Vendor: Microsoft

Exam Code: 70-532

Exam Name: Developing Microsoft Azure Solutions

Version: Demo

Testlet 1

Topic 1, Web-based Solution

Background

You are developing a web-based solution that students and teachers can use to collaborate on written assignments. Teachers can also use the solution to detect potential plagiarism, and they can manage assignments and data by using locally accessible network shares.

Business Requirements

The solution consists of three parts: a website where students work on assignments and where teachers view and grade assignments, the plagiarism detection service, and a connector service to manage data by using a network share.
The system availability agreement states that operating hours are weekdays between midnight on Sunday and midnight on Friday.

Business Requirements

The solution consists of three parts: a website where students work on assignments and where teachers view and grade assignments, the plagiarism detection service, and a connector service to manage data by using a network share.
The system availability agreement states that operating hours are weekdays between midnight on Sunday and midnight on Friday.

Plagiarism Service

The plagiarism detection portion of the solution compares a new work against a repository of existing works. The initial dataset contains a large database of existing works. Teachers upload additional works. In addition, the service itself searches for other works and adds those works to the repository.

Technical Requirements

Website
The website for the solution must run on an Azure web role.

Plagiarism Service

The plagiarism detection service runs on an Azure worker role. The computation uses a random number generator. Certain values can result in an infinite loop, so if a particular work item takes longer than one hour to process, other instances of the service must be able to process the work item. The Azure worker role must fully utilize all available CPU cores. Computation results are cached in local storage resources to reduce computation time.

Repository of Existing Works

The plagiarism detection service works by comparing student submissions against a repository of existing works by using a custom matching algorithm. The master copies of the works are stored in Azure blob storage. A daily process synchronizes files between blob storage and a file share on a virtual machine (VM). As part of this synchronization, the ExistingWorkRepository object adds the files to Azure Cache to improve the display performance of the website. If a student's submission is overdue, the Late property is set to the number of days that the work is overdue. Work files can be downloaded by using the Work action of the TeacherController object

Network Connector

Clients can interact with files that are stored on the VM by using a network share. The network permissions are configured in a startup task in the plagiarism detection service.

Service Monitoring

The CPU of the system on which the plagiarism detection service runs usually limits the plagiarism detection service. However, certain combinations of input can cause memory issues, which results in decreased performance. The average time for a given computation is 45 seconds. Unexpected results during computations might cause a memory dump. Memory dump files are stored in the Windows temporary folder on the VM that hosts the worker role.

Security

Only valid users of the solution must be able to view content that users submit. Privacy regulations require that all content that users submit must be retained only in Azure Storage. All documents that students upload must be signed by using a certificate named DocCert that is installed in both the worker role and the web role.

Solution Development

You use Microsoft Visual Studio 2013 and the Azure emulator to develop and test both the compute component and the storage component. New versions of the solution must undergo testing by using production data.

Scaling

During non-operating hours, the plagiarism detection service should not use more than 40 CPU cores. During operating hours, the plagiarism detection service should automatically scale when 500 work items are waiting to be processed. To facilitate maintenance of the system, no plagiarism detection work should occur during non-operating hours. All ASP.NET MVC actions must support files that are up to 2 GB in size.

Biographical Information

Biographical information about students and teachers is stored in a Microsoft Azure SQL

database. All services run in the US West region. The plagiarism detection service runs on Extra Large instances.

Solution Structure

Relevant portions of the solution files are shown in the following code segments. Line numbers in the code segments are included for reference only and include a two-character prefix that denotes the specific file to which the line belongs.

Diagnostics.wadcfg

```
DG01 <?xml version="1.0" encoding="utf-8" ?>
DG02 <DiagnosticMonitorConfiguration
DG03  xmlns="http://schemas.microsoft.com/ServiceHosting/2010/10/DiagnosticsConfiguration"
DG04  configurationChangePollInterval="PT1M"
DG05  overallQuotaInMB="4096">
DG06    <PerformanceCounters bufferQuotaInMB="0" scheduledTransferPeriod="PT30M">
DG07      <PerformanceCounterConfiguration counterSpecifier="\System\Context Switches/
sec" sampleRate="PT30S" />
DG08    </PerformanceCounters>
DG09 </DiagnosticMonitorConfiguration>
```

ExistingWorkRepository.cs

```
EW01 public static class ExistingWorkRepository
EW02 {
EW03   public static void PopulateCache(string subject, string workId)
EW04   {
EW05     var account = Storage.Account();
EW06     var container = account.CreateCloudBlobClient().GetContainerReference("work" + subject);
EW07     var body = container.GetBlockBlobReference(workId).DownloadText();
EW08     var cache = new DataCacheFactory().GetCache(subject);
EW09     cache.Add(workId, body);
EW10   }
EW11 }
```

PlagiarismCalculation.ps1

```
PC01 public class PlagiarismCalculation
PC02 {
PC03   public double Compute(Work essay)
PC04   {
PC05     var score = default(double);
PC06     var account = Storage.Account();
PC07     var cloudTableClient = account.CreateCloudTableClient();
PC08     var cloudBlobClient = account.CreateCloudBlobClient();
PC09     var existingWorks = cloudTableClient.GetTableReference("library").CreateQuery<Work>();
PC10     var container = cloudBlobClient.GetContainerReference("work" + subject);
PC11     foreach (var work in existingWorks.Execute())
PC12     {
PC13       work.Body = container.GetBlockBlobReference(work.PartitionKey).DownloadText();
PC14       score = GetMaxScore(essay, work, score);
PC15     }
PC16     return score;
PC17   }
PC18
PC19   private double GetMaxScore(Work work, Work previousWork, double previous)
PC20   {
PC21     var rootPath = RoleEnvironment.GetLocalResource("ComputeResults").RootPath;
PC22     ...
PC23     return score;
PC24   }
PC25 }
```

SetupNetworkAccess.ps1

```
SN01 $acl = New-AzureAclConfig
SN02 Set-AzureAclConfig -AddRule -ACL $acl -Order 400 -Action permit `
      -RemoteSubnet "192.168.5.1/24" -Description "Access for Northwood"
SN03 Set-AzureAclConfig -AddRule -ACL $acl -Order 200 -Action permit `
      -RemoteSubnet "10.181.11.1/16" -Description "Access for Contoso, Ltd"
SN04 Get-AzureVM -ServiceName "FileService" -Name "FS" | `
      Add-AzureEndpoint -Name "Files" -Protocol tcp -Localport 445 `
      -PublicPort 445 -ACL $acl | Update-AzureVM
```

TeacherController.cs

```
TC01 public class TeacherController : Controller
TC02 {
TC03   public ActionResult Work(string workId, string subject)
TC04   {
TC05
TC06   }
TC07   public ActionResult Upload(string workId, string subject)
TC08   {
TC09
TC10   }
TC11   private static bool CheckDay(DateTime dt)
TC12   {
TC13     if ((dt.DayOfWeek == DayOfWeek.Saturday) || (dt.DayOfWeek == DayOfWeek.Sunday))
TC14       return true;
TC15     return false;
TC16   }
TC17   private static CloudQueueMessage BuildMessage(params string[] args)
TC18   {
TC19     return new CloudQueueMessage(string.Join("/", args));
TC20   }
TC21 }
```

Work.cs

```
WK01 public class Work : TableEntity
WK02 {
WK03   public string Body { get; set; }
WK04   public string Author { get; set; }
WK05   public bool IsReference { get; set; }
WK06   public int Late { get; set; }
WK07   [IgnoreProperty]
WK08   public string Subject
WK09   {
WK10     get { return RowKey; }
WK11     set { RowKey = value; }
WK12   }
WK13   [IgnoreProperty]
WK14   public string WorkId
WK15   {
WK16     get { return PartitionKey; }
WK17     set { PartitionKey = value; }
WK18   }
WK19 }
```

WorkerRole.cs

```
WR01 public class WorkerRole : RoleEntryPoint
WR02  {
WR03   public override void Run()
WR04   {
WR05     var account = Storage.Account();
WR06     var queue = account.CreateCloudQueueClient().GetQueueReference("checkwork");
WR07     var service = new PlagiarismCalculation();
WR08     foreach (var queueMessage in GetWork(queue))
WR09     {
WR10       var parts = queueMessage.AsString.Split(new[] {"/"},StringSplitOptions.None);
WR11       service.Compute(parts[0], parts[1]);
WR12     }
WR13   }
WR14   private IEnumerable<CloudQueueMessage> GetWork(CloudQueue queue)
WR15   {
WR16
WR17   }
WR18 }
```

QUESTION 1
You are deploying the web-based solution in the West Europe region.

You need to copy the repository of existing works that the plagiarism detection service uses. You must achieve this goal by using the least amount of time.

What should you do?

A. Copy the files from the source file share to a local hard disk. Ship the hard disk to the West Europe data center by using the Azure Import/Export service.
B. Create an Azure virtual network to connect to the West Europe region. Then use Robocopy to copy the files from the current region to the West Europe region.
C. Provide access to the blobs by using the Microsoft Azure Content Delivery Network (CDN).
Modify the plagiarism detection service so that the files from the repository are loaded from the CDN.
D. Use the Asynchronous Blob Copy API to copy the blobs from the source storage account to a storage account in the West Europe region.

Correct Answer: D

QUESTION 2
You update the portion of the website that contains biographical information about students. You need to provide data for testing the updates to the website.

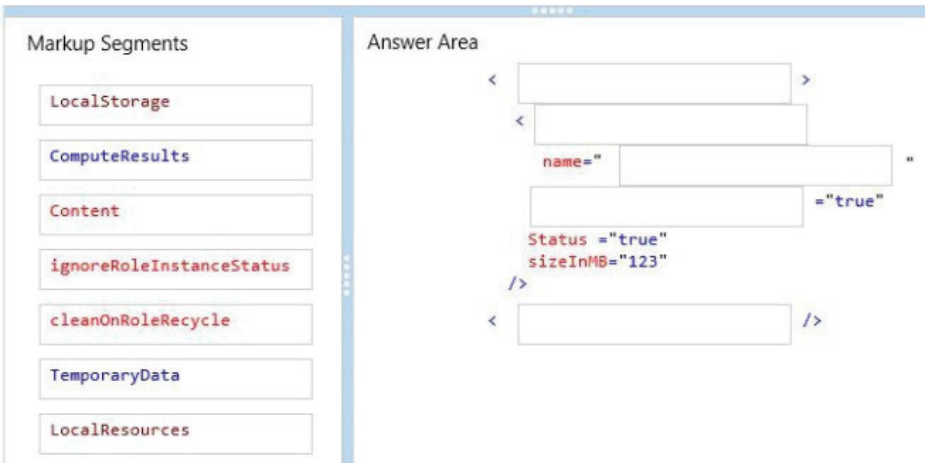
Which approach should you use?

A. Use SQL Server data synchronization.
B. Use the Active Geo-Replication feature of Azure SQL Database.
C. Use SQL Replication.
D. Use the Geo-Replication feature of Azure Storage.

Correct Answer: A

QUESTION 3
You need to configure storage for the solution.
What should you do? To answer, drag the appropriate XML segments to the correct locations.
Each XML 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:



Correct Answer:

QUESTION 4
You need to find all existing works about World History that are overdue and are stored in the repository.
How should you complete the relevant code? To answer, select the appropriate option or options in the answer area.

Hot Area:

Correct Answer:

Answer Area

```
var root = Storage.Account().TableStorageUri;
var query = root + "library()?$filter=" +

"  [ ]  " +
```

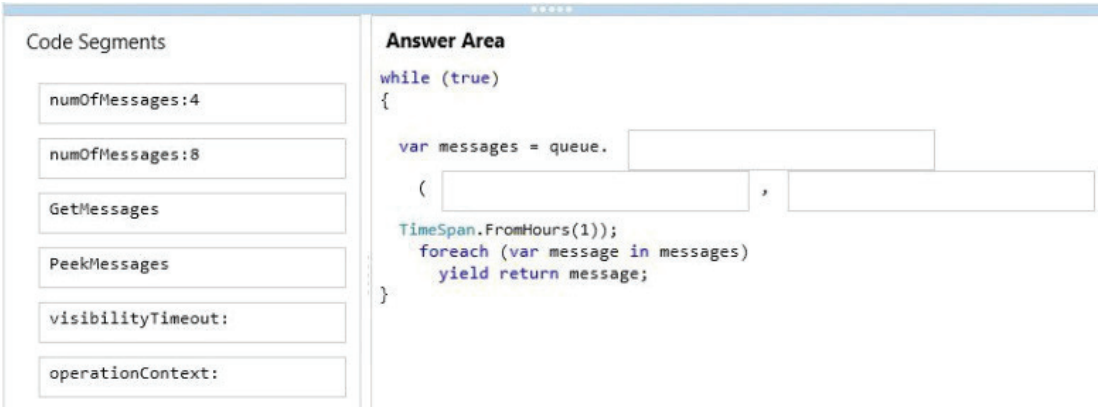
- Late%20gt%200
- Late%20lt%200
- Late%20ne%20true
- Late%20eq%20true

```
"%20and%20  [ ]  %20eq%20'World History'";
```

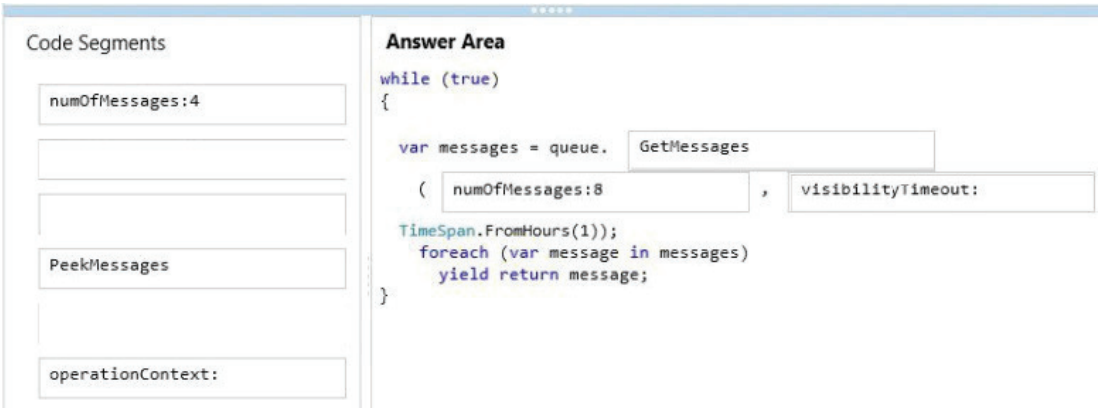
- RowKey
- WorkID
- Subject
- PartitionKey

QUESTION 5
You need to insert code at line WR16 to implement the GetWork method.
How should you complete the relevant code? To answer, drag the appropriate code segment to the correct location. 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:



Correct Answer:



QUESTION 6
The Compute method in the PlagiarismCalculation class takes a significant amount of time to load existing works from blob storage. To improve performance, the service must load existing works from the cache.
You need to modify the Compute method in the class PlagiarismCalculation.
How should you modify the method? To answer, select the appropriate option or options in the answer area.

Hot Area:

Answer Area

```
var existingWorks =

cloudTableClient.GetTableReference("library").CreateQuery<Work>();
```

[▼]
- var cache = new DataCache(essay.Author);
- var cache = new DataCache(essay.Subject);
- var cache = new DataCacheItemKey(essay.Author, "body");
- var cache = new DataCacheItemKey(essay.Subject, "body");

```
foreach (var work in existingWorks.Execute())
{
```

[▼]
- work.Body = cache.Get(work.Body).ToString();
- work.Body = cache.Get(work.RowKey).ToString();
- work.Body = cache.Get(work.Author).ToString();
- work.Body = cache.Get(work.PartitionKey).ToString();

```
  score = compute(essay, work, score);
}
```

Correct Answer:

Answer Area

```
var existingWorks =

cloudTableClient.GetTableReference("library").CreateQuery<Work>();
```

[▼]
- var cache = new DataCache(essay.Author);
- var cache = new DataCache(essay.Subject);
- var cache = new DataCacheItemKey(essay.Author, "body");
- var cache = new DataCacheItemKey(essay.Subject, "body");

```
foreach (var work in existingWorks.Execute())
{
```

[▼]
- work.Body = cache.Get(work.Body).ToString();
- work.Body = cache.Get(work.RowKey).ToString();
- work.Body = cache.Get(work.Author).ToString();
- work.Body = cache.Get(work.PartitionKey).ToString();

```
  score = compute(essay, work, score);
}
```

QUESTION 7
You need to configure scaling for the plagiarism detection service.
What should you do? To answer, select the appropriate values in the dialog box in the answer area.

Hot Area:

Answer Area

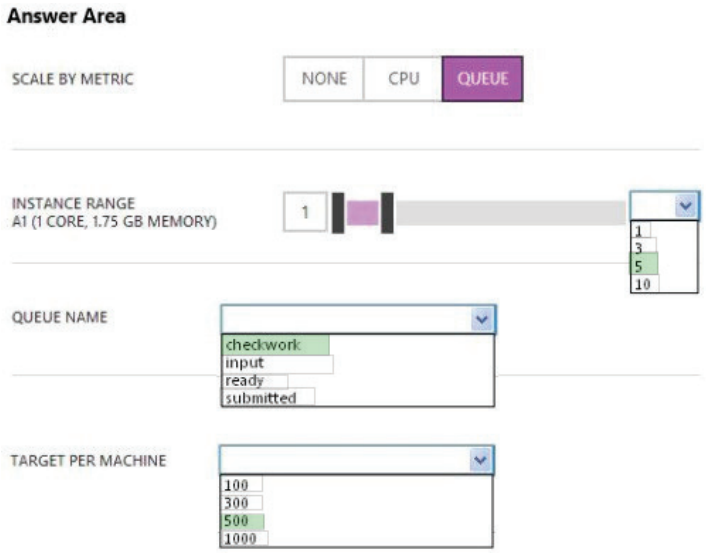
SCALE BY METRIC: NONE | CPU | QUEUE

INSTANCE RANGE
A1 (1 CORE, 1.75 GB MEMORY): 1 [▼]
- 1
- 3
- 5
- 10

QUEUE NAME [▼]
- checkwork
- input
- ready
- submitted

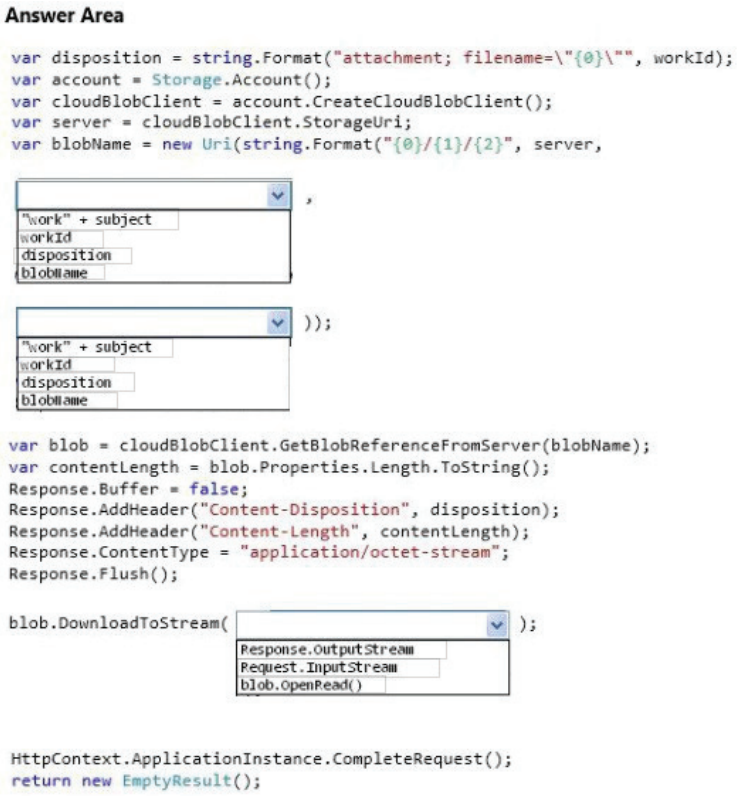
TARGET PER MACHINE [▼]
- 100
- 300
- 500
- 1000

Correct Answer:



QUESTION 8
You need to implement the Work action on the TeacherController object.
How should you complete the relevant code? To answer, select the appropriate options in the answer area.

Hot Area:



Correct Answer:

Answer Area

```
var disposition = string.Format("attachment; filename=\"{0}\"", workId);
var account = Storage.Account();
var cloudBlobClient = account.CreateCloudBlobClient();
var server = cloudBlobClient.StorageUri;
var blobName = new Uri(string.Format("{0}/{1}/{2}", server,
```

[ ] ,

- "work" + subject
- workId
- disposition
- blobName

[ ]));

- "work" + subject
- workId
- disposition
- blobName

```
var blob = cloudBlobClient.GetBlobReferenceFromServer(blobName);
var contentLength = blob.Properties.Length.ToString();
Response.Buffer = false;
Response.AddHeader("Content-Disposition", disposition);
Response.AddHeader("Content-Length", contentLength);
Response.ContentType = "application/octet-stream";
Response.Flush();

blob.DownloadToStream( [ ] );
```

- Response.OutputStream
- Request.InputStream
- blob.OpenRead()

```
HttpContext.ApplicationInstance.CompleteRequest();
return new EmptyResult();
```

Testlet 1

Topic 2, Contoso, Ltd

Background

Contoso, Ltd. is developing a patient monitoring solution for a hospital. The solution consists of an Azure website and a set of mobile applications that health care providers use to monitor patients remotely.
Monitoring devices that run the embedded version of Windows will be attached to patients. The devices will collect information from patients and will transmit real-time continuous data to a service that runs on Azure. The service collects and distributes data. The data that the service provides must be accessible by the website and by the mobile applications.

Business Requirements

Patients

All patient data must be stored securely on Azure. Data security must meet or exceed Health Insurance Portability and Accountability Act of 1996 (HIPAA) standards in the United States and must meet or exceed ISO/ICE 27002 data security standards in the rest of the world.

Contractors

Third-party contractors will develop the mobile applications. All contractors must develop the applications by using virtual machines (VMs) that are hosted on Azure. Only authorized contractors and authorized IP addresses are permitted to access the VMs. The contractors can use Near Field Communication (NFC) tags to launch Remote Desktop (RD) connections to the VMs from NFC-enabled devices. For testing purposes, contractors must be able to run multiple instances of mobile applications within the VMs.

Data Collection and Distribution Service

The service must monitor the patient data and send out alerts to health care providers when specific conditions are detected. The service must send the alerts to mobile applications and to the website in real time so that doctors, nurses, and caregivers can attend to the patient. Partner organizations and diagnostic laboratories must be able to securely access the data and the website from remote locations.

Current Issues

A partner that is testing a prototype of the website reports that after signing in to the website, the partner is redirected to the settings page instead of to the home page.
The data from the patient devices is slow to appear on the website and does not always appear.
All patient devices online have active connections to the data collection service.

Technical Requirements

Contractors

All contractors will use virtual machines that are initially configured as size A3. Contractors must sign in to the assigned VM by using IP addresses from a list of preapproved addresses.

Data Collection and Distribution Service

- The service runs Node.js in a worker role.
- The service must use at least 2048-bit encryption and must use port 8888.
- All patient information must be encrypted and stored by using a NoSQL data store.
- Data must be stored and retrieved securely by using RESTful endpoints.
- Data must NOT be stored within a virtual machine.

All deployed services must send an alert email to watchguard@contoso.com when any of the following conditions is met:

- The CPU Percentage metric is at or above 85 percent for at least 10 minutes.
- The Network In metric is at or above 2 KB for at least 10 minutes.
- The Network Out metric is at or above 2 KB for at least 10 minutes.
- The Disk Write metric is at or above 1 KB/sec for at least 30 minutes.
- The Disk Read metric is at or above 1 KB/sec for at least 30 minutes.

Website and Mobile Devices

The website must be secure and must be accessible only within the hospital's physical grounds. All mobile applications and websites must be responsive. All websites must produce error logs that can be viewed remotely.

Virtual Machines

- All Azure instances must be deployed and tested on staging instances before they are deployed to production instances.
- All deployed instances must scale up to the next available CPU instance at a CPU usage threshold of 90 percent and scale down when the usage is below 10 percent.

Application Structure

Relevant portions of the application files are shown in the following code segments. Line numbers in the code segments are included for reference only and include a two-character prefix that denotes the specific file to which they belong.

ControllerFile.cs:

```
CF01  using System;
CF02  using System.Collections.Generic;
CF03  using System.Linq;
CF04  using System.Web;
CF05  using System.Web.Mvc;
CF06  namespace WebApplication1.Controllers
CF07  {
CF08      public class HomeController : Controller
CF09      {
CF10          public ActionResult Index()
CF11          {
CF12              ViewBag.Message = "Welcome to Contoso Patient Monitor.";
CF13
CF14              return View();
CF15          }
CF16          ...

CF17      }
CF18  }
```

Web.config

```
WC01 <?xml version="1.0" encoding="utf-8"?>
WC02  <configuration>
WC03    <appSettings>
WC04      <add key="webpages:Version" value="3.0.0.0" />
WC05      <add key="webpages:Enabled" value="false" />
WC06      <add key="ClientValidationEnabled" value="true" />
WC07      <add key="UnobtrusiveJavaScriptEnabled" value="true" />
WC08
WC09    </appSettings>
WC10    <system.web>
WC11      <authentication mode="None" />
WC12      <compilation debug="true" targetFramework="4.5" />
WC13      <httpRuntime targetFramework="4.5" />
WC14
WC15    </system.web>
WC16  </configuration>
```

QUESTION 1
The website does not receive alerts quickly enough.

You need to resolve the issue.

What should you do?

A. Enable automatic scaling for the website.
B. Manually Increase the instance count for the worker role.
C. Increase the amount of swap memory for the VM instance.
D. Set the monitoring level to Verbose for the worker role.
E. Enable automatic scaling for the worker role.

Correct Answer: B

QUESTION 2
You need to implement data storage for patient information.

What should you do?

A. Use the Update Entity operation of the Table Service REST API.
B. Use the Put Blob operation of the Blob Service REST API.
C. Use the Put Message operation of the Create Queue REST API.
D. Use the Set Share Metadata operation of the File Service REST API.

Correct Answer: A

QUESTION 3
You create a VM named cVM_005 for a newly hired contractor.

The contractor reports that the VM runs out of memory when the contractor attempts to test the mobile applications.
You need to double the memory that is available for the VM.

Which Windows PowerShell command should you use?

A. `SetAzureVMSize -ServiceName "cVM_005" -VMSize "A4"`

B.
```
Add-DataDisksToVM.ps1 -ServiceName "cVM 005" -VMName
"MyVM" -Location "West US" -NumberOfDisks 2 -
DiskSizeInGB 16
```

C. `SetAzureVMSize -ServiceName "cVM_005" -VMSize "Medium"`

D. `SetAzureVMSize -ServiceName "cVM_005" -VMSize "A6"`

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

D. Option D

Correct Answer: A

QUESTION 4
Users report that after periods of inactivity the website is slow to render pages and to process sign-in attempts.

You need to ensure that the website is always responsive.

What should you do?

A. Add the following markup at line WC14:
<sessionState timeout-"86400" />
B. Add the following markup at line WC08:
<add key="timeout" value="null" />
C. Add the following markup at line WC14:
<sessionState timeout="fl" />
D. In the Azure management portal, enable Always On support for the website.
E. In the Azure management portal, disable Always On support for the website.

Correct Answer: A

QUESTION 5
You need to implement tracing for the website after the website is deployed.

Which code segment should you insert at line CF13?

A.
```
System.Diagnostics.Trace.WriteIf(false, username + " is on page at
" + DateTime.UtcNow.ToShortDateString(),"Error");
```

B.
```
System.Diagnostics.Trace.TraceInformation(username + " is on page at
" + DateTime.UtcNow.ToShortDateString());
```

C.
```
System.Diagnostics.Trace.TraceError(username + " is on page at
" + DateTime.UtcNow.ToShortDateString());
```

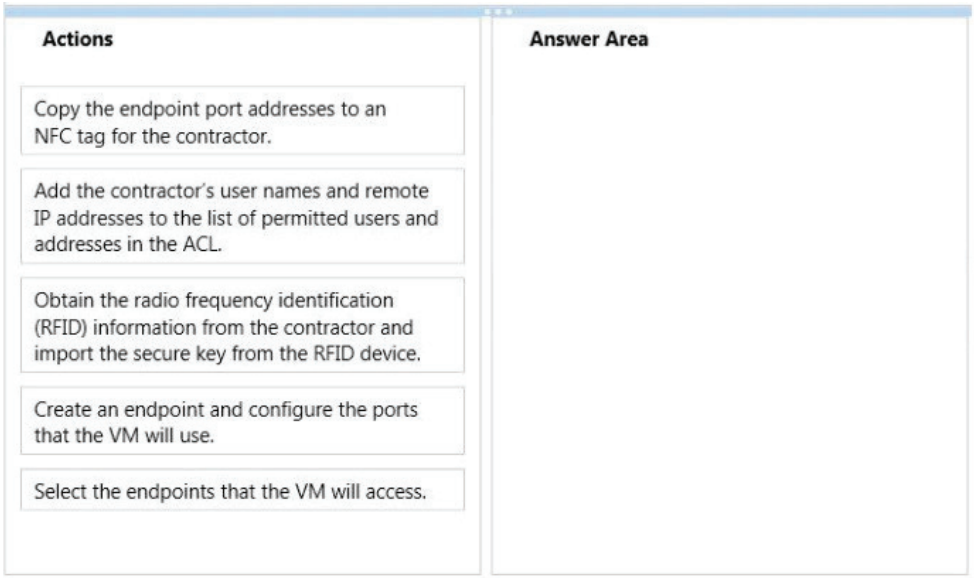
D.
```
System.Diagnostics.Trace.WriteLineIf(false, username + " is on page at
" + DateTime.UtcNow.ToShortDateString(),"Verbose");
```

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

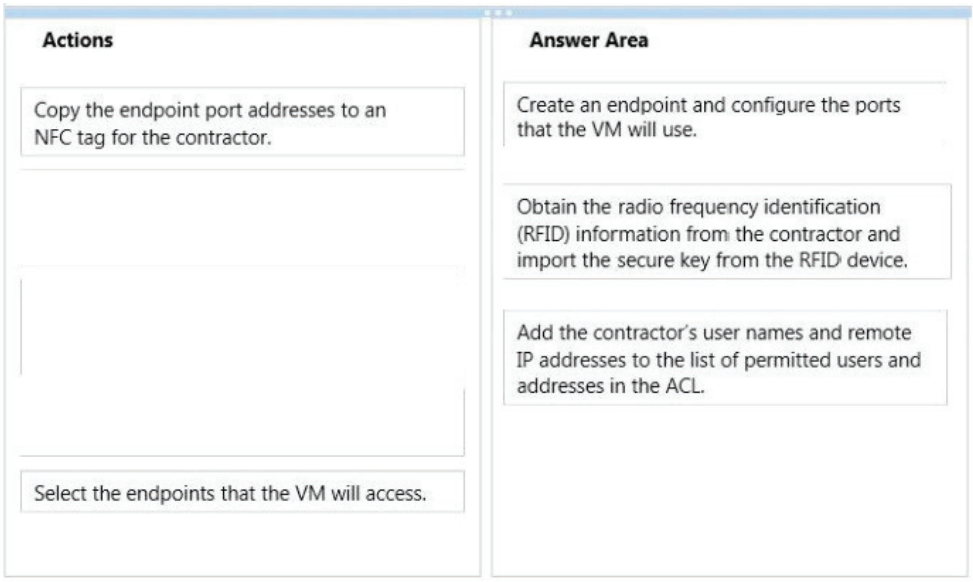
Correct Answer: C

QUESTION 6
You need to configure a VM for a new contractor.
Which three actions should you perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

Select and Place:



Correct Answer:



QUESTION 7
You run the following Windows PowerShell script. Line numbers are included for reference only.

```
01  Get-AzureSubscription –SubscriptionName ContosoPt1
02  Switch-AzureWebsiteSlot -Name ContosoPt1_2
03  Remove-AzureWebsite -Name ContosoPt1_2 -Slot staging
04  Get-AzureDeployment -ServiceName ContosoPt1_2 -Slot Production | Get-AzureDNS
05  $MyAzureCert = Get-AzureCertificate -ServiceName ContosoPT | Remove-AzureCertificate
```

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

Hot Area:

Answer Area

	Yes	No
After you run this script, a new certificate will be applied to the web site.	○	○
After you run this script, you must update the custom domain names.	○	○
After you run this script, you must recreate the staging slot.	○	○

Correct Answer:

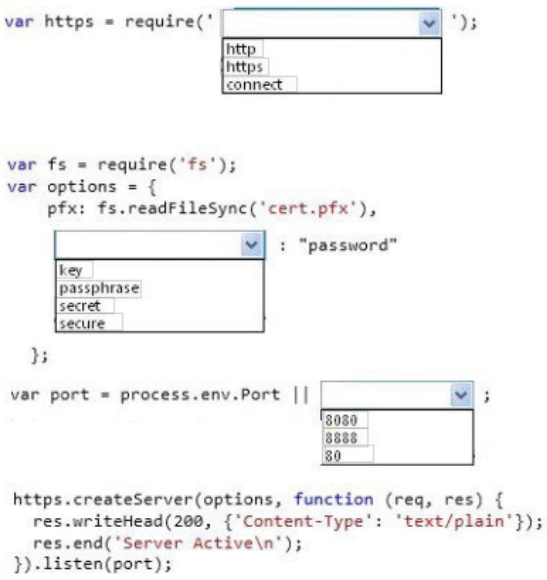
Answer Area

	Yes	No
After you run this script, a new certificate will be applied to the web site.	○	○
After you run this script, you must update the custom domain names.	○	○
After you run this script, you must recreate the staging slot.	○	○

QUESTION 8
You need to implement the worker role to support the real-time continuous data-collection service.
How should you complete the relevant code? To answer, select the appropriate option or options in the answer area.

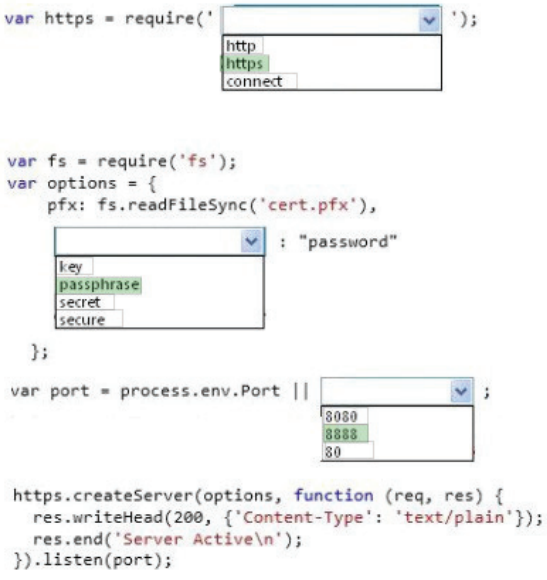
Hot Area:

Answer Area



Correct Answer:

Answer Area



QUESTION 9

You configure alerts in Azure. The metrics shown in the following exhibit represent the average values for each five-minute period.

Date/Time	Percent CPU	Network In (bytes)	Network Out (bytes)	Disk Write (bytes/sec)	Disk Read (bytes/sec)
August 01, 2014 13:30	84	456	123	345	120
August 01, 2014 13:35	84	1455	1934	980	945
August 01, 2014 13:40	84	930	3677	965	1023
August 01, 2014 13:45	84	1234	2334	923	678
August 01, 2014 13:50	84	123	456	120	1003

To answer, make the appropriate selections in the answer area.

Hot Area: