this CSS is omitted, the existing CSS displays the tiles in landscape mode. You need to update the portrait mode CSS to apply only to screens with a width less than 500 pixels.

Which code segment should you use?

- A. @media resolution(max-width: 500px) { . . . }
- B. @media screen(min-width: 0px, max-width: 500px) { . . . }
- C. @media screen and (width <= 500px) { . . . }
- D. @media screen and (max-width: 500px) { . . . }

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

<http://www.javascriptkit.com/dhtmltutors/cssmediaqueries.shtml>

## QUESTION 11

### Question 16

You are developing an ASP.NET MVC application. You need to authenticate clients by using NT LAN Manager (NTLM). Which authentication method should you implement?

- A. Basic
- B. Windows
- C. Forms
- D. Kerberos

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

[http://msdn.microsoft.com/en-us/library/aa292114\(v=vs.71\).aspx](http://msdn.microsoft.com/en-us/library/aa292114(v=vs.71).aspx)

## QUESTION 12

### Question 17

You are developing an ASP.NET MVC application in Visual Studio 2012. The application contains sensitive bank account data. The application contains a helper class named SensitiveData.Helpers.CustomEncryptor.

```
public class CustomEncryptor
{
    public string Encrypt(string plaintext)
    {
        ***
    }
}
```

The application contains a controller named **BankAccountController** with two actions.

```

public class BankAccountController : Controller
{
    public ActionResult GetAccounts()
    {
        ...
    }

    public ActionResult EditAccount(string maskedAccountNum)
    {
        ...
    }
}

```

The application contains a model named **BankAccount**, which is defined in the following code segment.

```

public class BankAccount
{
    public string AccountNumber { get; set; }
    public string AccountName { get; set; }
    public double Balance { get; set; }
}

```

The application must not display AccountNumber in clear text in any URL. You need to build the view for the GetAccounts action.

How should you build the view? (To answer, drag the appropriate code segment to the correct location or locations. 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:**

custEncrypt

maskedAccountNum

Html

Encrypt(item.AccountNumber)

Encode(item.AccountNumber)

```
@model IEnumerable<SensitiveData.Models.GamerAccount>
@{SensitiveData.Helpers.CustomEncryptor custEncrypt =
    new SensitiveData.Helpers.CustomEncryptor();}
<h2>GetAccounts</h2>
<table>
    <tr>
        <th>Account Name</th>
        <th>Balance</th>
    </tr>
    @foreach (var item in Model)
    {
        <tr>
            <td>@Html.DisplayFor(modelItem => item.AccountName)</td>
            <td>@Html.DisplayFor(modelItem => item.Highscore)</td>
            <td>
                @Html.ActionLink("Edit", "EditAccount",
                    new {
                        AccountNumber =
                            @Html.DisplayFor(modelItem => item.AccountNumber),
                        Highscore =
                            @Html.DisplayFor(modelItem => item.Highscore)
                    })
            </td>
        </tr>
    }
</table>
```

**Correct Answer:**

Html

Encode(item.AccountNumber)

```
@model IEnumerable<SensitiveData.Models.GamerAccount>
@{SensitiveData.Helpers.CustomEncryptor custEncrypt =
    new SensitiveData.Helpers.CustomEncryptor();}
<h2>GetAccounts</h2>
<table>
    <tr>
        <th>Account Name</th>
        <th>Balance</th>
    </tr>
    @foreach (var item in Model)
    {
        <tr>
            <td>@Html.DisplayFor(modelItem => item.AccountName)</td>
            <td>@Html.DisplayFor(modelItem => item.Highscore)</td>
            <td>
                @Html.ActionLink("Edit", "EditAccount",
                    new {
                        maskedAccountNum =
                            custEncrypt
                                .Encrypt(item.AccountNumber)
                    })
            </td>
        </tr>
    }
</table>
```



**Section: [none]**

**Explanation**

**Explanation/Reference:**

### **QUESTION 13**

#### **Question 18**

You are developing an ASP.NET MVC application. The application must allow users to enter JavaScript in a feedback text box only.

You need to disable request validation. What should you do?

- A. Apply and set the CausesClientSideValidation attribute on the text box to FALSE.
- B. Apply and set the ValidateInput attribute on the text box to FALSE.
- C. Use the HttpRequest.Unvalidated property to read the unvalidated form value.
- D. Use the HttpRequest.Form property to read the unvalidated form value.

**Correct Answer: C**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

Provides access to HTTP request values without triggering request validation.

<http://msdn.microsoft.com/en-us/library/system.web.httprequest.unvalidated.aspx>

### **QUESTION 14**

#### **Question 19**

You are developing an ASP.NET MVC application that will be deployed on a web farm.

Passwords must be stored in the web.config file and must not be readable or in a format that is easily decodable You need to encrypt the passwords that are stored in the web.config file.

Which command-line tool should you use?

- A. Aspnet\_regiis.exe
- B. Ngen.exe
- C. Aspnet\_merge.exe
- D. EdmGen.exe

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

[http://msdn.microsoft.com/en-us/library/zhddkxy\(v=vs.100\).aspx](http://msdn.microsoft.com/en-us/library/zhddkxy(v=vs.100).aspx)

#### **QUESTION 15**

##### **Question 20**

You are developing an ASP.NET MVC application that authenticates a user by using claims-based authentication.

The application must:

- Use Windows Identity Foundation 4.5.
- Support the Windows Azure Access Control Service.

You need to implement authentication. How should you build the class constructor?

(To answer, drag the appropriate code segment to the correct location or 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:**

ClaimNames

ClaimTypes

IIdentityClaims

IClaimsIdentity

ClaimType

ClaimName

```
using Microsoft.IdentityModel.Claims;

public class IdentityClaim
{
    private string _identityProvider;
    private string _identityValue;
    public const string ACSProviderClaim =
        "http://schemas.microsoft.com/accesscontrolservice/...";

    public IdentityClaim( [text] identity)
    {
        if (identity != null)
        {
            foreach (var claim in identity.Claims)
            {
                if (claim.[text] == [text].NameIdentifier)
                {
                    _identityValue = claim.Value;
                }
                if (claim.[text] == ACSProviderClaim)
                {
                    _identityProvider = claim.Value;
                }
            }
        }
    }
}
```

**Correct Answer:**

ClaimNames

ClaimTypes

IIdentityClaims

IClaimsIdentity

ClaimType

ClaimName

```
using Microsoft.IdentityModel.Claims;

public class IdentityClaim
{
    private string _identityProvider;
    private string _identityValue;
    public const string ACSProviderClaim =
        "http://schemas.microsoft.com/accesscontrolservice/...";

    public IdentityClaim( IClaimsIdentity identity)
    {
        if (identity != null)
        {
            foreach (var claim in identity.Claims)
            {
                if (claim.ClaimType == ClaimTypes.NameIdentifier)
                {
                    _identityValue = claim.Value;
                }
                if (claim.ClaimType == ACSProviderClaim)
                {
                    _identityProvider = claim.Value;
                }
            }
        }
    }
}
```

**Section: [none]**

**Explanation**

**Explanation/Reference:**

[http://msdn.microsoft.com/fr-fr/library/microsoft.identitymodel.claims.iclaimsidentity\\_members.aspx](http://msdn.microsoft.com/fr-fr/library/microsoft.identitymodel.claims.iclaimsidentity_members.aspx)

[http://msdn.microsoft.com/fr-fr/library/microsoft.identitymodel.claims.claim\\_members.aspx](http://msdn.microsoft.com/fr-fr/library/microsoft.identitymodel.claims.claim_members.aspx)

[http://msdn.microsoft.com/fr-fr/library/microsoft.identitymodel.claims.claimtypes\\_members.aspx](http://msdn.microsoft.com/fr-fr/library/microsoft.identitymodel.claims.claimtypes_members.aspx)

## **QUESTION 16**

### **Question 21**

You are developing an ASP.NET MVC application. You need to store membership information in a Microsoft SQL Server database.

How should you configure the membership provider?

(To answer, select the appropriate options in the answer area.)

**Hot Area:**

```

<configuration>
  <connectionStrings>
    <add name="SqlServices"
      connectionString="Data Source=localhost;
        Integrated Security=SSPI;Initial Catalog=aspnetdb;" />
    </connectionStrings>
  <system.web>
    <authentication mode="Forms" >
      <forms loginUrl="login.aspx"
        name=".ASPXFORMSAUTH" />
    </authentication>
    <authorization>
      <deny users="?" />
    </authorization>
    <membership defaultProvider="SqlProvider">
      <providers>
        <add
          name="SqlProvider"
          type="System.Web.Security.SqlMembershipProvider"
          type="System.Web.Security.SqlProvider"
          namespace="System.Web.Security.SqlMembershipProvider"
          namespace="System.Web.Security.SqlProvider"
          connectionString="SqlServices"
          connectionStringName="SqlServices"
          applicationName="MyApplication" />
        </providers>
      </membership>
    </system.web>
  </configuration>

```

**Correct Answer:**



```

<configuration>
  <connectionStrings>
    <add name="SqlServices"
      connectionString="Data Source=localhost;
        Integrated Security=SSPI;Initial Catalog=aspnetdb;" />
  </connectionStrings>
  <system.web>
    <authentication mode="Forms" >
      <forms loginUrl="login.aspx"
        name=".ASPXFORMSAUTH" />
    </authentication>
    <authorization>
      <deny users="?" />
    </authorization>
    <membership defaultProvider="SqlProvider">
      <providers>
        <add
          name="SqlProvider"
          type="System.Web.Security.SqlMembershipProvider"
          type="System.Web.Security.SqlProvider"
          namespace="System.Web.Security.SqlMembershipProvider"
          namespace="System.Web.Security.SqlProvider"
          connectionString="SqlServices"
          connectionStringName="SqlServices"
          applicationName="MyApplication" />
      </providers>
    </membership>
  </system.web>
</configuration>

```

**Section: [none]**

**Explanation**

**Explanation/Reference:**

[http://msdn.microsoft.com/en-us/library/6e9y4s5t\(v=vs.100\).aspx](http://msdn.microsoft.com/en-us/library/6e9y4s5t(v=vs.100).aspx)

## **QUESTION 17**

### **Question 22**

You are designing a distributed application. The application must store a small amount of insecure global information that does not change frequently.

You need to configure the application to meet the requirements.

Which server-side state management option should you use?

(Each correct answer presents a complete solution. Choose all that apply.)

- A. Application state
- B. Session state
- C. Database support
- D. Profile properties

**Correct Answer: AB**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

## **QUESTION 18**

### **Question 23**

You are developing an ASP.NET MVC application. The application is deployed in a web farm and is accessed by many users.

The application must handle web server failures gracefully. The servers in the farm must share the short-term state information.

You need to persist the application state during the session. What should you implement?

- A. ASP.NET session state
- B. A local database
- C. A state server
- D. Profile properties

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

#### **QUESTION 19**

##### **Question 24**

You are developing an ASP.NET MVC application that will be deployed to servers on multiple networks. The application must be compatible with multiple browsers.

You must track the page number that the user is viewing in search results. You need to program the location for storing state information. Where should you persist state information?

- A. Session
- B. QueryString
- C. Application
- D. TempData

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

#### **QUESTION 20**

##### **Question 25**

You are developing an ASP.NET MVC web application that enables users to open Microsoft Excel files. The current implementation of the ExcelResult class is as follows.

```
public class ExcelResult : ActionResult
{
    public string Path { get; set; }

    public override void ExecuteResult(ControllerContext context)
    {
        ...
    }
}
```

You need to enable users to open Excel files. How should you implement the ExecuteResult method?  
(To answer, select the appropriate options in the answer area.)

**Hot Area:**

#### Work Area

```
var response = context.HttpContext.Response;  
var request = context.HttpContext.Request;
```

```
var canProcess = request.AcceptTypes.Contains("application/vnd.ms-excel");  
var canProcess = request.ContentType.Contains("application/vnd.ms-excel");
```

```
if (canProcess)  
{  
    response.Clear();
```

```
response.AddHeader("content-disposition", "attachment; filename=dl");  
response.Output.Write("content-disposition", "application/vnd.ms-excel");
```

```
response.ContentType = "application/vnd.ms-excel";  
response.ContentEncoding = new UTF8Encoding
```

```
response.WriteFile(context.HttpContext.Server.MapPath(Path));  
}
```

Correct Answer:

Work Area

```
var response = context.HttpContext.Response;
var request = context.HttpContext.Request;

var canProcess = request.AcceptTypes.Contains("application/vnd.ms-excel");
var canProcess = request.ContentType.Contains("application/vnd.ms-excel");

if (canProcess)
{
    response.Clear();

    response.AddHeader("content-disposition", "attachment; filename=dl");
    response.Output.Write("content-disposition", "application/vnd.ms-excel");

    response.ContentType = "application/vnd.ms-excel";
    response.ContentEncoding = new UTF8Encoding

    response.WriteFile(context.HttpContext.Server.MapPath(Path));
}
```

Section: [none]

Explanation

Explanation/Reference:

QUESTION 21

Question 26

You are developing an ASP.NET MVC web application in Visual Studio 2012. The application requires several thousand content files.

All content is hosted on the same IIS instance as the application. You detect performance issues when the application starts. You need to resolve the performance issues.

What should you do?

- A. Implement HTTP caching in the ASP.NET MVC controllers.
- B. Combine the content files by using ASP.NET MVC bundling.
- C. Install a second IIS instance.
- D. Move the content to a Windows Azure CDN.

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## QUESTION 22

### Question 27

You are designing an HTML5 website. You need to design the interface such that the content is viewable in all types of browsers, including screen readers.

What should you do?

(Each correct answer presents a complete solution. Choose all that apply.)

- A. Ensure that content elements have valid and descriptive names.
- B. Use Resource Description Framework (RDF) to describe content elements.
- C. Convert HTML forms to XForms.
- D. Use HTML5 semantic markup elements.
- E. Annotate content elements with Accessible Rich Internet Application (ARIA) attributes.

**Correct Answer:** ADE

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## QUESTION 23

**Question 28**

You are developing an ASP.NET MVC application in Visual Studio 2012. The application supports multiple cultures. The application contains three resource files in the Resources directory:

- ProductDictionary.resx
- ProductDictionary.es.resx
- ProductDictionary.fr.resx

Each file contains a public resource named Currency with the localized currency symbol. The application is configured to set the culture based on the client browser settings. The application contains a controller with the action defined in the following code segment. (Line numbers are included for reference only.)

```
01 public ActionResult GetProducts()  
02 {  
03  
04     List<ProductModel> products = DataBase.DBAccess.GetProducts();  
05     return View(products);  
06 }
```

You need to set ViewBag.LocalizedCurrency to the localized currency contained in the resource files. Which code segment should you add to the action at line 03?

- A. ViewBag.LocalizedCurrency = Resources.ProductDictionary.Currency;
- B. ViewBag.LocalizedCurrency = HttpContext.GetGlobalResourceObject("ProductDictionary", "Currency", new System.Globalization.CultureInfo(Men));
- C. ViewBag.LocalizedCurrency = HttpContext.GetLocalResourceObject("ProductDictionary", "Currency");
- D. ViewBag.LocalizedCurrency = HttpContext.GetGlobalResourceObject("ProductDictionary", "Currency");

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**QUESTION 24****Question 29**

You are developing an ASP.NET MVC application. You need to authenticate clients by using an ASP.NET membership database.

Which authentication method should you implement?



- A. Kerberos
- B. Forms
- C. Basic
- D. Windows

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

#### QUESTION 25

##### Question 30

You are developing an ASP.NET MVC web application that includes the following method.

```
public double GoldMined(double currentGold, double newlyMinedGold)
{
    double totalGold = 0.00;
    totalGold = currentGold + newlyMinedGold;
    return totalGold;
}
```



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You need to test the GoldMined method. Which unit test should you use?

- A. `[TestMethod()]`  
`public void GoldMinedTest()`  
`{`  
`double currentGold = 175.05;`  
`double newlyMinedGold = 76.03;`  
`double totalGold = 251.08;`  
`double result = 0.00;`  
  
`result = GoldMined(currentGold, newlyMinedGold);`  
`Assert.IsTrue(totalGold, result);`  
`}`
- B. `[TestMethod()]`  
`private void GoldMinedTest()`  
`{`  
`double currentGold = 175.05;`  
`double newlyMinedGold = 76.03;`  
`double totalGold = 251.08;`  
`double result = 0.00;`  
  
`result = GoldMined(currentGold, newlyMinedGold);`  
`Assert.AreEqual(totalGold, result);`  
`}`

- C. `[UnitTest()]`  
`public void GoldMinedTest()`  
`{`  
 `double currentGold = 175.05;`  
 `double newlyMinedGold = 76.03;`  
 `double totalGold = 251.08;`  
 `double result = 0.00;`  
  
 `result = GoldMined(currentGold, newlyMinedGold);`  
 `Assert.AreEqual(totalGold, result);`  
`}`
- D. `[TestMethod()]`  
`public void GoldMinedTest()`  
`{`  
 `double totalGold = 175.05;`  
 `double newlyMinedGold = 76.03;`  
 `double totalGold = 251.08;`  
 `double result = 0.00;`  
  
 `result = GoldMined(currentGold, newlyMinedGold);`  
 `Assert.AreEqual(totalGold, result);`  
`}`

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

missing options

## Testlet 1

### TESTLET OVERVIEW

Title: **Olympic Marathon Runners**

For help on how to answer the questions, click the **Instructions** button on the question screen.

### Background

You are developing an ASP.NET MVC application in Visual Studio 2012 that will be used by Olympic marathon runners to log data about training runs.

### Business Requirements

- The application stores date, distance, and duration information about a user's training runs.
- The user can view, insert, edit, and delete records.
- The application must be optimized for accessibility.
- All times must be displayed in the user's local time.

### Technical Requirements

#### Data Access:

Database access is handled by a public class named `RunnerLog.DataAccess.RunnerLogDb`. All data retrieval must be done by HTTP GET and all data updates must be done by HTTP POST.

#### Layout:

All pages in the application use a master layout file named `\Views\Shared\_Layout.cshtml`.

#### Models:

The application uses the `\Models\LogModel.cs` model.

#### Views:

All views in the application use the Razor view engine. Four views located in `\Views\RunLog` are named:

```
_CalculatePace.cshtml  
EditLog.cshtml  
GetLog.cshtml  
InsertLog.cshtml
```

The application also contains a `\Views\Home\Index.cshtml` view.

#### Controllers:

The application contains a `\Controllers\RunLogController.cs` controller.

**Images:**

A stopwatch.png image is located in the \Images folder.

**Videos:**

A map of a runner's path is available when a user views a run log. The map is implemented as an Adobe Flash application and video. The browser should display the video natively if possible, using H264, Ogg, or WebM formats, in that order. If the video cannot be displayed, then the Flash application should be used.

**Security:**

You have the following security requirements:

- The application is configured to use forms authentication.
- Users must be logged on to insert runner data.
- Users must be members of the Admin role to edit or delete runner data.
- There are no security requirements for viewing runner data.
- You need to protect the application against cross-site request forgery.
- Passwords are hashed by using the SHA1 algorithm.

RunnerLog.Providers.RunLogRoleProvider.cs contains a custom role provider. Relevant portions of the application files follow. (Line numbers are included for reference only.)

**Application Structure**

- **Controllers\RunLogController.cs:**

```
RC01 public class RunLogController : Controller
RC02 {
RC03     public ActionResult GetLog()
RC04     {
RC05         List<LogModel> log = RunnerLogDb.GetLogsFromDatabase();
RC06         return View(log);
RC07     }
RC08
RC09     public ActionResult InsertLog()
RC10     {
RC11         LogModel log = new LogModel();
RC12         log.RunDate = DateTime.Now;
RC13         return View(log);
RC14     }
RC15
RC16     [HttpPost]
RC17     public ActionResult InsertLog(LogModel log)
RC18     {
RC19         RunnerLogDb.InsertLog(log);
RC20         return RedirectToAction("GetLog");
RC21     }
RC22
RC23     public ActionResult DeleteLog(int id)
RC24     {
RC25         RunnerLogDb.DeleteLog(id);
RC26         return RedirectToAction("GetLog");
RC27     }
RC28
RC29     public ActionResult EditLog(int id)
RC30     {
RC31         LogModel log = RunnerLogDb.GetRunnerLog(id);
RC32         return View(log);
RC33     }
RC34 }
```

- Models\LogModel.cs:

```
LM01 public class LogModel
LM02 {
LM03     [Required]
LM04     public int Id { get; set; }
LM05
LM06     [Required]
LM07     public DateTime RunDate { get; set; }
LM08
LM09     [Required]
LM10     [Range (0.01, 1000.00)]
LM11     public double Distance { get; set; }
LM12
LM13     [Required]
LM14     public TimeSpan Time { get; set; }
LM15
LM16     public string ShortDate
LM17     {
LM18         get
LM19         {
LM20             return RunDate.ToLocalTime().ToShortDateString();
LM21         }
LM22     }
LM23 }
```

- Views\RunLog\CalculatePace.cshtml:

```
CP01 @model RunnerLog.Models.LogModel
CP02 @(Convert.ToInt32(Model.Time.TotalMinutes / Model.Distance)) Min
CP03 @(Convert.ToInt32(Model.Time.TotalSeconds % 60 / Model.Distance)) Seconds
```

- Views\RunLog\EditLog.cshtml:

```

EL01 @model RunnerLog.Models.LogModel
EL02 <h2>Edit Log Item</h2>
EL03 <script src="@Url.Content("~/Scripts/jquery.validate.min.js")"></script>
EL04 <script src="@Url.Content("~/Scripts/jquery.validate.unobtrusive.min.js")"></
script>
EL05 @using (Html.BeginForm()) {
EL06     @Html.AntiForgeryToken()
EL07     @Html.ValidationSummary(true)
EL08     <fieldset>
EL09         <legend>LogModel</legend>
EL10         <h3>
EL11             Log Id: @Model.Id
EL12         </h3>
EL13         <div>
EL14             @Html.LabelFor(model => model.Distance)
EL15         </div>
EL16         <div>
EL17             @Html.EditorFor(model => model.Distance)
EL18             @Html.ValidationMessageFor(model => model.Distance)
EL19         </div>
EL20         <div>
EL21             @Html.LabelFor(model => model.Time)
EL22         </div>
EL23         <div>
EL24             @Html.EditorFor(model => model.Time)
EL25             @Html.ValidationMessageFor(model => model.Time)
EL26         </div>
EL27         <p>
EL28             <input type="submit" value="Save" />
EL29         </p>
EL30     </fieldset>
EL31 }

```



- Views\RunLog\GetLog.cshtml:

```
GL01 @model List<RunnerLog.Models.LogModel>
GL02 <h2>View Runs </h2>
GL03 <table>
GL04     <tr>
GL05         <th>Id </th>
GL06         <th>Date </th>
GL07         <th>Distance </th>
GL08         <th>Duration </th>
GL09         <th>Avg Mile Pace </th>
GL10     </tr>
GL11     @foreach (RunnerLog.Models.LogModel log in Model)
GL12     {
GL13         <tr>
GL14             <td>
GL15                 @Html.DisplayFor(model => log.Id)
GL16             </td>
GL17             <td>
GL18
GL19             </td>
GL20             <td>
GL21                 @Html.DisplayFor(model => log.Distance)
GL22             </td>
GL23             <td>
GL24                 @Html.DisplayFor(model => log.Time)
GL25             </td>
GL26             <td>
GL27
GL28             </td>
GL29             <td>
GL30                 @Html.ActionLink("Edit", "EditLog", new { id = log.Id })
GL31             </td>
GL32             <td>
GL33                 @Html.ActionLink("Delete", "DeleteLog", new { id = log.Id })
GL34             </td>
GL35         </tr>
GL36     }
GL37 </table>
```

- Views\RunLog\InsertLog.cshtml:

```
IL01 @model RunnerLog.Models.LogModel
IL02 <script src="@Url.Content("~/Scripts/jquery.validate.min.js")"></script>
IL03 <script src="@Url.Content("~/Scripts/jquery.validate.unobtrusive.min.js")"></
script>
IL04 @using (Html.BeginForm())
IL05 {
IL06     @Html.ValidationSummary(true)
IL07     <fieldset>
IL08         <legend>LogModel</legend>
IL09
IL10         <div>
IL11             @Html.LabelFor(model => model.RunDate)
IL12         </div>
IL13         <div>
IL14             @Html.EditorFor(model => model.RunDate)
IL15             @Html.ValidationMessageFor(model => model.RunDate)
IL16         </div>
IL17         <div>
IL18             @Html.LabelFor(model => model.Distance)
IL19         </div>
IL20         <div>
IL21             @Html.EditorFor(model => model.Distance)
IL22             @Html.ValidationMessageFor(model => model.Distance)
IL23         </div>
IL24         <div>
IL25             @Html.LabelFor(model => model.Time) HH:MM:SS
IL26         </div>
IL27         <div>
IL28             @Html.EditorFor(model => model.Time)
IL29             @Html.ValidationMessageFor(model => model.Time)
IL30         </div>
IL31         <p>
IL32             <input type="submit" value="Create" />
IL33         </p>
IL34     </fieldset>
IL35 }
```

▪ Views\Shared\\_Layout.cshtml:

```
L001 <!DOCTYPE html>
L002 <html lang="en">
L003 <head>
L004 ...
L005 </head>
L006 <body>
L007 ...
L008 <footer>
L009
L010     <script type="text/javascript">
L011         var c = document.getElementById('myCanvas');
L012         var ctx = c.getContext('2d');
L013         ctx.font = '30pt Calibri';
L014         ctx.strokeStyle = 'gray';
L015         ctx.lineWidth = 3;
L016         ctx.strokeText('London 2012', 80, 30);
L017     </script>
L018 </footer>
L019 </body>
L020 </html>
```

**QUESTION 1**

**Question 7**

If the canvas element is supported by the client browser, the application must display "London 2012" in the footer as text formatted by JavaScript at the end of the \_Layout.cshtml file.

You need to modify the layout to ensure that "London 2012" is displayed as either formatted text or as plain text, depending on what the client browser supports. Which code segment should you add?

- A. <canvas id="myFooter">  
    @(Request.Browser.JavaApplets ? new HtmlString("London 2012") : null)  
    </canvas>
- B. <canvas id="myFooter">London 2012</canvas>

- C. `<canvas id="myCanvas">London 2012</canvas>`  
D. `<canvas id="myCanvas"></canvas>`  
`<p>London 2012</p>`

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## QUESTION 2

### Question 8

You need to add an action to RunLogController to validate the users' passwords. Which code segment should you use?

- A. 

```
public ActionResult Login(string username, string password)
{
    byte[] buffer = Encoding.UTF8.GetBytes(password + username);
    byte[] hash = MD5.Create().ComputeHash(buffer);
    ComparePassword(username, hash);
    return ContextDependentView();
}
```
- B. 

```
[RequireHttps]
public ActionResult Login(string username, string password)
{
    byte[] buffer = Encoding.UTF8.GetBytes(password + username);
    byte[] hash = SHA1.Create().ComputeHash(buffer);
    ComparePassword(username, hash);
    return ContextDependentView();
}
```

- C. 

```
public ActionResult Login(string username, string password)
{
    byte[] buffer = Encoding.UTF8.GetBytes(password + username);
    byte[] hash = SHA1.Create().ComputeHash(buffer);
    ComparePassword(username, hash);
    return ContextDependentView();
}
```
- D. 

```
[RequireHttps]
public ActionResult Login(string username, string password)
{
    byte[] buffer = Encoding.UTF8.GetBytes(password + username);
    byte[] hash = MD5.Create().ComputeHash(buffer);
    ComparePassword(username, hash);
    return ContextDependentView();
}
```

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

### QUESTION 3

#### Question 9

You need to make all of the rows in the table bold in the Views/RunLog/GetLog.cshtml view. Which code segment should you use?

- A. `table > th:last-child { font-weight: bold; }`
- B. `table + first-child { font-weight: bold; }`
- C. `table > tr > th:nth-child(2) { font-weight: bold; }`
- D. `table > tr { font-weight: bold; }`

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Wrong Answer:  
just first row will be in bold.

**QUESTION 4**

**Question 10**

You need to display the "miles" unit description after the distance in the GetLog view. Which line of code should you use to replace line GL21?  
(Each correct answer presents a complete solution. Choose all that apply.)

- A. `@log.Distance miles`
- B. `@Html.DisplayFor(model => log.Distance) miles`
- C. `@log.Distance.ToString() @Html.TextArea("miles")`
- D. `@Html.DisplayFor(model => log.Distance.ToString()) + " miles"`

**Correct Answer:** AB

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**QUESTION 5**

**Question 11**



<http://www.gratisexam.com/>

You need to implement the map of the runners' paths.

How should you build the video viewer? (To answer, select the appropriate options in the answer area.)

**Hot Area:**



Work Area

<video width="320" height="240">

< >

source src="map.mp4" type="video/mp4"  
source src="map.ogv" type="video/ogg"  
source src="map.webm" type="video/webm"

< >

source src="map.mp4" type="video/mp4"  
source src="map.ogv" type="video/ogg"  
source src="map.webm" type="video/webm"

< >

source src="map.mp4" type="video/mp4"  
source src="map.ogv" type="video/ogg"  
source src="map.webm" type="video/webm"

< width="320" height="240">

embed  
object  
video  
canvas

< name="movie" value="map.swf" />

object  
param  
option  
embed

< src="map.swf" />

video  
param

**Correct Answer:**

Work Area

<video width="320" height="240">

< >

source src="map.mp4" type="video/mp4"  
source src="map.ogv" type="video/ogg"  
source src="map.webm" type="video/webm"

< >

source src="map.mp4" type="video/mp4"  
source src="map.ogv" type="video/ogg"  
source src="map.webm" type="video/webm"

< >

source src="map.mp4" type="video/mp4"  
source src="map.ogv" type="video/ogg"  
source src="map.webm" type="video/webm"

< width="320" height="240">

embed  
object  
video  
canvas

< name="movie" value="map.swf" />

object  
param  
option  
embed

< src="map.swf" />

video  
param

Section: [none]

Explanation

Explanation/Reference:

```
<video width="320" height="240">  
  <|source src="map.mp4" type="video/mp4" |>  
  <|source src="map.ogv" type="video/ogg" |>  
  <|source src="map.webm" type="video/webm" |>  
  <|object | width="320" height="240">  
    <|param | name="movie" value="map.swf" />  
    <|embed | src="map.swf" />  
  </|object |>  
</video>
```

## Testlet 1

### TESTLET OVERVIEW

Title: **Shopping Web Application**

For help on how to answer the questions, click the **Instructions** button on the question screen.

### Background

You are developing an online shopping web application.

### Business Requirements

- A user is not required to provide an email address. If a user enters an email address, it must be verified to be a valid email address.
- Information about the first product on the product page must fade out over time to encourage the user to continue browsing the catalog.
- Administrators must be able to edit information about existing customers.
- Administrators also must be able to specify a default product on the product page.

### Technical Requirements

#### General:

- The web store application is in a load-balanced web farm. The load balancer is not configured to use server affinity.
- The web store application is an ASP.NET MVC application written in Visual Studio 2012.

#### Products:

- The value of the productId property must always be greater than 0.
- The Products page for mobile devices must display to mobile users.
- The Products page for desktop devices must display to desktop users.

#### Storage:

- The data must be stored in a serialized XML data format.
- Serialized objects must be schema-independent.

#### Exception handling:

- Exceptions originating from IIS must display a page with support contact information.
- Some page links expire, and users who access these links encounter 404 errors.
- Exceptions must be logged by using the WriteLog method of the Utility class.

#### Browser and device support:

- The application must support image format conversions from .bmp to .jpeg for mobile devices.
- The application must support image format conversions from .bmp to .png for desktop devices.

### Application Structure

- Customer.cs:

```
public class Customer
{
    const string EmailRegex = @"($^)|([A-Za-z0-9_\.]*@[A-Za-z0-9-]*\.[A-Za-z]*)";
    const string EmailErrorMessage = "Please enter a valid email address";

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

- Product.cs:

```
public class Product
{
    public string ProductId { get; set; }
    public string Name { get; set; }
    public decimal Price { get; set; }
}
```

- web.config:

```

<?xml version="1.0" encoding="utf-8"?>
<configuration>
  <appSettings>
    <add key="PreserveLoginUrl" value="true" />
    <add key="ClientValidationEnabled" value="true" />
    <add key="UnobtrusiveJavaScriptEnabled" value="true" />
  </appSettings>
  <system.web>
    <compilation debug="true" targetFramework="4.5" />
    <httpRuntime targetFramework="4.5"
encoderType="System.Web.Security.AntiXss.AntiXssEncoder,
System.Web, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b03f5f7f11d50a3a" />
    <machineKey compatibilityMode="Framework45" />
    <sessionState mode="..." customProvider="DefaultSessionProvider">
      <providers>
        <add name="DefaultSessionProvider"
type="System.Web.Providers.DefaultSessionStateProvider,
System.Web.Providers, Version=1.0.0.0, Culture=neutral, PublicKeyToken=31bf3856ad364e35
" connectionStringName="DefaultConnection" applicationName="/" />
      </providers>
    </sessionState>
  </system.web>
  <system.webServer>
    <validation validateIntegratedModeConfiguration="false" />
    <modules runAllManagedModulesForAllRequests="true" />
  </system.webServer>
</configuration>

```

## QUESTION 1

### Question 1

You need to ensure that new customers enter a valid email address. Which code should you use?  
(Each correct answer presents part of the solution. Choose all that apply.)

- A. `[RegularExpression(EmailRegex, ErrorMessage = EmailErrorMessage)]  
[DataType(DataType.EmailAddress)]  
public string Email { get; set; }`
- B. `[RegularExpression(EmailRegex, ErrorMessage = EmailErrorMessage,  
ErrorMessageResourceType = DataType.EmailAddress)]  
[ComplexType]  
public string Email { get; set; }`
- C. `<%: Html.Raw(m => m.Email) %>`
- D. `<%: Html.TextBoxFor(m => m.Email) %>`

**Correct Answer:** AD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

*spaceconte from Italy - Jul 18, 2013:*  
[ComplexType] is not correct.

*Rick from Netherlands - Nov 05, 2013:*  
Answers are A + D (in this dump):

*Andy: I noticed a mistake in answers on question about validation of email address. Correct answers are A and D. B which is marked as the right answer is completely messed up.*

## QUESTION 2

### Question 2

You are designing a Windows Communication Foundation (WCF) service that uses the Product class. You need to update the class to meet the storage requirement. What should you do? (Each correct answer presents part of the solution. Choose all that apply.)

- A. Mark the Product class with the DataContract attribute.
- B. Mark the public members of the Product class with the DataContractFormat attribute.
- C. Mark the Product class with the CollectionDataContract attribute.
- D. Mark the public members of the Product class with the DataMember attribute.

**Correct Answer:** AD



**Section: [none]**

**Explanation**

**Explanation/Reference:**

So as of .NET 3.5 SP1, you don't have to add data contract or data member attributes anymore - if you don't then the data contract serializer will serialize all public properties on your class, just like the XML serializer would.

HOWEVER: by not adding those attributes, you lose a lot of useful capabilities:

- without [DataContract], you cannot define an XML namespace for your data to live in
- without [DataMember], you cannot serialize non-public properties or fields
- without [DataMember], you cannot define an order of serialization (Order=) and the DCS will serialize all properties alphabetically
- without [DataMember], you cannot define a different name for your property (Name=)
- without [DataMember], you cannot define things like IsRequired= or other useful attributes
- without [DataMember], you cannot leave out certain public properties - all public properties will be serialized by the DCS

**QUESTION 3**

**Question 3**

You need to implement the requirements for handling IIS errors. What should you do?

- A. Update the **customErrors** attribute in the web.config file as follows.

```
<customErrorsmode="On"defaultRedirect="CustomErrorView">
  <errorstatusCode="404"redirect="Error/Error404"/>
</customErrors>
```

- B. Update the **customErrors** attribute in the app.config file as follows.

```
<customErrorsmode="On"defaultRedirect="CustomErrorView">
  <errorstatusCode="404"redirect="Error/Error404"/>
</customErrors>
```

- C. Update the **customErrors** attribute in the app.config file as follows.

```
<customErrorsmode="On"defaultRedirect="CustomErrorView">
<errorstatusCode="401"redirect="Error/Error401"/>
</customErrors>
```

D. Update the **customErrors** attribute in the web.config file as follows.

```
<customErrorsmode="On"defaultRedirect="CustomErrorView">
<errorstatusCode="403"redirect="Error/Error403"/>
</customErrors>
```

Correct Answer: A

Section: [none]

Explanation

Explanation/Reference:

#### QUESTION 4

##### Question 4

You need to add a method to the ProductController class to meet the exception handling requirements for logging. Which code segment should you use?

A. 

```
protected override void OnException(ExceptionContext filterContext)
{
    Utility.WriteLog(filterContext.Exception);

    if (filterContext.HttpContext.IsCustomErrorEnabled)
    {
        filterContext.ExceptionHandled = true;
        this.View("Error").ExecuteResult(this.ControllerContext);
    }
}
```

- B. `protected override void OnException(ExceptionContext filterContext)`  
{  
    Utility.WriteLog(filterContext.Exception);  
  
    if (System.Diagnostics.Debugger.IsAttached)  
    {  
        filterContext.ExceptionHandled = true;  
        this.View("Error").ExecuteResult(this.ControllerContext);  
    }  
}
- C. `protected override void OnException(ExceptionContext filterContext)`  
{  
    if (!System.Diagnostics.Debugger.IsLogging())  
    {  
        Utility.WriteLog(filterContext.Exception);  
        filterContext.ExceptionHandled = true;  
        this.View("Error").ExecuteResult(this.ControllerContext);  
    }  
}
- D. `protected override void OnException(ExceptionContext filterContext)`  
{  
    Utility.WriteLog(filterContext.Exception);  
  
    if (filterContext.HttpContext.IsDebuggingEnabled)  
    {  
        filterContext.ExceptionHandled = true;  
        this.View("Error").ExecuteResult(this.ControllerContext);  
    }  
}

Correct Answer: A

Section: [none]

Explanation

Explanation/Reference:

QUESTION 5

**Question 5**

An advertising campaign was recently launched. Some of the ads contain a link to products that no longer exist or have IDs that have changed.

You need to ensure that all product links display a product. Which code segment should you use to configure the route?

- A. 

```
routes.MapRoute(
    "Product",
    "{productName}/{action}/{id}",
    new { action = "Show", productName = DefaultProduct }
);
```
- B. 

```
routes.MapRoute(
    "Product",
    "Product/{action}/{productName}",
    new { action = "Show", productName = DefaultProduct }
);
```
- C. 

```
routes.MapPageRoute(
    "Product",
    "Product/{action}/{productName}",
    "~/product.aspx",
    false,
    new RouteValueDictionary { { "action", "Show" }, { "productName", DefaultProduct }
});
```
- D. 

```
routes.MapPageRoute(
    "Product",
    "{ProductName}/{action}/{id}",
    "~/product.aspx",
    false,
    new RouteValueDictionary { { "action", "Show" }, { "productName", DefaultProduct }
});
```

**Correct Answer: B**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

*Also slightly another question:*

You need to update the routes to ensure that a product is always displayed on the product page. Which code segment should you use?

## **QUESTION 6**

### **Question 6**

You need to modify the application to meet the productId requirement. What should you do?

- A. Modify the RegisterGlobalFilters method of the Global.asax.es file as follows.  
Contract.Assume<ArgumentException>(productId != 0);
- B. Modify the GetDealPrice method of ProductController as follows.  
Contract.Requires<ArgumentException>(productId > 0);
- C. Modify the RegisterGlobalFilters method of the Global.asax.es file as follows.  
Contract.Requires<ArgumentException>(productId > 0);
- D. Modify the GetDealPrice method of ProductController as follows.  
Contract.Assume<ArgumentException>(productId > 0);

**Correct Answer: B**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

## **QUESTION 7**

### **Question 7**

You need to implement the business requirements for managing customer data. What should you do?

(Each correct answer presents part of the solution. Choose all that apply.)

- A. Add a class named CustomerController to the Controllers folder. Then add a method named Edit to the class.
- B. Create a new controller named Administration in the Controllers folder. Add an action named EditCustomer to the controller.
- C. Add a folder named Customer to the Views folder. Then create a view inside this folder named Edit.aspx.
- D. Create a new folder named EditCustomer to the Views folder. In the new folder, create a new file named Administration.aspx.

**Correct Answer: AC**

**Section: [none]**

## Explanation

### Explanation/Reference:

## QUESTION 8

### Question 8

When users attempt to retrieve a product from the product page, a run-time exception occurs if the product does not exist.

You need to route the exception to the CustomException.aspx page. Which method should you add to MvcApplication?

- A. 

```
public static void RegisterGlobalFilters(GlobalFilterCollection filters)
{
    filters.Add(new HandleErrorAttribute
    {
        ExceptionType = typeof(IndexOutOfRangeException),
        View = "CustomException",
    });
}
```
- B. 

```
public static void RegisterGlobalFilters(GlobalFilterCollection filters)
{
    filters.Add(new HandleErrorAttribute
    {
        ExceptionType = typeof(NullReferenceException),
        View = "CustomException",
    });
}
```

- C. 

```
public static void RegisterGlobalFilters(GlobalFilterCollection filters)
{
    filters.Add(new HandleErrorAttribute
    {
        ExceptionType = typeof(IndexOutOfRangeException),
        Handler = "CustomException",
    });
}
```
- D. 

```
public static void RegisterGlobalFilters(GlobalFilterCollection filters)
{
    filters.Add(new HandleErrorAttribute
    {
        ExceptionType = typeof(NullReferenceException),
        Handler = "CustomException",
    });
}
```

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## QUESTION 9

### Question 9

You updated the web.config file with the HTTP run-time value required to display an alternative version of the site.

You need to ensure that the correct page displays to the users. Which code segment should you use to update the controller?

- A. `if (Request.IsTabletDevice)`
- B. `if (Request.Browser.IsBrowser("Mobile"))`
- C. `if (Request.UserAgent["Tablet"])`
- D. `if (Request.Browser.IsMobileDevice)`

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 10**

### **Question 10**

You need to implement client-side animations according to the business requirements. Which line of code should you use?  
(Each correct answer presents a complete solution. Choose all that apply.)

- A. `$("#body h1:nth-child(1)").fadeIn(1000);`
- B. `$("#body h1:nth-child(1)").fadeOut(1000);`
- C. `$("#body h1:nth-child(1)").animate({ opacity: 0 });`
- D. `$("#body h1:nth-child(1)").animate({ opacity: 1 });`

**Correct Answer:** BC

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 11**

### **Question 11**

You need to implement client-side animations according to the business requirements. Which line of code should you use?  
(Each correct answer presents a complete solution. Choose all that apply.)

- A. `$("#h1: first").animate ({ opacity: 0 });`
- B. `$("#h1: first").fadeIn(1000);`
- C. `$("#h1: first").animate({ opacity: 1 });`
- D. `$("#h1: first").fadeOut(1000);`

**Correct Answer:** AD

**Section:** [none]

**Explanation**

**Explanation/Reference:**





## Testlet 1

### TESTLET OVERVIEW

Title: **Video Transcoding Service**

For help on how to answer the questions, click the **Instructions** button on the question screen.

### Background

You are developing a video transcoding service. This service is used by customers to upload video files, convert video to other formats, and view the converted files. This service is used by customers all over the world.

### Business Requirements

- The user-facing portion of the application is an ASP.NET MVC application.
- It provides an interface for administrators to upload video and schedule transcoding.
- It also enables administrators and users to download the transcoded videos.
- When videos are uploaded, they are populated with metadata used to identify the video.
- The video metadata is gathered by only one system when the video upload is complete.
- Customers require support for Microsoft Internet Explorer 7 and later.
- The application contains a header that is visible on every page.
- If the logged-on user is an administrator, then the header will contain links to administrative functions. This information is read from a cookie that is set on the server.
- The administrative links must not be present if an error condition is present.

### Technical Requirements

#### User Experience:

- The front-end web application enables a user to view a list of videos.
- The main view of the application is the web page that displays the list of videos.
- HTML elements other than the list of videos are changed with every request requiring the page to reload.

#### Compatibility:

- Some customers use browsers that do not support the HTTP DELETE verb.
- These browsers send a POST request with an HTTP header of X-Delete when the intended action is to delete.

#### Transcoding:

- The video transcoding occurs on a set of Windows Azure worker roles.
- The transcoding is performed by a third-party command line tool named transcode.exe. When the tool is installed, an Environment variable named transcode contains the path to the utility.
- A variable named license contains the license key. The license for the transcoding utility requires that it be unregistered when it is not in use.
- The transcoding utility requires a significant amount of resources. A maximum of 10 instances of the utility can be running at any one time. If an instance of the role cannot process an additional video, it must not prevent any other roles from processing that video.

- The utility logs errors to a Logs directory under the utilities path.
- A local Azure directory resource named perf is used to capture performance data.

#### Development:

- Developers must use Microsoft Remote Desktop Protocol (RDP) to view errors generated by the transcode.exe utility.
- An x509 certificate has been created and distributed to the developers for this purpose.
- Developers must be able to use only RDP and not any other administrative functions.

#### Application Structure

- TranscodeWorkerRole.cs:

```
public class TranscodeWorkerRole : RoleEntryPoint
{
    public override void Run()
    {
        while (true)
        {
            var nextWorkItem = GetWorkItem();
            TranscodeService.Start(new [] { nextWorkItem } );
        }
    }

    private string GetWorkItem()
    {
        ...
    }
}
```

- ThumbnailGenerator.cs:

```

public class ThumbnailGenerator : IHttpHandler
{
    public bool IsReusable
    {
        get { return true; }
    }

    public void ProcessRequest(HttpContext context)
    {
        var videoId = context.Request.QueryString["videoId"];
        var startBytes = File.ReadAllBytes(videoId);
        var bytes = BuildThumbnail(videoId);
        StreamResults(context, bytes);
    }

    private Task<byte[]> BuildThumbnail(string videoId)
    {
        return new Task<byte[]>(() => File.ReadAllBytes(videoId));
    }

    private void StreamResults(HttpContext context, byte[] content)
    {
    }
}

```

- VideoController.cs:

```
[Authorize]
public class VideoController : Controller
{
    public FileResult DownloadVideo(string videoId)
    {
        var stream = GetVideoStream(videoId);
        return File(stream, "video/mpeg");
    }

    [HttpPost]
    public ActionResult UploadVideo(string videoId)
    {
        return View();
    }

    [HttpDelete]
    public ActionResult DeleteVideo(string videoId)
    {
        return View();
    }

    public ActionResult VideoMetadata(string videoId)
    {
        var metadata = HttpRuntime.Cache[videoId];
        if (metadata == null)
        {
            metadata = LoadMetadata(videoId);
            HttpRuntime.Cache[videoId] = metadata;
        }
        return View(metadata);
    }
}
```

- DeleteHandler.cs:

```
public class DeleteHandler : DelegatingHandler
{
    protected override Task<HttpResponseMessage> SendAsync
(HttpRequestMessage request,
    CancellationToken cancellationToken)
    {
        ...
    }
}
```

- VideoAdminAttributes.cs:

```
public class VideoAdminAttribute : Attribute
{
    private IEnumerable<string> Admins()
    {
        ...
    }
}
```

- AdminVerifierFactory.cs:

```
public class AdminVerifierFactory : DefaultControllerFactory
{
    public override IController CreateController(RequestContext requestContext,
    string controllerName)
    {
        return base.CreateController(requestContext, controllerName) as Controller;
    }
}
```

▪ ImageConverter.cs:

```
public class ImageConverter : MvcHandler
{
    private void WriteImage(HttpResponse response, string format)
    {
        ...
    }
}
```

### QUESTION 1

#### Question 1

You need to ensure that developers can connect to a Windows Azure role by using RDP. What should you do?

- A. Export a certificate without a private key. Upload the .cer file to the Management Certificates section on the Azure Management Portal.
- B. Export a certificate with a private key. Upload the .pfx file to the Management Certificates section on the Azure Management Portal.
- C. Export a certificate without a private key. Upload the .cer file to the Certificates section under the TranscodeWorkerRole hosted service on the Azure Management Portal.
- D. Export a certificate with a private key. Upload the .pfx file to the Certificates section under the TranscodeWorkerRole hosted service on the Azure Management Portal.

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

### QUESTION 2

#### Question 2

Customers download videos by using HTTP clients that support various content encodings. You need to configure caching on the DownloadVideo action to maximize performance. Which attribute should you add?

- A. `[OutputCache(Location = OutputCacheLocation.Downstream, VaryByParam = "videoId", VaryByCustom = "browser")]`

- B. `[OutputCache(Location = OutputCacheLocation.Any, VaryByCustom = "compressionMethod", VaryByContentEncoding = "all")]`
- C. `[OutputCache(Location = OutputCacheLocation.ServerAndClient, VaryByHeader = "Cache-Control")]`
- D. `[OutputCache(Location = OutputCacheLocation.Downstream, VaryByContentEncoding = "gzip;q=1.0, compress; q=0.5, *;q=0")]`
- E. `[OutputCache(Location = OutputCacheLocation.Any, VaryByParam = "videoId", VaryByContentEncoding = "gzip;q=1.0, compress; q=0.5, *;q=0")]`

Correct Answer: E

Section: [none]

Explanation

Explanation/Reference:

### QUESTION 3

#### Question 3

You need to ensure that all the MVC controllers are secure. Which code segment should you use as the body for the CreateController method in AdminVerifierFactory.es?

- A. `var controller = base.CreateController(requestContext, controllerName) as Controller;`  
`var attributes = controller.GetType().Attributes.ToString();`  
`if (!attributes.Contains("VideoAdminAttribute"))`  
`throw new Exception("Not an Administrator");`  
`return controller;`



- B. `if(requestContext.HttpContext.Items["Administrator"] == null)`  
    `throw new Exception("Not an Administrator");`  
    `return base.CreateController(requestContext, controllerName) as Controller;`
- C. `var controller = base.CreateController(requestContext, controllerName) as Controller;`  
    `var hasFilter = controller.GetType().CustomAttributes.Any`  
    `(x => x.AttributeType.Name == "VideoAdminAttribute");`  
    `if(hasFilter == null)`  
        `throw new Exception("Not an Administrator");`  
    `return controller;`
- D. `if(requestContext.RouteData.Values["Administrator"] == null)`  
    `throw new Exception("Not an Administrator");`  
    `return base.CreateController(requestContext, controllerName) as Controller;`

Correct Answer: C

Section: [none]

Explanation

Explanation/Reference:

QUESTION 4

Question 4

You are creating a new authentication system that uses an HTTP header value. The existing authentication system must continue to operate normally.

You need to implement the custom authentication. What should you do?  
(Each correct answer presents a complete solution. Choose all that apply.)

- A. Create a class derived from ActionResult and check for a valid HTTP header value in the ExecuteResult method. Change all actions to return this new class.
- B. Create an HttpHandler to check for a valid HTTP header value in the ProcessRequest method.
- C. Create an HttpModule and check for a valid HTTP header value in the AuthenticateRequest event.
- D. Create a class derived from AuthorizeAttribute and check for a valid HTTP header value in the AuthorizeCore method. Change usages of the existing AuthorizeAttribute to use the new class.

**Correct Answer:** CD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## QUESTION 5

### Question 9

You need to ensure that all customers can delete videos regardless of their browser capability.



<http://www.gratisexam.com/>

Which code segment should you use as the body of the SendAsync method in the DeleteHandler class?

- A. `varresponse = base.SendAsync(request, cancellationToken);`  
`if(request.Headers.Contains("X-Delete"))`  
`{`  
`response.Result.StatusCode = HttpStatusCode.NotImplemented;`  
`}`  
`returnresponse;`
- B. `if(request.Headers.Contains("X-Delete"))`  
`{`  
`request.Method = newHttpMethod("DELETE");`  
`}`  
`returnbase.SendAsync(request, cancellationToken);`
- C. `varresponse = base.SendAsync(request, cancellationToken);`  
`if(response.Result.Headers.Contains("X-Delete"))`  
`{`  
`request.Method = newHttpMethod("DELETE");`  
`}`  
`returnresponse;`

D. 

```
if(request.Method == HttpMethod.Delete)
{
    request.Headers.Add("X-Delete", "true");
}

returnbase.SendAsync(request, cancellationToken);
```

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## Testlet 1

### Cycling Club

#### Background

You are making use of Visual Studio 2012 to create an ASP.NET MVC application to log training information for a cycling club.

#### Business Requirements

The application needs to host data regarding training dates, distances, and duration. Application users must be able to view and modify data. The application itself should be highly accessible. The application should also allow for times to be presented in the user's native time.

#### Technical Requirements

A public class, named `CyclistLog.DataAccess.CyclistLogDb`, deals with database access. HTTP GET should be used for all data retrieval. HTTP POST should be used for all data updates.

A master layout file, named `Wiews\Shared\_Layout.cshtml`, is used by all pages in the application.

The application makes use of the `\Models\LogModel.cs` model.

The Razor view engine is used for all views in the application. The `Wiews\CyclingLog` includes the `_CalculateSpeed.cshtml`, `EditLog.cshtml`, `GetLog.cshtml`, and `InsertLog.cshtml` views. The application, however, includes a `Wiewsl-lomelindex.cshtml` view.

The controller included in the application is `\Controllers\CyclingLogController.cs`. You have also included a `timer.png` image in the `\Images` folder.

When a user examines a cycling log, the users trail map is accessible. This map is configured as a video and an Adobe Flash application. The browser should use H264, Ogg, or WebM formats (in this order) to present the video natively. The Flash application should be used in the event that the video cannot be presented.

#### Security

The application should make use of forms authentication, and requires user logon for entering information. The editing or deleting of cyclist information requires a user to be a member of the Admin role. Users must be members of the Admin role to. You need to the application should be defended against cross-site request forgery. The SHA1 algorithm should be used to hash passwords.

A custom role provider must be included in `CyclistLog.Providers.CyclingLogRoleProvider.cs`.

## QUESTION 1

### Question 1

You have received instructions to make sure that the `Views\CyclingLog\_CalculateSpeed.cshtml` partial view, from the `Views\Cyclelog \GetLog.cshtml`, is configured to show the cyclist's average speed per kilometer.

You need to write the necessary code to apply the view.

Which of the following is a method that should be included in your code?

- A. The DisplayFor method.
- B. The ExhibitFor method.
- C. The PresentFor method.
- D. The ConcealFor method.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 2**

### **Question 2**

You have been instructed to meet the business requirements with regards to security.

You are required to make changes to the CyclingLogController.

Which of the following actions should you take?

- A. You should consider adding code to assign users the Administrator role.
- B. You should consider adding code to assign users the Advanced Operator role.
- C. You should consider adding code to assign users the Author role.
- D. You should consider adding code to assign users the Report Security Administrator role.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 3**

### **Question 3**

You have been instructed to insert a line of code into your existing code that allows for the "Distance" header of the table to be displayed in bold in the Views/CyclingLog/GetLog.cshtml view.

Which of the following should be included in the line of code?

- A. You should consider including the :first-child pseudo-class.
- B. You should consider including the :last-child pseudo-class.
- C. You should consider including the :nth-child pseudo-class.
- D. You should consider including the :nth-last-child(n) pseudo-class.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

#### QUESTION 4

##### Question 4

You have been asked to make sure that the edit action of RunLogController is extended.

You start by writing the following lines of code:

```
[HttpPost]  
[ActionName ("Editlog")]
```

You are required to make use of a specific attribute next.

Which of the following is the attribute in question?

- A. The [ValueProviderCollection] attribute.
- B. The [ValidateInput] attribute.
- C. The [ValidateAntiForgeryToken] attribute.
- D. The [ValidatableObjectAdapter] attribute.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**QUESTION 5****Question 5**

You have been tasked with making sure that the application is configured to make use of a custom role provider, named CyclingLogRoleProvider.

Which of the following actions should you take?

- A. You should consider making changes to the machine.config file.
- B. You should consider making changes to the app.config file.
- C. You should consider making changes to the web.config file.
- D. You should consider making changes to the client.config file.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**



## Testlet 2

### Online Retail Web Application

#### Background

You are making use of Visual Studio 2012 to create an ASP.NET MVC online retail web application.

#### Business Prerequisites

The entering of user e-mail addresses should not be compulsory. In the event that a user does provide an e-mail address, the validity of the address should be authenticated. To motivate users to keep on browsing the item list, you have to make sure that the first item on the item page gradually disappears.

Furthermore, you have to make sure that administrators have the ability to manage current client data, and also identify a default item on the item page.

#### Technical Prerequisites

##### General:

A load-balanced web farm, where the load balancer has not been configured to employ server affinity, hosts the application

With regards to items, you are informed that the `itemId` property value should not be less than or equal to 0. Furthermore, the Items page for mobile devices should be presented to mobile users and the Items page for desktop computers should be presented to desktop users

##### Storage:

You are informed that information should be saved in a serialized XML data format, and that serialized objects should be independent of the schema.

##### Exception handling:

A page showing support contact details should be presented for IIS exceptions. 404 errors resulting from expired links cause exceptions to be thrown. Some page links expire, and users who access these links encounter 404 errors. The `WriteLog` method of the `Utility` class should be used to log these exceptions.

##### Browser and device support:

The application should allow for .bmp format images to be changed to .jpeg format images for mobile devices, and to .png format images for desktop computers.

## QUESTION 1

### Question 4

You have received instructions to make sure that the prerequisites with regards to the `ItemId` are suitably met.

Which of the following actions should you take?

- A. You should consider changing a method of `ItemController`.
- B. You should consider changing a method of `ItemProperty`.
- C. You should consider changing a method of `ItemObject`.
- D. You should consider changing a method of `ItemAttribute`.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 2**

### **Question 5**

You are preparing to make sure that the prerequisites for client information management are suitably met.

You start by configuring the Controllers folder to include a class, named ClientController.

Which of the following actions should you take NEXT?

- A. You should consider configuring the ClientController to include the Edit method.
- B. You should consider configuring the ClientController to include the Run method.
- C. You should consider configuring the ClientController to include the Client method.
- D. You should consider configuring the ClientController to include the Reword method.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 3**

### **Question 6**

You are informed that a run-time exception takes place every time a user tries to access a non-existent item from the item page. You are instructed to write code that creates a method that routes the exception to the CustomException.aspx page.

Which of the following is the method you should create?

- A. The RegisterGlobalFilters method.
- B. The RegisterLocalFilters method.
- C. The JoinGlobalFilters method.
- D. The JoinLocalFilters method.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

#### **QUESTION 4**

##### **Question 7**

After updating the web.config file to display an alternative version of the site by configuring the necessary HTTP run-time value, you are instructed to make sure that users are presented with appropriate page.

Which of the following actions should you take?

- A. You should consider inserting and when statement.
- B. You should consider inserting and then statement.
- C. You should consider inserting and why statement.
- D. You should consider inserting and if statement.

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

#### **QUESTION 5**

##### **Question 8**

You have received instructions to apply client-side animations. You want to make sure that the business prerequisites are suitably met.

Which of the following should be included in your code?

- A. You should consider including the :first-child pseudo-class.
- B. You should consider including the :nth-child pseudo-class.
- C. You should consider including the :nth-last-child(n) pseudo-class.
- D. You should consider including the :last-child pseudo-class.

**Correct Answer:** B

**Section:** [none]

**Explanation****Explanation/Reference:****QUESTION 6****Question 9**

You have been instructed to make sure that the technical prerequisites with regards to scalability are adequately met. To achieve this, it is necessary to access the web.config file to configure session storage.

You want to make use of a SessionState mode that stores session state in a process that is separate from the ASP.NET worker process or IIS application pool.

Which of the following should you make use of?

- A. You should consider making use of the In-process mode.
- B. You should consider making use of the Off mode.
- C. You should consider making use of the SQLServer mode.
- D. You should consider making use of the StateServer mode.
- E. You should consider making use of the Custom mode.

**Correct Answer:** D

**Section:** [none]

**Explanation****Explanation/Reference:**

### Testlet 3

## Digital Data Conversion

### Background

You are developing a service that allows for the direct digital-to-digital data conversion of one encoding to another. Users currently employ the service for the uploading of audiovisual media files for conversion to different formats, as well as for the viewing of the converted files.

### Business Requirements

The client-side section of the application has been created as an ASP.NET MVC application using Visual Studio 2012. The client-side of the application allows for the uploading of audiovisual media and the planning of transcoding by administrators. Furthermore, administrators and users are allowed to download the audiovisual medias that have gone through the direct digital-to-digital data conversion process.

Metadata is attached to uploaded audiovisual medias for identification purposes. As soon as the audiovisual media upload is complete, this metadata is collected by a single system.

User computers must have Microsoft Internet Explorer 7 installed, as a minimum.

The application excludes a header that can be viewed on all pages. The header has been configured to display links to administrative functions for users logged in as administrators. A cookie, which is configured on the server, supplies this data. In the event of an error condition existing, the administrative links should not be displayed.

### Technical Requirements

#### User Experience:

Users are able to scrutinize a list of audiovisual medias via the front-end web application. The presented page is configured as the application's principal view. Every request causes the HTML elements, other than the list of audiovisual medias, to change. This, in turn, causes the page to reload.

#### Compatibility:

Some user browsers, which do not support the HTTP DELETE verb, send a POST request with an HTTP header of X-Delete when the expected operation is to delete.

#### Transcoding:

A set of Windows Azure worker roles has been configured for transcoding purposes. A third-party command line tool must be installed for transcoding. The path to the utility is hosted by an Environment variable, subsequent to tool installation. The license key is included in a variable, named license. When the utility is not in use, it has to be unregistered. Furthermore, a substantial quantity of resources is consumed by the utility.

At any given time, the utility can have ten instances of the utility running, at most. An instance of the role must allow other roles to process the additional audiovisual media that it cannot.

Errors are logged to a Logs directory under the utilities path by the utility.

Performance information is collected by a local Azure directory resource, named perf.

**Development:**

Errors generated by the utility must be examined by developers via Microsoft Remote Desktop Protocol (RDP). This functionality has been provided by the creation of an x509 certificate that has been distributed to the developers. Only RDP must be used by developers for this function.

**QUESTION 1**

**Question 1**

You have been instructed to make sure that developers have the ability to access a Windows Azure role via RDP.

You start by exporting a certificate with a private key.

Which of the following actions should you take NEXT?

- A. You should consider uploading the .cer file to the Certificates section of the TranscodeWorkerRole hosted service on the Azure Management Portal.
- B. You should consider downloading the .cer file from the Certificates section of the TranscodeWorkerRole hosted service on the Azure Management Portal.
- C. You should consider downloading the .pfx file from the Certificates section of the TranscodeWorkerRole hosted service on the Azure Management Portal.
- D. You should consider uploading the .pfx file to the Certificates section of the TranscodeWorkerRole hosted service on the Azure Management Portal.

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**QUESTION 2**

**Question 2**

You have been instructed to maximize performance for users who download audiovisual media via

HTTP clients that support different content encodings by configuring caching on the DownloadAudiovisualMedia action.

You want to write code to include the necessary attribute.

Which of the following is a property that should be included in your code?

- A. The VaryByControl property.
- B. The VaryByCustom property.
- C. The VaryByHeader property.
- D. The VaryByParam property.

E. The VaryByContentEncoding property.

**Correct Answer:** E

**Section:** [none]

**Explanation**

**Explanation/Reference:**

### **QUESTION 3**

#### **Question 3**

You have received instructions to create a new authentication strategy. The new strategy must make use of an HTTP header value. Furthermore, you are informed that the operation of the current authentication strategy should not be disrupted.

After creating the new strategy, you are required to apply it.

Which of the following actions should you take? (Choose all that apply.)

- A. You should consider creating a class based on the AuthorizeAttribute class.
- B. You should consider creating a class based on the AuthorizationContext class.
- C. You should consider checking for a valid HTTP header value in the AuthorizeCore method.
- D. You should consider checking for a valid HTTP header value in the OnAuthorization method.
- E. You should consider checking for a valid HTTP header value in the OnCacheAuthorization method.

**Correct Answer:** AC

**Section:** [none]

**Explanation**

**Explanation/Reference:**

### **QUESTION 4**

#### **Question 4**

You have received instructions to improve the execution of the audiovisual media transfer.

You are preparing to write the necessary code.

Which of the following actions should you take?

- A. You should consider making use of the DeflateStream Class.

- B. You should consider making use of the ZipArchive Class.
- C. You should consider making use of the ZipFile Class.
- D. You should consider making use of the GZipStream Class.

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 5**

### **Question 5**

You have received instructions to make sure that the utility registration occurs in accordance with its license.

To achieve this, you are preparing to write code that includes a method in the TranscodeWorkerRole class.

Which of the following is a process method that should be included in your code?

- A. The OnExited method.
- B. The WaitForExit method.
- C. The WaitForInputIdle method.
- D. The Kill method.

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 6**

### **Question 6**

You have been tasked with making sure that, prior to the worker role launching, the utility is implemented.

Which of the following actions should you take?

- A. You should consider configuring a startup task.
- B. You should consider configuring a task schedule.



- C. You should consider manually implementing the utility every time you log on.
- D. You should consider configuring a logon script.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 7**

### **Question 7**

You are instructed to make sure that the deletion of audiovisual media is not dependent on browser ability.

Which of the following actions should you take?

- A. You should consider writing code to create a SendSync method.
- B. You should consider writing code to create a SendAsync method.
- C. You should consider writing code to create a RetrieveAsync method.
- D. You should consider writing code to create a RetrieveSync method.

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## Question Set 4

### QUESTION 1

#### Question 5

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You are in the process of creating unit tests that makes use of sealed classes. You want to make sure that dependencies in the unit tests are suitably created, maintained, and injected.

You want to configure the use of a suitable isolation method.

Which of the following actions should you take?

- A. You should consider making use of counterfoil type isolation methods.
- B. You should consider making use of remnant type isolation methods.
- C. You should consider making use of shim type isolation methods.
- D. You should consider making use of stump type isolation methods.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

### QUESTION 2

#### Question 6

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You are making use of Visual Studio 2012 to create a new ASP.NET MVC application for PassGuide.com. Upon initialization of the application, you find that exceptions are thrown and handled.

You are required to find out what the state of the application is at the time of the exception being thrown. You should consider selecting Exceptions from the DEBUG menu in Visual Studio 2012.

Which of the following actions should you take? (Choose all that apply.)

- A. You should also consider selecting the User-unhandled check box for Common Language Runtime Exceptions option.
- B. You should also consider selecting the Usehandled check box for Common Language Runtime Exceptions option.
- C. You should also consider de-selecting the User-unhandled check box for Common Language Runtime Exceptions option.

D. You should also consider de-selecting the User-unhandled check box for Common Language Runtime Exceptions option.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

Explanation:

### **QUESTION 3**

#### **Question 7**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You are making use of Visual Studio 2012 to create a new ASP.NET MVC application for PassGuide.com. The new application should be installed on PassGuide.com servers located on various networks. Furthermore, the application should be configured to collect news articles for users to browse. The application should, therefore, be accessible via various browsers to allow users to search the site.

You have been instructed to make sure that the page numbers viewed by users in the search results are tracked. To do this, you are required to make sure that the location for storing state data, with reference to the user's search, is configured.

Which of the following actions should you take?

- A. You should consider storing search terms and page index by making use of Query.
- B. You should consider storing search terms and page index by making use of String.
- C. You should consider storing search terms and page index by making use of QueryString.
- D. You should consider storing search terms and page index by making use of Search.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

### **QUESTION 4**

#### **Question 8**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You are making use of Visual Studio 2012 to create a new ASP.NET MVC application for PassGuide.com. PassGuide.com has a web farm that will host the new application.

You have been informed that the application should allow for web server failures to be handled without much fuss. Furthermore, state data should be shared between the farm servers.

You are preparing to persist the application state during the session.

Which of the following actions should you take?

- A. You should consider making use of a state server.
- B. You should consider making use of a global catalog server.
- C. You should consider making use of a file server.
- D. You should consider making use of a database server.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 5**

### **Question 9**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You are making use of Visual Studio 2012 to create a new ASP.NET MVC application for PassGuide.com. The application will present data that updates on a regular basis.

You have been instructed to make sure that the data is presented in instantaneously. To achieve this, you are required to remove redundant header data, and reduce latency. You also have to transfer information via a full-duplex link.

Which of the following actions should you take on the client and the server?

- A. You should consider making use of Named Pipes protocol.
- B. You should consider making use of Virtual Interface Adapter (VIA) protocol.
- C. You should consider making use of WebSockets protocol.
- D. You should consider making use of TCP/IP protocol.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**QUESTION 6**

**Question 10**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You have been tasked with developing a distributed application for PassGuide.com. The application will be installed on the Windows Azure platform, and should allow for the storage of an insignificant number of unprotected global data.

You want to configure the use of a server-side state management option that makes use of the `NetDataContractSerializer` class for session state serialization internally. The option also supports simultaneous access to the same set of session state for multiple readers and a single writer.

Which of the following actions should you take?

- A. You should consider making use of Session state.
- B. You should consider making use of Windows Azure session state.
- C. You should consider making use of Control state.
- D. You should consider making use of View state.

**Correct Answer: B**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

**QUESTION 7**

**Question 11**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You are making use of Visual Studio 2012 to create a new ASP.NET MVC application for PassGuide.com. You have configured the application to include pages for Windows Phone 7 users to browse the site.

You have been instructed to make sure that the application is updated to allow Windows Phone 7 users to accurately view the modified files.

You are required to update a specific method.

Which of the following is the method that should be updated?

- A. The Application.OnLaunched method.
- B. The Application.Start method.
- C. The Application.OnFileActivated method.
- D. The OnSearchActivated.Start method.

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 8**

### **Question 12**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You are making use of Visual Studio 2012 to create a new ASP.NET MVC web application for PassGuide.com. You have been instructed to make sure that users can only insert JavaScript into a feedback text box.

You want to make sure that HTTP request values can be accessed without triggering request validation.

Which of the following actions should you take?

- A. You should consider making use of the HttpRequest.HttpChannelBinding property.
- B. You should consider making use of the HttpRequest.QueryString property.
- C. You should consider making use of the HttpRequest.Unvalidated property.
- D. You should consider making use of the HttpRequest.AnonymousID property.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 9**

### **Question 13**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You are making use of Visual Studio 2012 to create a new ASP.NET MVC web application for PassGuide.com. PassGuide.com has a web farm that will host the

new application.

You are informed that passwords should be saved in the web.config file, and should be encrypted in such a way that it is not readable, or in a format that is easily decodable.

Which of the following actions should you take?

- A. You should consider making use of the Aspnet\_regiis.exe command-line tool.
- B. You should consider making use of the Aspnet\_Ipconfig.exe command-line tool.
- C. You should consider making use of the Aspnet\_Regsvr32.exe command-line tool.
- D. You should consider making use of the Aspnet\_reg.exe command-line tool.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 10**

### **Question 14**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You are making use of Visual Studio 2012 to create a new ASP.NET MVC web application for PassGuide.com. The application makes use of claims-based authentication for user authentication.

You are instructed to make sure that the application supports the Windows Azure Access Control Service, and makes use of Windows Identity Foundation 4.5.

You need to write the necessary code to apply authentication.

Which of the following actions should you take?

- A. You should consider making use of the IClaimsPrincipal interface.
- B. You should consider making use of the IClaimsIdentity interface.
- C. You should consider making use of the ClaimsAuthorizationManager class.
- D. You should consider making use of the ClaimsAuthenticationManager class

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**QUESTION 11**

**Question 15**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You are making use of Visual Studio 2012 to create a new ASP.NET MVC application for PassGuide.com. You want to make sure that a Microsoft SQL Server database is configured to host membership data.

You are required to configure the use of a membership provider.

Which of the following are membership providers that ships with ASP.NET? (Choose two.)

- A. A membership provider that makes use of Microsoft SQL Server as a data source.
- B. A membership provider that makes use of Oracle as a data source.
- C. A membership provider that makes use of Windows Active Directory.
- D. A membership provider that makes use of a user database as a data source.

**Correct Answer:** AC

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**QUESTION 12**

**Question 16**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You have been tasked with developing a distributed application for PassGuide.com. The application should allow for the storage of an insignificant number of unprotected global data. Furthermore, you are informed that modifications to the unprotected global data rarely occur.

Which of the following actions should you take?

- A. You should consider making use of View state.
- B. You should consider making use of Control state.
- C. You should consider making use of Application state.
- D. You should consider making use of Windows Azure session state.



**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

### **QUESTION 13**

#### **Question 17**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You are making use of Visual Studio 2012 to create a new ASP.NET MVC application for PassGuide.com. You have been instructed to make sure that an ASP.NET membership database is used to authenticate clients.

Which of the following actions should you take?

- A. You should consider making use of Digest authentication.
- B. You should consider making use of Forms authentication.
- C. You should consider making use of Anonymous authentication.
- D. You should consider making use of Basic authentication.

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

### **QUESTION 14**

#### **Question 18**

You are employed as a developer at PassGuide.com. PassGuide.com has a single ActiveDirectory domain, named PassGuide.com.

You are making use of Visual Studio 2012 to create a new ASP.NET MVC application for PassGuide.com. The application is configured to include pages for Windows Phone 7 users. These pages contain the \_Layout.WP7.cshtml and Index.WP7.cshtml files.

You are required to make sure that the application suitably presents the files to Windows Phone 7 users. You therefore need to update the application.

Which of the following actions should you take?

- A. You should consider updating the Application\_Start method.
- B. You should consider updating the Application\_OnLaunched method.
- C. You should consider updating the Application\_OnSearchActivated method.
- D. You should consider updating the Application\_OnFileActivated method.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 15**

### **Question 19**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You make use of Visual Studio 2012 to create new ASP.NET MVC web applications for PassGuide.com.

You are currently running a training exercise for junior developers. You are discussing an HttpRequest property that returns the physical file system path that matches the requested URL.

Which of the following is the property being discussed?

- A. The HttpRequest.PhysicalPath property.
- B. The HttpRequest.Path property.
- C. The HttpRequest.PathInfo property.
- D. The HttpRequest.PhysicalApplicationPath property.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 16**

### **Question 20**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You make use of Visual Studio 2012 to create new ASP.NET MVC web applications for PassGuide.com.

You are currently running a training exercise for junior developers. You are discussing an HttpRequest property that Gets or sets the character set of the entity-body.

Which of the following is the property being discussed?

- A. The Cookies property.
- B. The ContentLength property.
- C. The ContentEncoding property.
- D. The ContentType property.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 17**

### **Question 21**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You make use of Visual Studio 2012 to create new ASP.NET MVC web applications for PassGuide.com.

You are currently running a training exercise for junior developers. You are discussing the UserHostName HttpRequest property.

Which of the following describes the purpose of this property?

- A. It returns the raw user agent string of the client browser.
- B. It returns the IP host address of the remote client.
- C. It returns a sorted string array of client language preferences.
- D. It returns the DNS name of the remote client.

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**QUESTION 18****Question 22**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You make use of Visual Studio 2012 to create new ASP.NET MVC web applications for PassGuide.com.

You are currently running a training exercise for junior developers. You are discussing a SessionState mode that stores session state in memory on the Web server.

Which of the following is the SessionState mode being discussed?

- A. The In-process mode.
- B. The Off mode.
- C. The SQLServer mode.
- D. The StateServer mode.
- E. The Custom mode.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**QUESTION 19****Question 26**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You make use of Visual Studio 2012 to create new ASP.NET MVC web applications for PassGuide.com.

You are currently running a training exercise for junior developers. You are discussing the HttpWorkerRequest methods. You are currently dealing with a method that returns all nonstandard HTTP header name-value pairs.

Which of the following is the method being discussed?

- A. GetUnknownRequestHeaders.
- B. GetUnknownRequestHeader.
- C. GetKnownRequestHeaderName.
- D. GetKnownResponseHeaderIndex.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## **QUESTION 20**

### **Question 27**

You are employed as a developer at PassGuide.com. PassGuide.com has a single Active Directory domain, named PassGuide.com.

You make use of Visual Studio 2012 to create new ASP.NET MVC web applications for PassGuide.com.

You are currently running a training exercise for junior developers. You are discussing a class that converts task-returning asynchronous methods into methods that use the asynchronous programming model used in previous versions of ASP.NET.

Which of the following is the class being discussed?

- A. The EventHandlerTaskAsyncHelper class.
- B. The HttpServerUtilityBase class.
- C. The HttpRuntime class.
- D. The HttpResponse class.

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

## Question Set 1

### QUESTION 1

#### Question 1

You are designing an application in which a section of the main page will be populated by content from a third-party provider. You do not have control over the responsiveness of the client or how much information will be returned with each request.

The call is to a RESTful service and will return the information formatted in Extensible Markup Language (XML). What is the best way to implement this application?

- A. Design a model that handles the data call to populate the model. Create a partial view containing only this display area and put an asynchronous service call that returns this model in the partial view controller.
- B. Put a synchronous service call into the main page controller.
- C. Create a partial view containing only this display area and put a synchronous service call in the partial view controller.
- D. Create a partial view containing only this display area and put an asynchronous service call in the partial view controller.

**Correct Answer:** A

**Section:** [none]

**Explanation**

#### Explanation/Reference:

**A. Correct:** Because you do not have control over the responsiveness of the third-party provider and you do not know how much data might be returned from each call, you should wrap the call in the asynchronous framework. Providing the data in a strongly-typed model gives it more flexibility than working with the raw XML on the client side.

**B. Incorrect:** You do not know how long the call to the third party will take, and putting a synchronous call into the main page will not give any response until the call is completed.

**C. Incorrect:** You do not want to use a synchronous call in this case due to the unknown response time.

**D. Incorrect:** Although you can take this approach, it infers that you will manipulate the third-party response data in either the controller or the view. SoC recommends that this manipulation occur in a model.

1.1.1

### QUESTION 2

#### Question 2

You have been given requirements for a dashboard page that will contain summary information from your order processing system in a single display table.

However, this summarization needs to be done by combining data requests from the order system, the shipping system, and the accounting system. The dashboard page will be the only place you use this combined data. What is the best way to implement this requirement?

- A. Make the various data requests and compile the information in the controller for display.
- B. Create an individual model for each of the data requests, and then create a view-specific model that calls those models and merges the data.

- C. Create a model for the summary data and handle the various data requests within that model as well as the merging of the data.
- D. Create an individual model for each of the data requests and then merge the data on the client side for display.

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** You should not perform any data manipulation in the controller.

**B. Correct:** You will have a better chance of code reuse if you break down the separate calls into their own models and then create another model to pull them together and compile them.

**C. Incorrect:** Although this would be a plausible way to implement the solution, it is not the best. If any other work came up that uses any of the calls within this model, you will either have to refactor the code to extract it at that point or have duplicate code.

**D. Incorrect:** The fact that this data can be merged into a single table display shows there is some intrinsic business worth to the information in this format. Merging on the client side goes against SoC considerations.

1.1.2

### QUESTION 3

#### Question 3

A significant change has been requested in an application maintained within your company. The application is a classic ASP application that uses custom Open Database Connectivity (ODBC) drivers to connect to a relational data repository on a mainframe computer. The CIO decided that the company needs to replace this 30-year-old system. The team that worked on the original project is made up of developers who have never worked with an object-oriented approach before.

Which approaches would be the best to use when designing your initial schema in Entity Framework? (Choose all that apply.)

- A. Create your own custom design because it's too much work to manage an inexperienced staff.
- B. Use Code First.
- C. Use Model First.
- D. Use Database First.

**Correct Answer:** CD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** You should incorporate your team into the project as soon as possible.

**B. Incorrect:** Because the team has no experience with object-oriented programming, the Code First approach is unlikely to be the most efficient way to create the new schema.

**C. Correct:** The use of the Entity Designer as an integral component in the Model First approach will help unfamiliar users to walk through the process.

**D. Correct:** There is already a working relational database for the application, although it is in a system that will be replaced. A port of the design should be considered.

1.1.3

#### QUESTION 4

##### Question 4

You are designing an application that allows employees to change their human resources (HR) information, such as next of kin and direct deposit information. The requirements state that the application should talk directly to the HR systems' database.

However, at a recent company meeting, the CFO announced that the company will be converting to a new HR system over the next two years. They will take an additional year to move employees to the new system, one department at a time. How will this affect your design?

- A. It won't; the requirements state that the application should talk directly to the HR systems' database.
- B. You should ensure your naming convention for the database as clearly as possible so you can rework your data calls with minimal changes.
- C. You should implement the Repository pattern with the current HR system being the first repository that is built. When the second system comes online, you implement that data access using the same pattern.
- D. You should map the model directly to the database calls, anticipating that you will have to change the model as the new system rolls out.

**Correct Answer:** C

**Section:** [none]

**Explanation**

##### Explanation/Reference:

**A. Incorrect:** It is the designer's job to ensure that any known enhancements or future changes are accounted for. Although this approach follows the requirements, it is not the best long-term solution.

**B. Incorrect:** This solution does not provide the proper level of abstraction; it requires either a "one or the other" approach to supporting the HR system, or an approach in which you have to manage which database you are calling from within each data call.

**C. Correct:** Using the Repository pattern will give you a level of abstraction into the data layer. When you create the second data access component for the new HR system, you can then differentiate on a user or departmental level which implementation to use.

**D. Incorrect:** This solution does not provide the proper level of abstraction; it requires either a "one or the other approach" to supporting the HR system, or an approach in which you have to manage which database you are calling from within each data call.

1.1.4

#### QUESTION 5

##### Question 5

You are developing an application. One requirement is that part of your data access layer needs to be available to a third party, that wants to get this information from a REST URL in XML.

Your company does not have experience with web services, but you have several websites running ASP.NET MVC 4. How could you design and provide these new



services? (Choose all that apply.)

- A. Task an individual on staff to learn WCF, and have this individual develop and deploy these new services using WCF.
- B. Use the Web API to create REST services using ApiController in which the serialization type is defined by the Accepts property of the browser.
- C. Build a basic ASP.NET MVC 4 project in which the view simply passes through the information provided by the controller, and the controller manages the code for serializing the response.
- D. Create an ASP.NET ASMX services file to get, serialize, and return the data.

**Correct Answer:** BC

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** Although you would eventually be able to get a WCF REST services, it would not be efficient.

**B. Correct:** Using the Web API is a straightforward way to present REST services.

**C. Correct:** Using ASP.NET MVC is another way to create a controller that will return XML.

**D. Incorrect:** An ASMX web service is SOAP-based, not REST-based.

1.2.1

## QUESTION 6

### Question 6

How could you traditionally consume an ASMX web service from your application? (Choose all that apply.)

- A. Generate a proxy by selecting Add Reference In Visual Studio.
- B. Create an HttpService and connect using Get(URL).
- C. Generate a proxy by selecting Add A Service Reference in Visual Studio.
- D. Create a WCF proxy class.

**Correct Answer:** BC

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** Selecting Add Reference does not enable you to create a proxy.

**B. Correct:** *HttpService.Get* gets the output of a REST service.

**C. Correct:** Visual Studio creates a proxy for you from the WSDL at the site you select.

**D. Incorrect:** A WCF proxy class needs endpoints and bindings. REST services do not use, nor understand, WCF endpoints and bindings.

1.2.2

## QUESTION 7

### Question 7

What are examples of hybrid applications using Windows Azure? (Choose all that apply.)

- A. An application where the local network hosts the IIS server while the database is being run from the corporate IT office
- B. An application where Windows Azure is used to host the IIS process, and Windows Azure SQL is used to store the data
- C. An application where the IIS process is run on a local web server, whereas the data is stored in Windows Azure SQL
- D. An application where the web part of the application is run on Windows Azure, whereas the confidential data is stored in the company's network

**Correct Answer:** CD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** Both the web application and the database storage are being run from within the company network. Although this is a distributed design, it is not a hybrid application.

**B. Incorrect:** Both the web instance and the data repository are using Windows Azure technology. This is not a hybrid app; it is a fully deployed Windows Azure application.

**C. Correct:** Part of the application is being run in the Windows Azure environment; the other part is being run in the corporate network environment.

**D. Correct:** Part of the application is being run in the Windows Azure environment; the other part is being run in the corporate network environment.

1.2.3

## QUESTION 8

### Question 8

What occurs if an unhandled error is fired on a startup task?

- A. The startup role consumes the error during its load; if there is no event handler configured, it is set to Handled as the task completes.
- B. The startup is cancelled and the role does not start.
- C. The OnStop method automatically runs.
- D. The startup task goes to the lowest security setting and continues to run, if possible.

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** If the startup task fires an unhandled error, the role startup stops in a failure. The task will not complete successfully.

**B. Correct:** The task will stop processing and return a non-zero value.

**C. Incorrect:** The task will stop in error. The *OnStop* process will not run because the role will not get that far.

**D. Incorrect:** The task will stop processing. It will not try to continue to run on a lower security setting.

1.3.1

## QUESTION 9

### Question 9

AppCmd.exe is an application that helps you work with which objects? (Choose all that apply.)

- A. *Site*
- B. *Users*
- C. *Config*
- D. *App*

**Correct Answer:** ACD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Correct:** AppCmd.exe enables the configuration of virtual sites.

**B. Incorrect:** There is no capability to manage users in AppCmd.exe.

**C. Correct:** AppCmd.exe supports the administration of general configuration sections.

**D. Correct:** AppCmd.exe manages the support of applications.

1.3.2

## QUESTION 10

### Question 10

Which of the following are valid reasons for overriding the Run method? (Choose all that apply.)

- A. Creating and starting a messaging service that will work in parallel with the Web role to manage queued messages
- B. Creating an always-running service that periodically makes HTTP calls to other websites to determine their availability
- C. Managing error handling for the application

D. Starting and supporting a logging application for use by the Worker role

**Correct Answer:** ABD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Correct:** Creating and running an application in parallel is what the *Run* method was designed to allow.

**B. Correct:** The polling service is a good example of an activity in which the *Run* method enables a process to work independently of the main role.

**C. Incorrect:** The error handling will be managed in the *OnError* event and will not involve the overridden *Run* method.

**D. Correct:** Creating and running an application in parallel is what the *Run* method was designed to allow.

1.3.3

## QUESTION 11

### Question 11

You are designing an ASP.NET MVC 4 application that uses an Oracle database for persistence. What session configuration choices enable you to deploy your application on a web farm? (Choose all that apply.)

A. InProc

B. SQLServer

C. StateServer

D. Custom session provider

**Correct Answer:** CD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** InProc does not support web farms as session items are stored only in the individual server's memory.

**B. Incorrect:** SQLServer is not available in the application stack. This means that using the default SQLServer state is not possible.

**C. Correct:** Using a shared state server across the web farm is an available option. Using a state server designates one server to maintain state for all the servers that connect to it.

**D. Correct:** A custom session provider enables you to maintain state as necessary by doing the work in your custom code. It is generally used when you try to use a different RDBMS system or when you do not want to use the default session database design.

1.4.1

## QUESTION 12

### Question 12

You are creating an ASP.NET MVC 4 web application that will be accessed by a large number of traditional consumers. If you need to be able to access state

information on the client side in JavaScript/jQuery, where can you store it? (Choose all that apply.)



<http://www.gratisexam.com/>

- A. *localStorage*
- B. *QueryString*
- C. *ViewState*
- D. *Cookies*

**Correct Answer:** BD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** *localStorage* is HTML5 and is not available in all browsers.

**B. Correct:** *Query string* information is available across all browsers and is usable on both the client and server.

**C. Incorrect:** Although *ViewState* is available in a form field on the page, it is encrypted and cannot be used on the client side. It is also not used by many ASP.NET MVC 4 constructs.

**D. Correct:** Cookies can be stored for a period of time on the client and be read from either client- or server-side operations.

1.4.2

### QUESTION 13

#### Question 13

As you design a sessionless state management system, what do you need to ensure that your application manages? (Choose all that apply.)

- A. Access to the state management system, whether it is a database, a web service, or other type of system
- B. The HTTP headers
- C. The session setting within the Web.config file
- D. An identifier used by the server to identify the request

**Correct Answer:** AD

**Section:** [none]

<http://www.gratisexam.com/>

## Explanation

### Explanation/Reference:

- A. Correct:** Your application needs to manage whatever information might be required to access the state management system.
- B. Incorrect:** The HTTP headers are usually not used as part of state management.
- C. Incorrect:** Because your application is sessionless, there is no need to manage session in the Web.config file.
- D. Correct:** Your application needs to manage the passing of the identifier between requests.

1.4.3

## QUESTION 14

### Question 14

You are designing a work order management application for a mid-size repair company. The application will be used by repair personnel in the field on their laptops with wireless phone connections. The connections are slow, and the laptops are several years out of date. There will never be more than 15 users at any one time, and rarely more than 2 concurrent users.

What kind of caching will give the repair personnel a better user experience? (Choose all that apply.)

- A. Page output caching
- B. Application caching
- C. Data caching
- D. HTTP caching

**Correct Answer:** AD

**Section:** [none]

### Explanation

### Explanation/Reference:

- A. Correct:** Page output caching will cache content at the client side to eliminate some of the required downloads. It is useful in a limited bandwidth environment. It can also be used in donut hole and donut caching scenarios for partial client-side caching.
- B. Incorrect:** Application caching is an HTML5 feature, and it is unlikely that the older laptops will be able to support the feature.
- C. Incorrect:** Data caching might decrease some server time, but with the limited number of users, it is unlikely that the data access would be an issue.
- D. Correct:** HTTP caching will help response time even though there is not much a developer needs to do to implement the caching.

1.5.1

## QUESTION 15

### Question 15

You are creating a solution in which the majority of the application is dynamic, but some areas can be cached for a long time. What kind of approach would you take? (Choose all that apply.)

- A. Data caching
- B. Donut hole caching
- C. Donut caching
- D. Windows AppFabric caching

**Correct Answer:** BC

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** Although data caching can add some support in a highly dynamic situation, it does not support the capability to have long-term caching.

**B. Correct:** Donut hole caching provides the ability to cache parts of each page.

**C. Correct:** Donut caching is another approach that gives the ability to cache parts of the application.

**D. Incorrect:** AppFabric caching would provide some support in a highly dynamic situation, but it does not suit the need to store some of the page output.

1.5.2

## QUESTION 16

### Question 16

You are adding a reporting vertical to an enterprise application. Many of the reports will be run every morning by a set of users. Some of the reports will be identical as every member of a team will get the same report sometime in the morning. What kind of caching will provide an improvement in performance? (Choose all that apply.)

- A. Data caching
- B. Page output caching with a duration of two minutes
- C. Page output caching with a duration of four hours
- D. Windows AppFabric caching

**Correct Answer:** ACD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Correct:** Data caching with the appropriate timeout will enable the data needed for the reports to be stored so that the call to the database is not necessary.

**B. Incorrect:** Although a page output caching would be useful, the short time frame of two minutes means that the cache will likely expire before the next user requests the page.

**C. Correct:** A page output caching of four hours caches the output of the report for the whole morning and should eliminate the need for the report to be run a second time.

**D. Correct:** AppFabric caching acts much like data caching to eliminate the need for additional calls to the database to generate the reports.

1.5.3

### QUESTION 17

#### Question 17

What is the technique in which the client sends a request to the server, and the server holds the response until it either times out or has information to send to the client is?

- A. HTTP polling
- B. HTTP long polling
- C. WebSockets
- D. HTTP request-response

**Correct Answer:** B

**Section:** [none]

**Explanation**

#### Explanation/Reference:

**A. Incorrect:** In HTTP polling, the client sends a request to the server, and as soon as the response is returned, it sends a new request.

**B. Correct:** In HTTP long polling, the client sends a request to the server, and the server holds it open until it either has something to return to the client or the connection times out.

**C. Incorrect:** WebSockets are a way for two-way communication between the client and the server. The server does not hold onto the response.

**D. Incorrect:** The request-response path is a traditional HTTP connection.

1.6.1

### QUESTION 18

#### Question 18

You are building an application in which you want to display updated information to a website every 15 minutes. What are efficient ways to manage the update? (Choose all that apply.)

- A. WebSockets
- B. HTTP polling with 1-minute intervals
- C. HTTP long polling
- D. HTTP polling with 15-minute intervals

**Correct Answer:** AD

**Section:** [none]

**Explanation**

#### Explanation/Reference:



- A. Correct:** WebSockets can be used to pass information between the client and server.
- B. Incorrect:** HTTP polling can provide the need, but the 1-minute refresh interval would not be efficient.
- C. Incorrect:** HTTP long polling is not a valid strategy. The typical timeout on a single request is less than 15 minutes, and chaining multiple requests to get the 15-minute timespan is resource intensive.
- D. Correct:** HTTP polling with 15-minute intervals is a valid way to get the information within the required time frame.

1.6.2

## QUESTION 19

### Question 19

What is the first request sent to start HTTP polling?

- A. HTTP DELETE
- B. HTTP GET
- C. HTTP CONNECT
- D. Upgrade request

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

- A. Incorrect:** HTTP DELETE is not used to start the WebSocket connection; it is instead used to perform a delete on a discrete item.
- B. Correct:** The first request to open a WebSocket connection is a standard HTTP GET. After the request is received, the browser sends a separate upgrade request.
- C. Incorrect:** HTTP CONNECT converts the request connection to a transparent TCP/ IP tunnel.
- D. Incorrect:** The upgrade request is sent after the server has responded to an HTTP GET request.

1.6.3

## QUESTION 20

### Question 20

In an HTTP module, can you redirect the request to a different handler than is in the routing table? If so, what event would you handle?

- A. Yes, and you handle the *PostAuthorizeRequest* event.
- B. No, after the request starts into the process, it either continues through to the mapped handler or throws an error.
- C. Yes, and you handle the *MapRequestHandler* event.
- D. Yes, and you handle the *ReleaseRequestState* event.

**Correct Answer:** C

**Section: [none]**

**Explanation**

**Explanation/Reference:**

- A. Incorrect:** The *PostAuthorizeRequest* event is thrown before the handler is mapped.
- B. Incorrect:** You can handle the mapping of the request in the *MapRequestHandler*.
- C. Correct:** You handle the mapping of the request in the *MapRequestHandler*.
- D. Incorrect:** The *ReleaseRequestState* is thrown after the handler has completed.

1.7.1

## QUESTION 21

### Question 21

When you are creating a custom handler, what is the parameter being passed into the *ProcessRequest* method?

- A. *object, EventArgs*
- B. *HttpApplication*
- C. *HttpContext*
- D. *Object*

**Correct Answer: C**

**Section: [none]**

**Explanation**

**Explanation/Reference:**

- A. Incorrect:** *object, EventArgs* are the parameters used for the event handlers thrown during the startup process. The event handlers are assigned in the *Init* method.
- B. Incorrect:** *HttpApplication* is the parameter used in the *Init* method.
- C. Correct:** The *ProcessRequest* method takes the *HttpContext* parameter.
- D. Incorrect:** There are no default methods that just accept an object parameter.

1.7.2

## QUESTION 22

### Question 22

What is the best way to intercept every request for an image on your site and ensure that a watermark is added to the image?

- A. An HTTP module handling the *AuthorizeRequest* event
- B. A custom HTTP handler set to handle .htm and .html pages
- C. A custom HTTP handler configured to serve .png and .jpg files

D. An HTTP module handling the *PostRequestHandlerExecute* event

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** A module is not the best way to handle the request because it would have to deal with every HTTP request rather than just the image calls.

**B. Incorrect:** Serving .htm and .html pages will not create watermarks on image files.

**C. Correct:** Intercepting every request for .jpg and .png files is the easiest way to consistently add watermarks to the images.

**D. Incorrect:** A module is not the best way to handle the request because it would have to deal with every HTTP request rather than just the image calls.

1.7.3

## QUESTION 23

### Question 23

Layout.cshtml and Site.Master are the two default template pages in ASP.NET MVC. Which of the following scenarios would best be solved using a single layout or master template? (Choose all that apply.)

- A. Your application has a requirement to display a menu section that changes based on the area of the application the user is visiting.
- B. Each content area on your page needs a header that displays the company's branded color and contains the first 40 characters of the content area's content followed by an ellipsis.
- C. You have created a set of styles, each in a different style sheet. The styles need to be available to every page in the application.
- D. Your application has three different default page designs: two rows of information, two columns of information, and three columns of information.

**Correct Answer:** AC

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Correct:** Adding logic to the master page to determine the menu design enables your application to display a menu section that changes based on the area of the application the user is visiting.

**B. Incorrect:** The master page does not have the capability to "look" into the content sections and select the first 40 characters.

**C. Correct:** Referencing all style pages in a single place, the layout page, is an appropriate use.

**D. Incorrect:** A master page does not control the design of the content being displayed.

2.1.1

## QUESTION 24

### Question 24

You are designing a web application. You want to create a certain look and feel while reusing styles across pages as much as possible. How should you handle styles?

- A. Use only one or two styles throughout your application to simplify maintenance.
- B. Use a specific (unique) style for every element.
- C. Use general styles for common elements and specific styles for elements that are unique.
- D. Use inline styling.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** It is unlikely that one or two styles will enable you to create the look and feel you want.

**B. Incorrect:** Using a specific style for each element will limit your ability for style reuse.

**C. Correct:** You should use general styles as much as possible. Achieving a certain look and feel means that you might have to create some specific styles, however.

**D. Incorrect:** Although inline styling will give you the most control over styling, it removes the possibility of code reuse. Design changes would be difficult to implement.

2.1.2

## QUESTION 25

### Question 25

What are compelling reasons to switch from static web content to dynamic web content? (Choose all that apply.)

- A. The ability to substitute a new image for the company logo
- B. The ability to display information from a database
- C. The ability to link to other pages outside of your application
- D. The ability to display information pertaining to the current user

**Correct Answer:** BD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** There is no need to create a dynamic website simply to replace the company logo.

**B. Correct:** Displaying data from a database is an ideal reason to use a dynamic website.

**C. Incorrect:** Linking to other pages outside of an application does not require a dynamic website.

**D. Correct:** Personalization, or displaying information about the user on-screen, is an example of dynamic content.

2.1.3

## QUESTION 26

### Question 26

You are creating an ASP.NET MVC web application. The application must accept user input for a ProductName field. To reduce delays due to invalid entries making round trips between the client and server, user input should be validated on the client before being submitted to the server. Which code segment should you choose?

- A. 

```
<div class="editor-label">
    @Html.LabelFor(model => model.ProductName)
</div>
<div class="editor-field">
    @Html.EditorFor(model => model.ProductName)
</div>
```
- B. 

```
<div class="editor-label">
    @Html.LabelFor(model => model.ProductName)
</div>
<div class="editor-field">
    @Html.ValidationMessageFor (model => model.ProductName)
</div>
```
- C. 

```
<div class="editor-field">
    @Html.EditorFor(model => model.ProductName)
    @Html.ValidationMessageFor(model => model.ProductName)
</div>
```
- D. 

```
<div class="editor-label">
    @Html.LabelFor(model => model.ProductName)
</div>
```

**Correct Answer:** C

**Section:** [none]

**Explanation**

### Explanation/Reference:

**A. Incorrect:** @Html.EditorFor only inserts data. The data is verified on the server side.

**B. Incorrect:** @Html.ValidationMessageFor displays the validation message. There is no code included in this answer choice to validate the data.

**C. Correct:** @Html.EditorFor, in combination with @Html.ValidationMessageFor, are used for client-side validation.

**D. Incorrect:** @Html.LabelFor only displays labels for the items.

2.2.1

## QUESTION 27

### Question 27

Your team is building an application and you are reviewing the functional specifications.

Your team must include a stockticker in the UI that displays the company's stock price every 15 minutes, and include the capability to do partial saves of base objects as users step through a data entry wizard.

You want to use the same approach for both requirements to make it easier to add functionality and maintain it going forward.

What approach should you use?

- A. Use JavaScript to refresh the page every 15 minutes and to manage whether wizard buttons are enabled or disabled.
- B. Use AJAX to make asynchronous calls to the server on a timer for the stock price and to automatically save the base objects as the user navigates through the wizard.
- C. Use jQuery to refresh the page every 15 minutes and to manage whether wizard buttons are enabled or disabled.
- D. Use data validation annotations on the model to ensure that the stock price is validated every 15 minutes and that the client saves the base object information after every wizard step.

**Correct Answer:** B

**Section:** [none]

**Explanation**

#### Explanation/Reference:

**A. Incorrect:** This approach will update the stockticker, but enabling and disabling the wizard buttons will not ensure that the base objects are saved.

**B. Correct:** The best way to solve this issue is to use AJAX to do asynchronous calls to check the stock price as well as manage the save process through the wizard.

**C. Incorrect:** This approach will update the stockticker, but enabling and disabling wizard buttons will not ensure that the base objects are saved.

**D. Incorrect:** Data validation annotations will not meet any of the requirements.

2.2.2

## QUESTION 28

### Question 31

You are modifying an ASP.NET MVC web application and you have created a new master layout page named `_Layout.WindowsPhone.cshtml`. You want to use that layout in a new view. Which code segment do you use?

- A. `@Html.ActionLink( "_Layout.WindowsPhone.cshtml" );`

- B. `Layout="~/Views/Shared/_Layout.WindowsPhone.cshtml";`
- C. `Layout="Layout.WindowsPhone.cshtml";`
- D. `@Html.Partial("_Layout.WindowsPhone.cshtml");`

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** `@Html.ActionLink` creates a clickable link and does not do anything to set the layout.

**B. Correct:** `Layout=""` loads the layout file to be used with that view.

**C. Incorrect:** `Layout="Layout.WindowsPhone.cshtml"` points to an incorrect view folder.

**D. Incorrect:** `@Html.Partial` loads a partial view, but does not manage the layout being used by the page.

2.3.3

## QUESTION 29

### Question 32

You want to support the Internet Explorer, Firefox, and Opera web browsers in your application. Which vendor-specific extensions do you need to include with CSS3 properties? (Choose all that apply.)

- A. `-webkit-`
- B. `-ms-`
- C. `-o-`
- D. `-hp-`
- E. `-moz-`

**Correct Answer:** BCE

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** The `-webkit-` prefix is used for Google Chrome and Apple Safari.

**B. Correct:** The `-ms-` prefix is used for Internet Explorer.

**C. Correct:** The `-o-` prefix is used for the Opera browser.

**D. Incorrect:** The `-hp-` prefix is used by Hewlett-Packard.

**E. Correct:** The `-moz-` prefix is used for Mozilla Firefox.

2.4.1

### QUESTION 30

#### Question 33

What are common methods for detecting the type of browser running on a client? (Choose all that apply.)

- A. Use JavaScript to query for the `userAgent` header.
- B. Use the `window.addEventListener` method.
- C. Use the viewport `<meta>` tag.
- D. Use the `DisplayMode` provider.

**Correct Answer:** AD

**Section:** [none]

**Explanation**

#### Explanation/Reference:

**A. Correct:** Using JavaScript to query the `userAgent` gives you information about the type of browser being used by the client.

**B. Incorrect:** The `window.addEventListener` does not give any information on the browser being used by the client, but it can be used to see whether a browser is HTML5-compliant.

**C. Incorrect:** The viewport `<meta>` tag gives access to the visible area of the device; it does not tell you anything about the device itself.

**D. Correct:** The display mode provider performs some of the analysis of the HTTP request to try and determine what kind of browser made the request.

2.4.2

### QUESTION 31

#### Question 34

You are creating a different view for each of several different browsers/devices, such as `Home.iemobile.cshtml` and `Home.IPad.cshtml`. What is the best way to implement it so your application knows to look for the specific views?

- A. Use the viewport `<meta>` tag.
- B. Add a new `DisplayModeProvider` for each of the special view types you want to support.
- C. Put logic into each action to select the appropriate view based on information in the request.
- D. You don't have to do anything. The framework automatically handles browser/device detection by reading the new extensions on the views.

**Correct Answer:** B

**Section:** [none]

**Explanation**



**Explanation/Reference:**

**A. Incorrect:** The viewport `<meta>` tag does not do any direction to views; it is strictly a client-side helper.

**B. Correct:** Adding a *DisplayModeProvider* for each type of special view, such as IEMobile or iPad, informs the framework to use those views where the context condition is fulfilled.

**C. Incorrect:** Putting logic into each action could be done, but it would be time-consuming and difficult to maintain. The *DisplayModeProvider* does the work for you in the background and eliminates the need for special code.

**D. Incorrect:** The framework does not make any assumptions by itself; it only knows what to do based on configurations that it has been given.

2.4.3

**QUESTION 32****Question 35**

You are creating an ASP.NET MVC web application, and you decide to create a new layout for mobile devices with relatively small screens. Which `@media` query should you create or modify to accomplish the task? (Choose all that apply.)

- A. `@media (max-width:768px)`
- B. `@media (max-width:478px)` and `(orientation:portrait)`
- C. `@media (min-width:768px)` and `(orientation:portrait)`
- D. `@media (min-width:1200px)`

**Correct Answer:** AB

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Correct:** This allows for devices with a maximum width of 768 pixels.

**B. Correct:** This allows for devices with a maximum width of 478 pixels in portrait view, such as tablets.

**C. Incorrect:** The screen resolution is too large for a typical mobile device.

**D. Incorrect:** The screen resolution is too large for a typical mobile device.

2.5.1

**QUESTION 33****Question 36**

You are modifying an existing ASP.NET MVC web application to incorporate mobile access. What should you do to ensure that mobile devices view mobile-only pages? (Choose all that apply.)

- A. Run the `Install-Package jQuery.Mobile.MVC` command using the Package Manager console.
- B. Create a `_Layout.Mobile.cshtml` master layout page.
- C. Create additional views with `.Mobile`, such as `Index.Mobile.cshtml`.

D. Create additional views with .Mobile, such as Index.Mobile.cshtml as well as a \_Layout.Mobile.cshtml master layout page.

**Correct Answer:** AD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Correct:** This installs all the necessary mobile packages.

**B. Incorrect:** You need the additional views made for mobile calling the master layout.

**C. Incorrect:** Just the views alone do not work; you need the master layout as well.

**D. Correct:** All mobile views and mobile master layout ensure that the page will load accordingly.

2.5.2

#### QUESTION 34

##### Question 37

You are modifying an ASP.NET MVC web application for a client. The client requires that the application must be viewable on Android devices in a UI format native to the device. What should you do? (Choose all that apply.)

A. Run the *Install-Package jQuery.Mobile.MVC* command using the Package Manager console.

B. Create a viewport and use @media queries to make styles that are specific for Android.

C. Create corresponding mobile views for the project targeted toward Android.

D. Modify the Web.config file in Shared views in the project to add in support for other browsers.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** Simply installing the jQuery Mobile package does not provide support for Android-specific browsers. It enables the application to use the package.

**B. Incorrect:** By using @media queries and viewport, you can create an Android-readable website, but it won't give an Android-specific UI.

**C. Correct:** Additional views must be created or ported to fit the smaller layout.

**D. Incorrect:** You do not have to modify the Web.config file.

2.5.3

#### QUESTION 35

##### Question 38

You have been asked by the marketing department to help improve your company's ranking in search engine results. They are particularly concerned about a section of the site that is highly interactive, with extensive mouse-over color, background, and text changes.

Without looking at the code, what is the most likely reason for ranking low in search engine results?

- A. Unclosed HTML tags
- B. Content hidden in JavaScript tags
- C. Broken links
- D. Excessive number of images

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** Although the pages might contain unclosed HTML tags, the highly interactive nature of the site indicates that the content could be in script files, and therefore hidden from the search crawler.

**B. Correct:** Text revealed by mouse-overs not being picked up by search engine crawlers indicates that content is being skipped.

**C. Incorrect:** Broken links do not slow down a crawler.

**D. Incorrect:** The presence of images does not affect the search engine crawler.

3.1.1

## QUESTION 36

### Question 39

You have been asked by a company to evaluate its web application as a user. The company wants you to review the website from outside its network and identify areas that might be problematic.

You have been asked to consider SEO and accessibility. Which tools would be helpful for your review? (Choose all that apply.)

- A. IIS SEO Toolkit
- B. Internet Explorer F12 tools
- C. IIS Logging tab
- D. Bing Webmaster Toolkit

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** The IIS toolkit requires access to the server, and your charge is to perform the assessment from outside the client's network.

**B. Correct:** The Internet Explorer F12 tool enables you view HTML and CSS code, which can help you detect structural problems or errors that might affect acces-

sibility or SEO.

**C. Incorrect:** The IIS Logging tab displays logs related to functioning of a website and also requires access to the server.

**D. Incorrect:** The Bing Webmaster Toolkit requires access to the server to put a special file on to the file system so that Bing can tie a Webmaster account to a particular site.

3.1.2

### QUESTION 37

#### Question 40

Your company has joined an industry accessibility group and you are a member. As one of your responsibilities, you have been asked to estimate the time it would take to modify your corporate site for accessibility.

What should you consider to properly estimate the required time? (Choose all that apply.)

- A. The amount of text in the website
- B. The level of current usage of HTML helpers in your views
- C. The numbers of controllers in the application
- D. The complexity of your data entry forms

**Correct Answer:** BD

**Section:** [none]

**Explanation**

#### Explanation/Reference:

**A. Incorrect:** The amount of text shouldn't affect the amount of accessibility work to be performed. The work will be the same whether there is one word in the ARIA-compliant element or 100 words.

**B. Correct:** Because ASP.NET MVC 3 HTML helpers are not ARIA compliant, you need to write custom HTML helpers or use a different process to create HTML forms.

**C. Incorrect:** The number of controllers does not affect your need to make the rendered HTML ARIA compliant.

**D. Correct:** Because many of the problems with accessibility are related to giving context to content, complex forms need a thorough review to ensure that labels and section context are provided for every element on the page.

3.1.3

### QUESTION 38

#### Question 41

You are globalizing an application and are compiling a list of items that need to be translated. Which items should be included on the list? (Choose all that apply.)

- A. Images that are used as part of the menu structure
- B. The company logo

- C. Server error-logging messages
- D. Button tooltips

**Correct Answer:** AD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Correct:** Images that are being used for menus likely have text displayed on them. That text should be localized, and extra sets of buttons might have to be created.

**B. Incorrect:** A company logo should not be changed because it provides brand awareness.

**C. Incorrect:** Server error-logging messages are not seen by the user and are instead an internal item. You should keep them in the default language.

**D. Correct:** Tooltips are supposed to give extra contextual help about the item the mouse hovers over. It is important to get them translated.

3.2.1

## QUESTION 39

### Question 42

You are creating an ASP.NET MVC website and you want to replace a `<h2>hello</h2>` tag within the view with custom resources you have created. What should you use?

- A. `<h2>@Mvcapp.Resources.Home.Index.Heading</h2>`
- B. `<h2 div="resource">Hello</h2>`
- C. `<h2 class="resource">Hello</h2>`
- D. `<h2>@Mvcapp.Resources.Home.Index.Heading Hello</h2>`

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Correct:** This is the correct way to insert resources into a view.

**B. Incorrect:** The `<div>` tag cannot be used to insert resources into a view.

**C. Incorrect:** This attempts to style the element, looking for a style named "resource."

**D. Incorrect:** Although this inserts resources into the view, it also adds *Hello* to the end of the header tag.

3.2.2

## QUESTION 40

### Question 43

You are developing an ASP.NET MVC application and you need to create satellite assemblies from resource files. What code should you use?

- A. `mage.exe /n: /embed:strings.de-DE.resources MyApp.de-DE.resources.dll`
- B. `WinRes.exe /t: embed:strings.de-DE.resources /culture:de-DE`
- C. `lc.exe strings.de-DE.resources MyApp.de-DE.resources.dll`
- D. `al.exe /t:lib /embed:strings.de-DE.resources /culture:de-DE /out:MyApp.de-DE.resources.dll`

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** Manifest Generation and Editing Tool is for creation and editing of application manifests.

**B. Incorrect:** Windows Form Resource Editor is a visual layout tool for the Windows Forms user interface.

**C. Incorrect:** License Compiler reads text license files and compiles them into binary format.

**D. Correct:** Assembly Linker generates modules or resource files.

3.2.3

#### QUESTION 41

##### Question 44

You have a set of requirements that expects a particular action to be accessed only through HTTPS by an authenticated user. What is the best way to meet these requirements?

- A. Use the *Authorize* attribute before the *RequireHttps* filter.
- B. Use the *RequireHttps* attribute before the *Authorize* filter.
- C. Use a custom action filter that combines the check for HTTPS and the check for authentication into a single filter.
- D. Use *Authorize* alone; you do not need to use *RequireHttps* separately if you already have *Authorize*, because using *Authorize* implies the use of HTTPS.

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** Although this would solve the requirements, it is not the best way. It is better to run the *RequireHttps* filter first because it expends fewer resources than the *Authorization* filter.

**B. Correct:** It filters out those users not on an SSL connection before performing the more resource-intensive authentication check.

**C. Incorrect:** A custom action filter that performs both is more complicated to write than using the standard filters provided with ASP.NET MVC.

**D. Incorrect:** A user can be authorized and not be connected over HTTPS. The two are independent and need to be treated as such.

3.3.1

#### QUESTION 42

##### Question 45

You have written a shareware application and want to sell it on your personal website. You are considering various approaches for distributing the application after users purchase it. Which of the following is the best approach?

- A. Use the *FileResult* action result to initiate the file download.
- B. Convert the application to an encoded string and provide it for download through the *ContentResult*.
- C. Create a view or partial view that contains an action link to a route in which the user can download the file.
- D. Create an email containing a link to a route from which the user can download the file.

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Correct:** The *FileResult* property was designed for this need.

**B. Incorrect:** The product being distributed is a binary file and does not successfully transition to a string format.

**C. Incorrect:** Creating a link to download the file through the application just postpones the decision until that link is clicked as it is still going through the application.

**D. Incorrect:** Creating a link to download the file in an email just postpones the decision until that link is clicked as it is still going through the application.

3.3.2

#### QUESTION 43

##### Question 46

You have been tasked with modernizing an application created in ASP 3.0. Part of one of the pages contains HTML that comes as a string from a third-party application as part of a service call that populates part of a form. The same form contains input values for your application.

You need to support the same business process as the original application, but you also want to use some MVC features. What is the approach?

- A. Create a single model containing information from your local application. Use strongly-typed binding as much as possible and manually match the rest of the fields.
- B. Create a single model for the local input fields and the service call input, and use *ToValueProvider* to map the entire object.
- C. Create a single model. Use weakly-typed binding for the form fields, and the HTML provided by the third-party application.

- D. Create a model that contains only your fields and strongly bind the fields to the model. Create a second model that maps to the fields in the imported HTML and bind to that model using *ToValueProvider*.

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** Although this could conceivably work, it has the misfortune of expecting manual mapping. It also uses the approach of a single model, and because the provided HTML input forms might change under you, it makes more sense to use two models so that the information your application controls is not affected.

**B. Incorrect:** Although this would work, it uses the single model approach. Because the provided HTML input forms can change outside of your own release cycle, it makes more sense to use two models so that the information your application controls is not affected.

**C. Incorrect:** You cannot weakly bind to the input fields provided from the third party because weakly-bound models imply that you have used an HTML helper to write the information, and you are just giving the helper a hint to the property it should map to in the model.

**D. Correct:** The key is separating your data input fields from the provided input fields. You can strongly-bind to yours because you have full control over the relationship between your model and your view, and can then use the *ToValueProvider* to merge the other model that is tied to the provided input fields.

3.3.3

#### QUESTION 44

##### Question 47

You are developing an ASP.NET MVC application. You have a set of requirements to create a help section for remote users. Your typical help scheme is help/desktop or help/mobile, so logically this section should be help/remote. The change board wants the links in the application to point to the default support site. Which code segment would you use?

- A. `routes.MapRoute(  
    name: "Default",  
    url: "{controller}/{action}/{id}",  
    defaults: new { controller = "Home",  
        action = "Index", id = UrlParameter.Optional });`
- B. `routes.MapRoute(  
    "remote",  
    "help/remote",  
    new { controller = "support", action = "Index" }  
);`
- C. `routes.MapRoute(  
    "remote",  
    "help",  
    new { controller = "support", action = "Index" }  
);`
- D. `routes.MapRoute(  
    "remote",  
    "help",  
    new { controller = "support", action = "Index" }  
);`



```
"remote",  
"remote/help",  
new { controller = "support", action = "Index" }  
);
```

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** This is a default route; it accomplishes nothing.

**B. Correct:** This is how you add an additional route and point to a different controller.

**C. Incorrect:** The URL portion of the new route does not satisfy the question being asked.

**D. Incorrect:** The URL portion of the new route is reversed.

3.4.1

## QUESTION 45

### Question 48

You are developing an ASP.NET MVC application. You noticed a bug on the DVD controller of the application. You want to ignore the DVD pages until the bug is fixed. What should you do?

A. Add *route.SetItem(route.Count, "dvd/");* to the RegisterRoute method.

B. Add *route.IgnoreRoute("dvd/");* to the RegisterRoute method.

C. Add *route.Insert(route.Count, "dvd/");* to the RegisterRoute method.

D. Add *route.Remove("dvd/");* to the RegisterRoute method.

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** *SetItem* adds an item to the collection. However, adding a route at the end of the collection does not solve the problem because it is being added as a route that should be matched.

**B. Correct:** *IgnoreRoute* is the correct statement to use.

**C. Incorrect:** *Insert* adds a new route to the collection for matching, but does not ignore pages.

**D. Incorrect:** *Remove* removes a route from the table. More than likely, this is an implied mapping, so removing the DVD route does not stop the application from mapping the request to the same action.

3.4.2

#### QUESTION 46

##### Question 49

You are the lead developer on a team that has been working on a large website for months, and several controllers are getting unwieldy. You do not have that problem with views and models because most of your communications are through AJAX to display snippets of information on the UI.

What changes can best help you solve your problem? (Choose all that apply.)

- A. Create partial classes for the controllers that have AJAX functionality to create a set of Controller.Ajax.cs files. Put the AJAX-specific functionality in those files.
- B. Create an area called AJAX. Move all controllers, models, and views into the area.
- C. Create an area called AJAX. Move the specific AJAX functionality into the Controllers directory and leave the Views and Models directories empty.
- D. Create a new ASP.NET MVC 4 application project. Move the AJAX functionality into that so that it will be more responsive.

**Correct Answer:** AC

**Section:** [none]

**Explanation**

##### Explanation/Reference:

**A. Correct:** Creating partial classes offers some relief to the problem that you are experiencing, although not as much as a more-functional separation such as offered by areas. You do not have to make any UI changes, however.

**B. Incorrect:** You do not want or need to move any views or models. The code clutter is due to the small discrete actions that support your AJAX site.

**C. Correct:** Your best move is to separate the AJAX components into an area. You would have to change all the calls to it, but you would achieve complete separation of concern for AJAX calls.

**D. Incorrect:** This would be too drastic a change. It would require a complete change, from deployment to testing, throughout the entire application stack.

3.4.3

#### QUESTION 47

##### Question 50

Your application manages the sale of expensive well-drilling equipment. Your IT director wants you to add functionality that sends an email to a customer's sales account manager whenever someone from your client company logs in to the system. What is an appropriate solution?

- A. Override the *AuthorizeAttribute* and apply it to the login action. Run the base method first to handle the authentication and then evaluate the status of the request. If the user is a customer, send the email.
- B. Create a custom action filter that is globally defined and overrides the *OnActionExecuting* method. This action filter evaluates the status of the user and sends the email if it is a customer.
- C. Override the *AuthorizeAttribute* that is applied to the login action, check for the user's authentication status, and determine whether it is a customer prior to sending it to the base authentication method.
- D. Create an action filter that overrides the *OnActionExecuted* method and apply it to the login action. This action filter evaluates the status of the user and sends

the email if it is a customer.

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** You should not have an *AuthorizeAttribute* on your login action, because it ensures that users have to be authenticated before they log in. Users can never log in to the site.

**B. Incorrect:** Because this filter is applied globally, it sends the email every time the user takes an action, rather than just once per visit.

**C. Incorrect:** You should not have an *AuthorizeAttribute* on your login action because it ensures that users have to be authenticated before they log in. Users can never log in to the site.

**D. Correct:** This is applied only because the user is leaving the login section of the application, at which point you also know whether they have been authenticated.

3.5.1

## QUESTION 48

### Question 51

You work for a financial services company that deals with many small brokers. Your executives want to be able to run a report that details all the actions taken by the brokers on the site as a form of auditing and protection. Neither the application nor system currently stores this kind of information.

Which of the following are viable solutions? (Choose all that apply.)

- A. Create a globally applied custom action filter that implements the *OnActionExecuting* method. Have it store the user, the URL, and the forms collection.
- B. Create a globally applied custom action filter that implements the *OnActionExecuting* method. Have it store the user, the URL, and the forms collection.
- C. Create a globally applied custom action filter that implements the *OnActionExecuted* method. Set the *AllowMultiple* parameter to false in the filter. Have it store the user, the URL, and the forms collection.
- D. Override the *AuthorizeAttribute* and have it store the user, the URL, and the forms collection.

**Correct Answer:** AC

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Correct:** Creating a globally applied action filter enables you to save the state of every action taken by the user while logged in to your site.

**B. Incorrect:** By setting the *AllowMultiple* to *false*, you have configured the filter to be run only once during the lifetime of the application.

**C. Correct:** By creating a globally applied action filter you have ensured that every action taken by the user will be logged.

**D. Incorrect:** Because this is applied only to the *AuthorizeAttribute*, it logs only those actions where the user has to be logged in. That enables them to take actions that might not be logged.

**QUESTION 49****Question 52**

You are adding the capability for users to customize their site's display colors. You are required to provide a slider that enables users to change each RGB element.

What can you do to ensure that this gets treated in the model and stored in the database as a single RGB color? (Choose all that apply.)

- A. Strongly bind the sliders to their own individual fields in the model. Ensure that the model unit for color only implements the GET, where you write code that concatenates the values.
- B. Create a custom model binder that knows to look for the three values and how to put them together to get the single color.
- C. Add the three different elements to the model and ensure that your update statement to the database correctly joins the elements to get the appropriate color.
- D. Create a custom model binder that evaluates the entire color customization process and binds the entire model rather than just managing a subset of the information.

**Correct Answer:** BD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** This does not easily enable saving into the database because the color itself only implements the HTTP Get.

**B. Correct:** This solution works because it combines the three discrete values into a single object on the model.

**C. Incorrect:** Although this solution gets the value into the database appropriately, it does not fulfill the requirement that the model be able to use the color as a single value.

**D. Correct:** Although it takes more work, using an approach of creating a model binder for the entire object, rather than just a part, successfully manages the need to have it in the model and in the database.

**QUESTION 50****Question 53**

You are working on a AJAX-heavy site, and your script files are separated in your solution by function. You have already implemented minification and bundling, but you are still getting reports of poor performance when users try to access your pages. You cannot replicate the problem locally.

What additional steps can you take and still provide the same user experience?

- A. Compress all scripts locally and have the users download the compressed files rather than the uncompressed files.
- B. Turn IIS compression on, turn on the option to compress dynamic pages, and set the minimum file size to 0 so that every file served will be compressed.
- C. Turn IIS compression on, disable dynamic page compression, and set the minimum file size to the size of your smallest bundled script file.

D. There is nothing more to do without redesigning the site.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** Although you might be able to minimize the size of the files being downloaded, your browser cannot open and use those files.

**B. Incorrect:** This approach minimizes the size of the files being sent to the client, but it also has a heavy cost on both server-side and client-side processing because the server tries to compress every file.

**C. Correct:** This is an appropriate next step to try to compress the script and style files being sent to the client.

**D. Incorrect:** IIS compression has not yet been tried. It makes more sense to try all other solutions before approaching a code rewrite.

3.6.1

## QUESTION 51

### Question 54

You want to implement bundling and minification in your site. What are some of the potential problems you need to be aware of? (Choose all that apply.)

- A. None; there is no condition in which this is a poor decision.
- B. You need to be sure you do not bundle too many scripts together because you cannot take advantage of concurrent downloads if only one or two files are being downloaded.
- C. You should bundle and minimize scripts and CSS files together for maximum effectiveness.
- D. Not bundling logically linked scripts together can have a negative effect on performance.

**Correct Answer:** BD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** Poor decisions in implementing bundling and minification can hurt performance rather than help it.

**B. Correct:** Bundling every script into a single large file might decrease the effectiveness of concurrent downloading.

**C. Incorrect:** You should keep scripts and CSS files separated for maximum effectiveness. They represent different aspects of the user experience, so a logical separation, even on the client side, makes sense.

**D. Correct:** Not separating scripts logically might lead to the user downloading scripts that will never be used. Although the download experience is maximized, it does not make sense to download unused scripts.

3.6.2

## QUESTION 52

**Question 55**

Your U.S.-based company recently opened an office in England. Staff members have been making lots of sales calls, which have generated an increase in visits to the company's websites. Much of the activity involves downloading sales sheets, product descriptions, and other sales support information currently stored in PDFs. There have been some performance-related complaints from remote sales staff, but no local users have noticed any problems.

Which of the following are potential solutions? (Choose all that apply.)

- A. Bundle and minify the PDF files to ensure that there is no wasted space.
- B. Write an action result that takes a file name and returns a compressed version of the file for download.
- C. Sign on with a CDN with nodes in North America and Europe and use it to serve files and other static content to sales support staff.
- D. Add two additional servers and create a server farm to serve your content.

**Correct Answer:** BC

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** Bundling would create unreadable files because it would concatenate PDF files inappropriately.

**B. Correct:** This solution causes more work on the client side to open and view the compressed content, but it provides a more responsive user experience.

**C. Correct:** Moving the part of the site most affected by the new usage closer to the users increases their download speed and thus their perceived performance.

**D. Incorrect:** Because local users have not noticed a reduction in performance, it is unlikely that adding more cycles at the server level would improve the responsiveness of the application for remote users.

3.6.3

**QUESTION 53****Question 56**

Your application has an intermittent issue, based on the user's path through the application, in which the application seems to stop running. Even when running in debug mode, the application calls a web service and then stops. The application locks and the call never returns, thus the user's request is never completed and eventually times out.

What performance or profiling tool will provide the most pertinent information about your application?

- A. CPU sampling in the Performance Wizard
- B. Memory allocation in the Performance Wizard
- C. Resource contention data in the Performance Wizard
- D. Tracing from the System.Diagnostics namespace that logs the times of web service call and web service return
- E. The Health Monitoring tool, for capturing security information related to the interaction with the web service

**Correct Answer:** C

**Section: [none]**

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** CPU sampling will not provide assistance for the main problem of the application locking up.

**B. Incorrect:** Memory analysis will not provide assistance for the main problem of the application locking up.

**C. Correct:** Thread and resource profiling will give some understanding of what kind of actions are taking place that will cause a resource or thread to be blocked.

**D. Incorrect:** Tracing information regarding when a web service starts and stops would be interesting. However, the problem is that the web service is called and never returns, so this logging information would not be complete or useful.

**E. Incorrect:** A problem with security information would likely not cause the service to stop responding.

4.1.1

## **QUESTION 54**

### **Question 57**

You inherited a working application that began as a proof of concept but was eventually adopted as a production application without being refactored. Many new requirements need to be added. As part of your initial analysis, you notice a lot of problems with bad data.

Which solutions will help remediate this issue? (Choose all that apply.)

- A. Running the Performance Wizard to sample CPU usage
- B. Adding code contracts to ensure that the input parameters have expected values
- C. Adding code contracts to ensure that the return values meet specific criteria
- D. Adding code contracts to ensure that objects do not become invalid during process
- E. Running the Visual Studio profiler to analyze application flow

**Correct Answer:** BCD

**Section: [none]**

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** The Performance Wizard does not support management or identify data issues.

**B. Correct:** Preconditional code contracts ensure that incorrect information is not submitted to a method. This helps eliminate the possibility of bad data.

**C. Correct:** Postconditional code contracts ensure that incorrect information is not returned from a method. This helps eliminate the possibility of bad data.

**D. Correct:** Invariant code contracts ensure that objects do not get to an invalid state. This helps eliminate the possibility of bad data.

**E. Incorrect:** The Visual Studio profiler does not provide any support for managing or identifying data issues.

4.1.2

## **QUESTION 55**

**Question 58**

You are helping a client estimate the effort involved in adding comprehensive monitoring to an enterprise-level ASP.NET MVC application.

Which of the following are useful considerations while building the estimate? (Choose all that apply.)

- A. Adding health monitoring involves many choices. An evaluation will have to be performed to determine which monitors will be of real use.
- B. Adding generic logging can be done as part of the rework. After the logging pattern has been established, you can add logging as part of any new work and as part of the refactoring process.
- C. Adding tracing must be done completely and comprehensively before it can be of any use. There is no point in implementing tracing in a single part of the application if you are not going to refactor the application.
- D. Creating a data collection set in Performance Monitor will provide all the needed information and can be set up in a few minutes.

**Correct Answer:** AB

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Correct:** Adding health monitors is an easy task. Determining which options provide the information you need will be time-consuming because of the number of choices.

**B. Correct:** Generic logging is a useful addition and can be added as items are refactored; it is not an all-or-nothing type of work.

**C. Incorrect:** You can perform tracing on an ad-hoc basis as needed.

**D. Incorrect:** Data collection in Performance Monitor is relatively simple. However, determining the most critical items to monitor can be time-consuming because there are hundreds of counters.

4.1.3

**QUESTION 56****Question 59**

You are re-creating an application that was originally built with ASP 2.0. You need to break the monolithic application into a traditional three-tier application. One of the requirements is that database errors must be displayed in the UI. Which solution will present enough information to the user so they can notify the appropriate person of a problem, but not allow the user to gain information about the design of the database?

- A. Add a first chance exception handler and log the information in the error.
- B. Add a generic database-layer exception handler to the business layer, and pass appropriate error information to the UI layer for display in a custom error page.
- C. Add specific database exception handlers in the business layer and log the information into the database for further review.
- D. Let the errors pass through the business layer to the UI layer where they can be handled as specific errors and presented as appropriate in the UI.

**Correct Answer:** B

**Section:** [none]

**Explanation**



**Explanation/Reference:**

**A. Incorrect:** Although logging information is an important consideration, it does not provide additional information to the users.

**B. Correct:** The business layer is the appropriate place to manage data layer exceptions. By repackaging it and sending it up to the user layer, you can maintain separation of concerns and meet the requirement to display information to the user. This will also enable you to log the information as necessary to support debugging.

**C. Incorrect:** You are having the business layer handle the database exception correctly, but you are not meeting the requirement to provide information about the error to the user.

**D. Incorrect:** By not having the business layer capture and handle the error, you are building an improper relationship between the UI and the database.

4.2.1

**QUESTION 57****Question 60**

What is an advantage to using first chance exception notification?

- A. The ability to capture and handle all exceptions that occur within the application in one place
- B. The ability to log an exception after it is handled by its appropriate error handling code
- C. The ability to log an exception before it is touched by any other error handler
- D. The ability to forward an exception to an error handler based on the type of exception that was thrown

**Correct Answer: C**

**Section: [none]**

**Explanation****Explanation/Reference:**

**A. Incorrect:** First chance exception is a notification only. It does not let you do anything other than observe the exception.

**B. Incorrect:** The first chance exception handler gets the exception before it has been issued to its appropriate error management code. You cannot see what happens to the exception as it is being handled.

**C. Correct:** The first chance exception handler enables you to examine an exception and take some action before it is touched by any other handler.

**D. Incorrect:** The first chance exception handler can examine the exception, but cannot forward or handle the exception.

4.2.2

**QUESTION 58****Question 61**

Using custom error pages provides a lot of flexibility to an application because it allows for a consistent user experience even when the application has a problem. To take full advantage of this flexibility, you need to be able to create the pages and configure the application to use these pages. What code will provide custom error pages for 404 errors and general exceptions?

- A. <system.web>

```

    <customErrors mode="RemoteOnly"
      defaultRedirect="Error/GeneralException">
      <error statusCode="404"
        redirect="ErrorController.Status404" />
    </customErrors>
  </system.web>

```

- B. `<system.web>`
- ```

    <customErrors mode="RemoteOnly"
      defaultRedirect="Error/GeneralException">
      <error statusCode="404" redirect="Error/Status404" />
    </customErrors>
  </system.web>
  <system.webServer>
    <httpErrors errorMode="Detailed" />
  </system.webServer>

```
- C. `<system.web>`
- ```

    <customErrors mode="RemoteOnly">
      <error statusCode="404" redirect="Error/Status404" />
      <error statusCode="GeneralException"
        redirect="Error/GeneralException" />
    </customErrors>
  </system.web>
  <system.webServer>
    <httpErrors errorMode="Detailed" />
  </system.webServer>

```
- D. `<system.web>`
- ```

    <customErrors mode="LocalOnly"
      defaultRedirect="Error/GeneralException">
      <error statusCode="404" redirect="Error/Status404" />
    </customErrors>
  </system.web>
  <system.webServer>
    <httpErrors errorMode="Detailed" />
  </system.webServer>

```

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** This shows only the `<system.web>` part of the configuration. There is also a need to have an entry in the `<system.webServer>` node.

**B. Correct:** This example shows the 404 error status and it sets the default error handler to the server error action.

**C. Incorrect:** This example shows the general exception handler using a status code of *GeneralException*. The status codes relates to the type of HTTP error that will be handled.

**D. Incorrect:** The custom error mode is set to *mode="LocalOnly"*, which means that users will not see the actual error pages.

4.2.3

## QUESTION 59

### Question 62

You are under contract with a large company that is starting to implement a TDD approach. As part of the long-term support for this effort, the company needs you to complete several unit tests. As you review the current code base, you find good tests for the model, but no tests for anything other than the model. Which of the following is the best approach to complete the unit tests?

- A. Create a new directory in the unit test project for the controller- and action-specific tests. Create a unit test file for each controller. Inside that file, have one or more tests for only the controller action methods.
- B. Add a new file to the unit test project called ControllerTests. Put all tests for all the controllers and the actions in the file.
- C. Create a new directory in the unit test project for the controller- and action-specific tests. Create a unit test file for each action you are going to test.
- D. Create a new directory in the unit test project for the controller- and action-specific tests. Create a unit test file for each controller. Inside that file have one or more tests for all methods in the controller, regardless of whether they are an action or not.

**Correct Answer:** D

**Section:** [none]

**Explanation**

### Explanation/Reference:

**A. Incorrect:** There might very well be nonaction methods in a controller. Those methods should be tested as well.

**B. Incorrect:** You should provide much more separation of your tests than using a single file for every unit test that applies to a controller.

**C. Incorrect:** This is too much of a breakdown. The best relationship between controllers and the applicable unit tests is usually 1 to 1. However, a controller with a large number of methods working within the controller will not meet the 1-to-1 ratio. You should test nonaction methods in the controller as well.

**D. Correct:** This solution provides for testing actions and nonactions as well as a good split of the tests per file.

4.3.1

## QUESTION 60

### Question 63

Your ASP.NET MVC web application has just been released to a group of pilot users. The users are reporting periods of extreme performance degradation. You did not encounter performance issues during development or the quality assurance phase. What can you do in your development environment to understand what is occurring in the production environment?

- A. Create a set of unit tests that repeatedly test certain parts of the application. Run them continuously over a period of time to ensure that the application works as expected.

- B. Create a set of web tests that exercise the application. Set a run load of 50 percent of your pilot users and run them in a constant load testing process to validate the application's behavior.
- C. Create a set of web tests that exercise the application. Using a step approach, start with a minimal number of users and increase to the total number of users in the pilot program.
- D. Create a set of web tests that exercise the application. Using a goal-based approach, set the process to run to 75 percent CPU utilization. When you reach that point, compare the results with the number of users in the pilot program.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** Unit tests are designed to ensure that the functionality and logic of the application are correct. They do not work well when you need a performance-based analysis.

**B. Incorrect:** Although this test will provide some useful and interesting information, running a constant load of 50 percent might not give you the information you need. More users could use the application at any point in time.

**C. Correct:** Starting from a midlevel count of users and then increasing to the total number of possible numbers should give you an idea of what is happening during the day-to-day running of the application in production.

**D. Incorrect:** Understanding the number of users required to reach 75 percent utilization of the CPU might be interesting, but it does not help you understand the users' issue. They might be experiencing slowness due to memory utilization or threading contention that this approach will not be able to detect.

4.3.2

## QUESTION 61

### Question 64

You support hardware purchasing for an ASP.NET MVC application in your company. The application is finished, and the development team knows the number of intended users. Which approach will give the team the best understanding of the application's hardware needs?

- A. Create several web tests that exercise all parts of the application, including all static pages. Run these tests in a constant load at various levels to see the effect on performance.
- B. Create several web tests that exercise all parts of the application, including all static pages. Run these tests in a step approach up to the maximum expected number of users. This will give you an idea of the load one server can handle.
- C. Create several web tests that exercise all parts of the application, including all static pages. Run these tests in a goal-based approach in which the percent of CPU usage and percent of memory usage metrics are set to the company standard maximums. Evaluate how many users it takes to reach the maximum levels.
- D. Create several web tests that exercise only the dynamic parts of the application, ignoring all static content. Run these tests in a goal-based approach in which the percent of CPU usage and percent of memory usage metrics are set to the company standard maximums. Evaluate how many users it takes to reach these maximum levels.

**Correct Answer:** C

**Section:** [none]

## Explanation

### Explanation/Reference:

- A. Incorrect:** Running at a constant load, even at various levels of user count, will not efficiently give them the information that they need.
- B. Incorrect:** Although this approach will give them interesting information and an understanding of the capacity of a server, it is based less on statistical information than on a subjective analysis of performance.
- C. Correct:** This approach will give them an objective analysis of the amount of users a server can manage at a particular level of memory or CPU usage.
- D. Incorrect:** This approach leaves out static pages. For a true test, you should exercise all parts of the application.

4.3.3

## QUESTION 62

### Question 65

You will be deploying your application in Windows Azure. You know that you need to include logging, but you have some concerns. What diagnostic capabilities can Windows Azure support? (Choose all that apply.)

- A. The capability to turn on and off different aspects of the Windows Azure diagnostics through configuration changes
- B. The capability to retain logs from your custom logging solution on a Windows Azure storage account
- C. The capability to retain logs from your custom logging solution when written to a local store
- D. The capability to send entries to the Windows Azure diagnostics system from within your application

**Correct Answer:** ABD

**Section:** [none]

### Explanation

### Explanation/Reference:

- A. Correct:** You can control the diagnostics setting through configuration within your Windows Azure–hosted application.
- B. Correct:** Although the Windows Azure VMs get recycled when the role restarts, saving the logs to the Windows Azure storage system outside of your VM would ensure that they are available.
- C. Incorrect:** Because the Windows Azure VMs are entirely virtual and recycle whenever a role restarts, there is a significant chance you will lose logging information.
- D. Correct:** You can treat the Windows Azure diagnostics system like a traditional logging tool by writing messages to the system.

4.4.1

## QUESTION 63

### Question 66

What do you need to do to use IntelliTrace from within Windows Azure? (Choose all that apply.)

- A. Publish the solution from any version of Visual Studio Professional 2012 or higher.

- B. Select the Enable IntelliTrace check box before publishing the solution.
- C. Ensure that you made all configuration changes in the Web.config file that will turn on IntelliTrace.
- D. Download and view the IntelliTrace logs through a web browser.
- E. Download and view the IntelliTrace logs through Visual Studio Ultimate 2012.

**Correct Answer:** BE

**Section:** [none]

**Explanation**

**Explanation/Reference:**

- A. Incorrect:** You can enable IntelliTrace only through Visual Studio Ultimate 2012 edition.
- B. Correct:** When publishing the projects, you can configure the process to deploy in debug mode with IntelliTrace enabled.
- C. Incorrect:** There are no Web.config changes required to run the system with IntelliTrace turned on.
- D. Incorrect:** You cannot download and run the IntelliTrace logs through a web browser. Running them requires Visual Studio Ultimate 2012.
- E. Correct:** You can view the IntelliTrace logs through Visual Studio after download.

4.4.2

#### QUESTION 64

##### Question 67

You want to configure Windows Azure diagnostics. Where do you configure the specific Performance Monitors you want to have run in support of your application?

- A. ServiceDefinition.csdef
- B. ServiceConfiguration.cscfg
- C. Diagnostics.wadcfg
- D. Web.config

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

- A. Incorrect:** You include diagnostics in a project using the ServiceDefinition.csdef file. The file does not configure which monitors will be included when your application is running.
- B. Incorrect:** You configure log storage locations in the ServiceConfiguration.cscfg file. The file does not configure which monitors will be included when your application is running.
- C. Correct:** You configure specific monitors that will run in your application in the Diagnostics.wadcfg file.
- D. Incorrect:** The Web.config file is not used to include Windows Azure diagnostics in an application.

4.4.3

## QUESTION 65

### Question 68

What type of authentication accepts login credentials that will be checked against the domain or local server and are sent in a hashed format?

- A. Basic authentication
- B. Digest authentication
- C. Forms authentication
- D. Windows authentication

**Correct Answer:** A

**Section:** [none]

**Explanation**

#### Explanation/Reference:

**A. Incorrect:** Basic authentication is transmitted from the client to the server in Base64 encoding and is not encrypted.

**B. Correct:** Digest authentication is a challenge-response-based authentication method to ensure that user credentials are not sent over the network in clear text.

**C. Incorrect:** Forms authentication does not require login credentials to be sent in an encrypted form, and it does not automatically check against the domain and/or local server.

**D. Incorrect:** Windows authentication does not send user names and passwords from the client to the server.

5.1.1

## QUESTION 66

### Question 69

Forms authentication enables you to write code to validate user credentials. After it is complete, you can register the authentication cookies for use throughout the user's visit by using which of the following?

- A. FormsAuthentication.SetAuthCookie
- B. FormsAuthenticationCookie = new FormsAuthenticationCookie();
- C. FormsAuthentication.ClearAuthCookie
- D. MembershipProvider.User =

**Correct Answer:** A

**Section:** [none]

**Explanation**

#### Explanation/Reference:

**A. Correct:** FormsAuthentication.SetAuthCookie registers the authentication token in the cookie for use in future requests.

**B. Incorrect:** You have created a new *FormsAuthenticationCookie*, but it has no values, so it would not be useful in future requests.

- C. Incorrect:** *FormsAuthentication.ClearAuthCookie* removes the authentication token.  
**D. Incorrect:** *MembershipProvider.User* = does not maintain information between requests.

5.1.2

#### QUESTION 67

##### Question 70

What default attributes or inline checks would you use to create an accepted-list scenario in ASP.NET MVC 4? (Choose all that apply.)

- A. Authorize attribute
- B. RequireHttps attribute
- C. WebSecurity.IsAuthenticated
- D. AllowAnonymous attribute

**Correct Answer:** AD

**Section:** [none]

**Explanation**

##### Explanation/Reference:

**A. Correct:** *AuthorizeAttribute* can be put on controllers and actions to require authorization.

**B. Incorrect:** *RequireHttps* will ensure that the communication between client and server is encrypted, but it does not do anything to help ensure an accepted-list scenario.

**C. Incorrect:** *WebSecurity.IsAuthenticated* verifies that a user is authenticated, but it does not do it in a way that supports an accepted-list scenario.

**D. Correct:** *AllowAnonymous* can be put on controllers and actions to enable unauthorized users access.

5.1.3

#### QUESTION 68

##### Question 71

What interfaces or classes should be implemented or inherited when creating custom authentication that is based on a non-Windows, third-party provider? (Choose all that apply.)

- A. ActiveDirectoryMembershipProvider
- B. IIdentity
- C. SqlMembershipProvider
- D. IPrincipal

**Correct Answer:** BD

**Section:** [none]



## Explanation

### Explanation/Reference:

**A. Incorrect:** *ActiveDirectoryMembershipProvider* is a Windows-specific authentication provider. It would not provide assistance in this case.

**B. Correct:** *Identity* describes the user that was authenticated.

**C. Incorrect:** *SqlMembershipProvider* provides assistance in getting membership data from SQL databases. It would not help get information from a third-party solution.

**D. Correct:** *IPrincipal* provides the security context of the user on whose behalf the code is running.

5.1.4

## QUESTION 69

### Question 72

What kind of helper methods does WebSecurity provide? (Choose all that apply.)

- A. Login
- B. ResetPassword
- C. CreateAccount
- D. ChangePassword
- E. DeleteAccount

**Correct Answer:** ABCD

**Section:** [none]

### Explanation

### Explanation/Reference:

**A. Correct:** *Login* is one of the methods provided by the *WebSecurity* helper.

**B. Correct:** *ResetPassword* is one of the methods provided by the *WebSecurity* helper.

**C. Correct:** *CreateAccount* is one of the methods provided by the *WebSecurity* helper.

**D. Correct:** *ChangePassword* is one of the methods provided by the *WebSecurity* helper.

**E. Incorrect:** *DeleteAccount* is not supported through the *WebSecurity* helper.

5.1.5

## QUESTION 70

### Question 73

What attribute or code snippet within a controller enables a role named Admin to access actions or code blocks after the check-in code?

- A. RoleProvider.GetRolesForUser("Admin")
- B. [Authorize(Roles="Admin")]

- C. `RoleProvider.IsUserInRole(User.Name)`
- D. `[AuthorizeAttribute(Roles="Admin")]`

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** *RoleProvider.GetRolesForUser("Admin")* gets the list of roles for the user that is passed in as a parameter. In this case, it uses a hard-coded value of "Admin."

**B. Correct:** The *Authorize* attribute handles authorization on a controller and/or action basis by using the *Roles=* qualifier.

**C. Incorrect:** *RoleProvider.IsUserInRole(User.Name)* does a check to see whether the currently logged in user is within a role that is passed in as a parameter to the function. In this case, the code will be looking for a role that matches the user's name.

**D. Incorrect:** Although *AuthorizeAttribute* is the correct class, the proper way to use it in attribution is through the *Authorize* keyword.

5.2.1

## QUESTION 71

### Question 74

Which methods help the RoleProvider determine whether a user is assigned a role or set of roles? (Choose all that apply.)

- A. `GetRoles`
- B. `GetRolesForUser`
- C. `IsUserInRole`
- D. `FindUsersInRole`

**Correct Answer:** BC

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** The *GetRoles* method provides a list of all roles for an *ApplicationName*.

**B. Correct:** *GetRolesForUser* gets a list of roles for a user.

**C. Correct:** *IsUserInRole* returns a Boolean on whether a particular user has a role.

**D. Incorrect:** *FindUsersInRole* returns a list of users that have the applicable role.

5.2.2

## QUESTION 72

### Question 75

Why should you create a custom role provider? (Choose all that apply.)

- A. To use a data source not regularly supported
- B. To use the SimpleRoleProvider
- C. To use a database design different than .NET provides
- D. To provide a special configuration file entry

**Correct Answer:** AC

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Correct:** Because traditional providers work only on SQL Server, accessing a different data provider such as MySQL would require a custom provider.

**B. Incorrect:** Using the *SimpleRole* provider would not require you to create a custom provider.

**C. Correct:** Using a different database design would require that you create a custom provider.

**D. Incorrect:** Creating a custom provider would require a special configuration file entry, but that would not be a reason to create the custom provider in the first place.

5.2.3

### QUESTION 73

#### Question 76

Windows Azure ACS allows for federated identification from outside agencies such as a Microsoft account or Facebook. Which entity issues the final token that your application will accept for access?

- A. The outside agency
- B. Your application
- C. Your network firewall
- D. Windows Azure ACS

**Correct Answer:** D

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** The token provided by a Microsoft account or Facebook is read by ACS, which then creates the token that your application uses.

**B. Incorrect:** An application does not read the token; it reads the token provided by ACS.

**C. Incorrect:** A network firewall does not provide a security token.

**D. Correct:** ACS reads the token provided by the identity providers and creates a token that your application understands and accepts.

5.3.1

#### QUESTION 74

##### Question 77

WIF enables you to create a custom token. To be able to use the token, you must create a custom token handler by overriding which of the following?

- A. `SecurityToken`
- B. `SecurityTokenHandler`
- C. `SWTTToken`
- D. `Saml2SecurityTokenHandler`

**Correct Answer:** B

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** *SecurityToken* is the .NET Framework class that identifies the token.

**B. Correct:** *SecurityTokenHandler* is the appropriate class to override for creating a custom token handler.

**C. Incorrect:** *SWTTToken* is a type of common token.

**D. Incorrect:** *Saml2SecurityTokenHandler* is a specific handler for a specific type of token.

5.3.2

#### QUESTION 75

##### Question 78

WIF adds the concepts of claims to which of the following? (Choose all that apply.)

- A. `IIdentity`
- B. `IPrincipal`
- C. `User`
- D. `MembershipProvider`

**Correct Answer:** AB

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Correct:** The class implementing the *IIdentity* interface contains claims information.

**B. Correct:** The class implementing the *IPrincipal* interface contains claims information.

**C. Incorrect:** *User* does not carry any claims information.

**D. Incorrect:** *MembershipProvider* does not contain claims information.

5.3.3

#### QUESTION 76

##### Question 79

What class handles the actual data encryption?

- A. *RijndaelManaged*
- B. *RSACryptoServiceProvider*
- C. *CryptoStream*
- D. *RSAKeyInfo*

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** *RijndaelManaged* is a method of encryption and does not create a stream.

**B. Incorrect:** *RSACryptoServiceProvider* does not provide a stream.

**C. Correct:** *CryptoStream* provides access to an encrypted stream.

**D. Incorrect:** *RSAKeyInfo* contains information for managing an RSA key and does manage encryption.

5.4.1

#### QUESTION 77

##### Question 80

What are digital signatures used for? (Choose all that apply.)

- A. Encryption
- B. Authentication
- C. Nonrepudiation
- D. Authorization
- E. Hashing

**Correct Answer:** BCD

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Incorrect:** Encryption is not a valid reason for digital signing.

**B. Correct:** Authentication is a reason for digital signing because it uniquely defines the party signing the data.

**C. Correct:** Nonrepudiation is a reason for digital signing because it uniquely defines the party signing the data and shows that it had to be the original party that submitted the data.

**D. Correct:** Authorization can be determined after the individual is uniquely defined.

**E. Incorrect:** Hashing is not a valid reason for digital signing.

5.4.2

**QUESTION 78**

**Question 81**

How do you encrypt the <connectionStrings> section of the Web.config file?



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A. aspnet\_regiis -pe "ConnectionStrings" -app "/MachineDPAPI" -prov "RsaProtectedConfigurationProvider"

B. aspnet\_regiis -pe "Web.Config" -app "/MachineDPAPI" -prov "RsaProtectedConfigurationProvider"

C. aspnet\_regiis -pd "ConnectionStrings" -app "/MachineDPAPI" -prov "RsaProtectedConfigurationProvider"

D. aspnet\_regiis -pd "Web.Config" -app "/MachineDPAPI" -prov "RsaProtectedConfigurationProvider"

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

**A. Correct:** This is the proper way to encrypt the <connectionStrings> setting of the Web.config file.

**B. Incorrect:** This command encrypts more than the <connectionStrings> section of the Web.config file.

**C. Incorrect:** This command decrypts the <connectionStrings> section of the Web.config file.

**D. Incorrect:** This command decrypts rather than encrypts information, and more information than just the <connectionStrings> section.

5.4.3

## Question Set 1

### QUESTION 1

#### Question 1

You are developing an ASP.NET MVC application by using Visual Studio 2012. The application throws and handles exceptions when it runs.

You need to examine the state of the application when exceptions are thrown. What should you do?

- A. From the DEBUG menu in Visual Studio 2012, select Exceptions. Enable the Thrown check box for Common Language Runtime Exceptions.
- B. From the DEBUG menu in Visual Studio 2012, select Exceptions. Disable the User-unhandled check box for Common Language Runtime Exceptions.
- C. Add the following code to the Web.config file of the application:

```
<customErrors mode="On">  
  <error statusCode="500" redirect="CustomErrors.html" />  
</customErrors>
```

- D. Add the following code to the Web.config file of the application:

```
<customErrors mode="On" >  
  <error statusCode="404" redirect="CustomErrors.html"/>  
</customErrors>
```

**Correct Answer:** A

**Section:** [none]

**Explanation**

**Explanation/Reference:**

### QUESTION 2

#### Question 2

You are developing an ASP.NET MVC web application in Visual Studio 2012. The application requires several thousand content files. All content is hosted on the same IIS instance as the application.

You detect performance issues when the application starts. You need to resolve the performance issues.

What should you do?

- A. Enable compression in IIS.
- B. Move the content to a second server.
- C. Combine the content files by using ASP.NET MVC bundling.

D. Implement HTTP caching in IIS.

**Correct Answer:** C

**Section:** [none]

**Explanation**

**Explanation/Reference:**



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