Number: AZ-301
Passing Score: 800
Time Limit: 120 min

AZ-301

Microsoft Azure Architect Design

Question Set 1

QUESTION 1

Your company uses Microsoft System Center – Service Manager on its on-premises network.

You plan to deploy several services to Azure.

You need to recommend a solution to push Azure service health alerts to Service Manager.

What should you include in the recommendation?

A. Azure Notification Hubs
B. Azure Event Hubs
C. IT Service Management Connector (ITSM)
D. Application Insights Connector

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:
Reference: https://docs.microsoft.com/en-us/azure/azure-monitor/platform/itsmc-overview

QUESTION 2
You have an on-premises Hyper-V cluster. The cluster contains Hyper-V hosts that run Windows Server 2016 Datacenter. The hosts are licensed under a Microsoft Enterprise Agreement that has Software Assurance.

The Hyper-V cluster hosts 3 virtual machines that run Windows Server 2012 R2. Each virtual machine runs a different workload. The workloads have predictable consumption patterns.

You plan to replace the virtual machines with Azure virtual machines that run Windows Server 2016. The virtual machines will be sized according to the consumption pattern of each workload.

You need to recommend a solution to minimize the compute costs of the Azure virtual machines.

Which two recommendations should you include in the solution? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

A. Purchase Azure Reserved Virtual Machine Instances for the Azure virtual machines
B. Create a virtual machine scale set that uses autoscaling
C. Configure a spending limit in the Azure account center
D. Create a lab in Azure DevTest Labs and place the Azure virtual machines in the lab
E. Activate Azure Hybrid Benefit for the Azure virtual machines

Correct Answer: AE
Section: [none]
Explanation

Explanation/Reference:

QUESTION 3
You have an on-premises Active Directory forest and an Azure Active Directory (Azure AD) tenant. All Azure AD users are assigned a Premium P1 license.

You deploy Azure AD Connect.

Which two features are available in this environment that can reduce operational overhead for your company's help desk? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. Azure AD Privileged Identity Management policies
B. access reviews
C. self-service password reset
D. Microsoft Cloud App Security Conditional Access App Control
E. password writeback

Correct Answer: CE
Section: [none]
Explanation

Explanation/Reference:

QUESTION 4
You are planning the implementation of an order processing web service that will contain microservices hosted in an Azure Service Fabric cluster.

You need to recommend a solution to provide developers with the ability to proactively identify and fix performance issues. The developers must be able to simulate user connections to the order processing web service from the Internet, as well as simulate user transactions. The developers must be notified if the goals for the transaction response times are not met.

What should you include in the recommendation?

A. container health
B. Azure Network WatcherC. Application Insights
D. Service Fabric Analytics

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:

QUESTION 5
You need to recommend a solution to generate a monthly report of all the new Azure Resource Manager resource deployments in your subscription.

What should you include in the recommendation?

A. Azure Analysis Services
B. Azure Activity Log
C. Azure Monitor action groups
D. Azure Advisor
E. Azure Monitor metrics
F. Azure Log Analytics
G. Application Insights

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Through activity logs, you can determine:
▪ what operations were taken on the resources in your subscription ▪ who
started the operation ▪ when the operation occurred ▪ the status of the
operation ▪ the values of other properties that might help you research the
operation

Reference: https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-audit

QUESTION 6
You plan to deploy 200 Microsoft SQL Server databases to Azure by using Azure SQL Database and Azure SQL Database Managed Instance.

You need to recommend a monitoring solution that provides a consistent monitoring approach for all deployments. The solution must meet the following requirements:

▪ Support current-state analysis based on metrics collected near real-time, multiple times per minute, and maintained for up to one hour
▪ Support longer term analysis based on metrics collected multiple times per hour and maintained for up to two weeks. ▪ Support monitoring of the number of concurrent logins and concurrent sessions.

What should you include in the recommendation?

A. dynamic management views
B. trace flags
C. Azure Monitor
D. SQL Server Profiler

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:
Testlet 1

Case study

This is a case study. **Case studies are not timed separately. You can use as much exam time as you would like to complete each case.** However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all questions included on this exam in the time provided.

To answer the questions included in a case study, you will need to reference information that is provided in the case study. Case studies might contain exhibits and other resources that provide more information about the scenario that is described in the case study. Each question is independent of the other questions in this case study.

At the end of this case study, a review screen will appear. This screen allows you to review your answers and to make changes before you move to the next section of the exam. After you begin a new section, you cannot return to this section.

To start the case study

To display the first question in this case study, click the **Next** button. Use the buttons in the left pane to explore the content of the case study before you answer the questions. Clicking these buttons displays information such as business requirement, existing environment, and problem statements. If the case study has an **All Information** tab, note that the information displayed is identical to the information displayed on the subsequent tabs. When you are ready to answer a question, click the **Question** button to return to the question.

Overview

Fabrikam, Inc. is an engineering company that has offices throughout Europe. The company has a main office in London and three branch offices in Amsterdam, Berlin, and Rome.

Existing Environment

Active Directory Environment

The network contains two Active Directory forests named corp.fabrikam.com and rd.fabrikam.com. There are no trust relationships between the forests.

Corp.fabrikam.com is a production forest that contains identities used for internal user and computer authentication.

Rd.fabrikam.com is used by the research and development (R&D) department only.

Network Infrastructure

Each office contains at least one domain controller from the corp.fabrikam.com domain. The main office contains all the domain controllers for the rd.fabrikam.com forest.

All the offices have a high-speed connection to the Internet.

An existing application named WebApp1 is hosted in the data center of the London office. WebApp1 is used by customers to place and track orders.

WebApp1 has a web tier that uses Microsoft Internet Information Services (IIS) and a database tier that runs Microsoft SQL Server 2016. The web tier and the database tier are deployed to virtual machines that run on Hyper-V.

The IT department currently uses a separate Hyper-V environment to test updates to WebApp1.

Fabrikam purchases all Microsoft licenses through a Microsoft Enterprise Agreement that includes Software Assurance.

Problem Statements

The use of Web App1 is unpredictable. At peak times, users often report delays. At other times, many resources for WebApp1 are underutilized.

Requirements

Planned Changes

Fabrikam plans to move most of its production workloads to Azure during the next few years.

As one of its first projects, the company plans to establish a hybrid identity model, facilitating an upcoming Microsoft Office 365 deployment.

All R&D operations will remain on-premises.

Fabrikam plans to migrate the production and test instances of WebApp1 to Azure.

Technical Requirements

Fabrikam identifies the following technical requirements:

▪ Web site content must be easily updated from a single point.
▪ User input must be minimized when provisioning new app instances.
▪ Whenever possible, existing on-premises licenses must be used to reduce cost. ▪
Users must always authenticate by using their corp.fabrikam.com UPN identity.
▪ Any new deployments to Azure must be redundant in case an Azure region fails.
▪ Whenever possible, solutions must be deployed to Azure by using platform as a service (PaaS).
▪ An email distribution group named IT Support must be notified of any issues relating to the directory synchronization services.
▪ Directory synchronization between Azure Active Directory (Azure AD) and corp.fabrikam.com must not be affected by a link failure between Azure and the onpremises network.

Database Requirements

Fabrikam identifies the following database requirements:

- Database metrics for the production instance of WebApp1, must be available for analysis so that database administrators can optimize the performance settings.
- To avoid disrupting customer access, database downtime must be minimized when databases are migrated. ▪
Database backups must be retained for a minimum of seven years to meet compliance requirements.

Security Requirements

Fabrikam identifies the following security requirements:

- Company information including policies, templates, and data must be inaccessible to anyone outside the company.
- Users on the on-premises network must be able to authenticate to corp.fabrikam.com if an Internet link fails.
- Administrators must be able authenticate to the Azure portal by using their corp.fabrikam.com credentials.
- All administrative access to the Azure portal must be secured by using multi-factor authentication. ▪
The testing of WebApp1 updates must not be visible to anyone outside the company.

QUESTION 1
What should you include in the identity management strategy to support the planned changes?

A. Move all the domain controllers from corp.fabrikam.com to virtual networks in Azure.
B. Deploy domain controllers for corp.fabrikam.com to virtual networks in Azure.
C. Deploy a new Azure AD tenant for the authentication of new R&D projects.
D. Deploy domain controllers for the rd.fabrikam.com forest to virtual networks in Azure.

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Directory synchronization between Azure Active Directory (Azure AD) and corp.fabrikam.com must not be affected by a link failure between Azure and the onpremises network. (This requires domain controllers in Azure)
Users on the on-premises network must be able to authenticate to corp.fabrikam.com if an Internet link fails. (This requires domain controllers on-premises)
Question Set 2

QUESTION 1
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an Azure subscription that contains a resource group named RG1.

You create an Azure Active Directory (Azure AD) group named ResearchUsers that contains the user accounts of all researchers.

You need to recommend a solution that meets the following requirements:

▪ The researchers must be allowed to create Azure virtual machines.
▪ The researchers must only be able to create Azure virtual machines by using specific Azure Resource Manager templates.

Solution: Create a lab in Azure DevTest Lab. Configure the DevTest Labs settings. Assign the DevTest Labs User role to the ResearchUsers group.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead: On RG1, assign the Contributor role to the ResearchUsers group. Create a custom Azure Policy definition and assign the policy to RG1.

QUESTION 2
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

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You have an Azure subscription that contains a resource group named RG1.

You create an Azure Active Directory (Azure AD) group named ResearchUsers that contains the user accounts of all researchers.

You need to recommend a solution that meets the following requirements:

▪ The researchers must be allowed to create Azure virtual machines.
▪ The researchers must only be able to create Azure virtual machines by using specific Azure Resource Manager templates.

Solution: Create an Azure DevOps Project. Configure the DevOps Project settings.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead: On RG1, assign the Contributor role to the ResearchUsers group. Create a custom Azure Policy definition and assign the policy to RG1.

QUESTION 3
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

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You create an Azure Active Directory (Azure AD) group named ResearchUsers that contains the user accounts of all researchers.

You need to recommend a solution that meets the following requirements:

▪ The researchers must be allowed to create Azure virtual machines.
▪ The researchers must only be able to create Azure virtual machines by using specific Azure Resource Manager templates.

Solution: On RG1, assign the Contributor role to the ResearchUsers group. Create a custom Azure Policy definition and assign the policy to RG1.

Does this meet the goal?

A. Yes

B. No

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:

QUESTION 4

A company named Contoso Ltd., has a single-domain Active Directory forest named contoso.com.

Contoso is preparing to migrate all workloads to Azure. Contoso wants users to use single sign-on (SSO) when they access cloud-based services that integrate with Azure Active Directory (Azure AD).

You need to identify any objects in Active Directory that will fail to synchronize to Azure AD due to formatting issues. The solution must minimize costs.

What should you include in the solution?

A. Azure Advisor
B. Microsoft Office 365 IdFix
C. Azure AD Connect Health
D. Password Export Server version 3.1 (PES v3.1) in Active Directory Migration Tool (ADMT)

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 5

You have an Azure subscription.

You need to recommend a solution to provide developers with the ability to provision Azure virtual machines. The solution must meet the following requirements:

▪ Only allow the creation of the virtual machines in specific regions. ▪
Only allow the creation of specific sizes of virtual machines.

What should include in the recommendation?

A. conditional access policies
B. Azure Policy
C. Azure Resource Manager templates
D. role-based access control (RBAC)

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 6
A company named Contoso, Ltd. has an Azure Active Directory (Azure AD) tenant that is integrated with Microsoft Office 365 and an Azure subscription.

Contoso has an on-premises identity infrastructure. The infrastructure includes servers that run Active Directory Domain Services (AD DS), Active Directory Federation Services (AD FS), Azure AD Connect, and Microsoft Identity Manager (MIM).

Contoso has a partnership with a company named Fabrikam, Inc. Fabrikam has an Active Directory forest and an Office 365 tenant. Fabrikam has the same onpremises identity infrastructure as Contoso.

A team of 10 developers from Fabrikam will work on an Azure solution that will be hosted in the Azure subscription of Contoso. The developers must be added to the Contributor role for a resource in the Contoso subscription.

You need to recommend a solution to ensure that Contoso can assign the role to the 10 Fabrikam developers. The solution must ensure that the Fabrikam developers use their existing credentials to access resources.

What should you recommend?

A. Configure a forest trust between the on-premises Active Directory forests of Contoso and Fabrikam.
B. Configure an organization relationship between the Office 365 tenants of Fabrikam and Contoso.
C. In the Azure AD tenant of Contoso, enable Azure Active Directory Domain Services (Azure AD DS). Create a one-way forest trust that uses selective authentication between the Active Directory forests of Contoso and Fabrikam.
D. In the Azure AD tenant of Contoso, create guest accounts for the Fabrikam developers.
E. In the Azure AD tenant of Contoso, create cloud-only user accounts for the Fabrikam developers.

Correct Answer: C
Section: [none]
Explanation
Explanation/Reference:
Explanation:
Manage access to Azure resources for external guest users using RBAC
Role-based access control (RBAC) allows better security management for large organizations and for small and medium-sized businesses working with external collaborators, vendors, or freelancers that need access to specific resources in your environment, but not necessarily to the entire infrastructure or any

billingrelated scopes. You can use the capabilities in Azure Active Directory B2B to collaborate with external guest users and you can use RBAC to grant just the permissions that guest users need in your environment.

Reference: https://docs.microsoft.com/en-us/azure/role-based-access-control/role-assignments-external-users

QUESTION 7
You have a hybrid deployment of Azure Active Directory (Azure AD).

You need to recommend a solution to ensure that the Azure AD tenant can be managed only from the computers on your on-premises network.

What should you include in the recommendation?

A. Azure AD roles and administrators
B. a conditional access policy
C. Azure AD Application Proxy
D. Azure AD Privileged Identity Management

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 8
You have an Azure Active Directory (Azure AD) tenant named contoso.com that contains several administrative user accounts.

You need to recommend a solution to identify which administrative user accounts have **NOT** signed in during the previous 30 days.

Which service should you include in the recommendation?

A. Azure AD Identity Protection
B. Azure Activity Log

C. Azure Advisor
D. Azure AD Privileged Identity Management (PIM)

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:

QUESTION 9
You manage a single-domain, on-premises Active Directory forest named contoso.com. The forest functional level is Windows Server 2016.

You have several on-premises applications that depend on Active Directory.

You plan to migrate the applications to Azure.

You need to recommend an identity solution for the applications. The solution must meet the following requirements:

▪ Eliminate the need for hybrid network connectivity.
▪ Minimize management overhead for Active Directory.

What should you recommend?

A. In Azure, deploy an additional child domain to the contoso.com forest.
B. In Azure, deploy additional domain controllers for the contoso.com domain.
C. Implement a new Active Directory forest in Azure.
D. Implement Azure Active Directory Domain Services (Azure AD DS).

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 10
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an Azure subscription named Project1. Only a group named Project1admins is assigned roles in the Project1 subscription. The Project1 subscription contains all the resources for an application named Application1.

Your company is developing a new application named Application2. The members of the Application2 development team belong to an Azure Active Directory (Azure AD) group named App2Dev.

You identify the following requirements for Application2:

▪ The members of App2Dev must be prevented from changing the role assignments in Azure.
▪ The members of App2Dev must be able to create new Azure resources required by Application2.
▪ All the required role assignments for Application2 will be performed by the members of Project1admins.

You need to recommend a solution for the role assignments of Application2.

Solution: In Project1, create a network security group (NSG) named NSG1. Assign Project1admins the Owner role for NSG1. Assign the App2Dev the Contributor role for NSG1.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
You should use a separate subscription for Project2.

QUESTION 11
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an Azure subscription that contains a resource group named RG1.

You create an Azure Active Directory (Azure AD) group named ResearchUsers that contains the user accounts of all researchers.

You need to recommend a solution that meets the following requirements:

▪ The researchers must be allowed to create Azure virtual machines.

▪ The researchers must only be able to create Azure virtual machines by using specific Azure Resource Manager templates.

Solution: On RG1, assign a custom role-based access control (RBAC) role to the ResearchUsers group.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead: On RG1, assign the Contributor role to the ResearchUsers group. Create a custom Azure Policy definition and assign the policy to RG1.

QUESTION 12
A company deploys Azure Active Directory (Azure AD) Connect to synchronize identity information from their on-premises Active Directory Domain Services (AD DS) directory to their Azure AD tenant. The identity information that is synchronized includes user accounts , credential hashes for authentication (password sync), and group membership. The company plans to deploy several Windows and Linux virtual machines (VMs) to support their applications.

The VMs have the following requirements:

▪ Support domain join, LDAP read, LDAP bind, NTLM and Kerberos authentication, and Group Policy.
▪ Allow users to sign in to the domain using their corporate credentials and connect remotely to the VM by using Remote Desktop.

You need to support the VM deployment.

Which service should you use?

A. Azure AD Domain Services
B. Azure AD Privileged Identity Management
C. Azure AD Managed Service Identity
D. Active Directory Federation Services (AD FS)

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Azure AD Domain Services provides managed domain services such as domain join, group policy, LDAP, Kerberos/NTLM authentication that are fully compatible with Windows Server Active Directory.

Reference:
https://docs.microsoft.com/en-us/azure/active-directory-domain-services/active-directory-ds-overview

QUESTION 13
DRAG DROP

A company has an existing web application that runs on virtual machines (VMs) in Azure.

You need to ensure that the application is protected from SQL injection attempts and uses a layer-7 load balancer. The solution must minimize disruption to the code for the existing web application.

What should you recommend? To answer, drag the appropriate values to the correct items. Each value may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:

Values

Values
Web Application Firewall (WAF)
Azure Application Gateway
Azure Load Balancer
Azure Traffic Manager
SSL offloading
URL-based content routing

Answer Area

Item	Value
Azure service	
Feature	

Correct Answer:

Values

Azure Load Balancer
Azure Traffic Manager
SSL offloading
URL-based content routing

Answer Area

Item	Value
Azure service	Azure Application Gateway
Feature	Web Application Firewall (WAF)

Section: [none]
Explanation

Explanation/Reference:
Explanation:

Box 1: Azure Application Gateway
Azure Application Gateway provides an application delivery controller (ADC) as a service. It offers various layer 7 load-balancing capabilities for your applications.

Box 2: Web Application Firwewall (WAF)
Application Gateway web application firewall (WAF) protects web applications from common vulnerabilities and
exploits. This is done through rules that are defined based on the OWASP core rule sets 3.0 or 2.2.9. There are rules
that detects SQL injection attacks.

Reference: https://docs.microsoft.com/en-us/azure/application-gateway/application-gateway-

faq https://docs.microsoft.com/en-us/azure/application-gateway/waf-overview

QUESTION 14

Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company has deployed several virtual machines (VMs) on-premises and to Azure. Azure ExpressRoute has been deployed and configured for on-premises to Azure connectivity.

Several VMs are exhibiting network connectivity issues.

You need to analyze the network traffic to determine whether packets are being allowed or denied to the VMs.

Solution: Use the Azure traffic analytics solution in Azure Log Analytics to analyze the network traffic.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead use Azure Network Watcher to run IP flow verify to analyze the network traffic.

Reference: https://docs.microsoft.com/en-us/azure/network-watcher/network-watcher-monitoring-overview https://docs.microsoft.com/en-us/azure/network-watcher/network-watcher-ip-flow-verify-overview

QUESTION 15
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company has deployed several virtual machines (VMs) on-premises and to Azure. Azure ExpressRoute has been deployed and configured for on-premises to Azure connectivity.

Several VMs are exhibiting network connectivity issues.

You need to analyze the network traffic to determine whether packets are being allowed or denied to the VMs.

Solution: Use Azure Network Watcher to run IP flow verify to analyze the network traffic.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
Explanation:
The Network Watcher Network performance monitor is a cloud-based hybrid network monitoring solution that helps you monitor network performance between various points in your network infrastructure. It also helps you monitor network connectivity to service and application endpoints and monitor the performance of Azure ExpressRoute.

Note:
IP flow verify checks if a packet is allowed or denied to or from a virtual machine. The information consists of direction, protocol, local IP, remote IP, local port, and remote port. If the packet is denied by a security group, the name of the rule that denied the packet is returned. While any source or destination IP can be chosen, IP flow verify helps administrators quickly diagnose connectivity issues from or to the internet and from or to the on-premises environment.

IP flow verify looks at the rules for all Network Security Groups (NSGs) applied to the network interface, such as a subnet or virtual machine NIC. Traffic flow is then verified based on the configured settings to or from that network interface. IP flow verify is useful in confirming if a rule in a Network Security Group is blocking ingress or egress traffic to or from a virtual machine.

Reference: https://docs.microsoft.com/en-us/azure/network-watcher/network-watcher-monitoring-

overview https://docs.microsoft.com/en-us/azure/network-watcher/network-watcher-ip-flow-verify-

overview

QUESTION 16
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company has deployed several virtual machines (VMs) on-premises and to Azure. Azure ExpressRoute has been deployed and configured for on-premises to Azure connectivity.

Several VMs are exhibiting network connectivity issues.

You need to analyze the network traffic to determine whether packets are being allowed or denied to the VMs.

Solution: Install and configure the Log Analytics and Dependency Agents on all VMs. Use the Wire Data solution in Azure Log Analytics to analyze the network traffic.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead use Azure Network Watcher to run IP flow verify to analyze the network traffic.

Reference: https://docs.microsoft.com/en-us/azure/network-watcher/network-watcher-monitoring-

overview https://docs.microsoft.com/en-us/azure/network-watcher/network-watcher-ip-flow-verify-

overview

QUESTION 17
Your network contains an on-premises Active Directory forest named contoso.com. The forest is synced to an Azure Active Directory (Azure AD) tenant named contoso.com and an Azure AD Domain Services (Azure AD DS) domain named contoso-aad.com.

You have an Azure Storage account named Storage1 that contains a file share named Share1.

You configure NTFS permissions on Share1. You plan to deploy a virtual machine that will be used by several users to access Share1.

You need to ensure that the users can access Share1.

Which type virtual machine should you deploy?

A. a virtual machine that runs Windows Server 2016 and is joined to the contoso.com domain

B. a virtual machine that runs Windows 10 and is joined to the contoso-add.com domain

C. a virtual machine that runs Windows 10 and is hybrid Azure AD joined to the contoso.com domain

D. an Azure virtual machine that runs Windows Server 2016 and is joined to the contoso-add.com domain

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:
Explanation:
You join the Windows Server virtual machine to the Azure AD DS-managed domain, here named contoso-aad.com.

Note: Azure Files supports identity-based authentication over SMB (Server Message Block) (preview) through Azure Active Directory (Azure AD) Domain Services. Your domain-joined Windows virtual machines (VMs) can access Azure file shares using Azure AD credentials.

Incorrect Answers:
B, C: Azure AD authentication over SMB is not supported for Linux VMs for the preview release. Only Windows Server VMs are supported.

Reference:
https://docs.microsoft.com/en-us/azure/storage/files/storage-files-active-directory-enable#mount-a-file-share-from-a-domain-joined-vm

QUESTION 18
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company has an on-premises data center and an Azure subscription. The on-premises data center contains a Hardware Security Module (HSM).

Your network contains an Active Directory domain that is synchronized to an Azure Active Directory (Azure AD) tenant.

The company is developing an application named Application1. Application1 will be hosted in Azure by using 10 virtual machines that run Windows Server 2016. Five virtual machines will be in the West Europe Azure region and five virtual machines will be in the East US Azure region. The virtual machines will store sensitive company information. All the virtual machines will use managed disks.

You need to recommend a solution to encrypt the virtual machine disks by using BitLocker Drive Encryption (BitLocker).

Solution: Deploy one Azure Key Vault to each region. Create two Azure AD service principals. Configure the virtual machines to use Azure Disk Encryption and specify a different service principal for the virtual machines in each region.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
You would also have to import Import the security keys from the HSM into each Azure key vault.

Reference:
https://docs.microsoft.com/en-us/azure/security/azure-security-disk-encryption-prerequisites-aad

QUESTION 19
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company has an on-premises data center and an Azure subscription. The on-premises data center contains a Hardware Security Module (HSM).

Your network contains an Active Directory domain that is synchronized to an Azure Active Directory (Azure AD) tenant.

The company is developing an application named Application1. Application1 will be hosted in Azure by using 10 virtual machines that run Windows Server 2016. Five virtual machines will be in the West Europe Azure region and five virtual machines will be in the East US Azure region. The virtual machines will store sensitive company information. All the virtual machines will use managed disks.

You need to recommend a solution to encrypt the virtual machine disks by using BitLocker Drive Encryption (BitLocker).

Solution: Export a security key from the on-premises HSM. Create one Azure AD service principal. Configure the virtual machines to use Azure Storage Service Encryption.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
We use the Azure Premium Key Vault with Hardware Security Modules (HSM) backed keys.
The Key Vault has to be in the same region as the VM that will be encrypted.

Reference:
https://www.ciraltos.com/azure-disk-encryption-v2/

QUESTION 20
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company has an on-premises data center and an Azure subscription. The on-premises data center contains a Hardware Security Module (HSM).

Your network contains an Active Directory domain that is synchronized to an Azure Active Directory (Azure AD) tenant.

The company is developing an application named Application1. Application1 will be hosted in Azure by using 10 virtual machines that run Windows Server 2016. Five virtual machines will be in the West Europe Azure region and five virtual machines will be in the East US Azure region. The virtual machines will store sensitive company information. All the virtual machines will use managed disks.

You need to recommend a solution to encrypt the virtual machine disks by using BitLocker Drive Encryption (BitLocker).

Solution:
▪ Deploy one Azure key vault to each region
▪ Export two security keys from the on-premises HSM
▪ Import the security keys from the HSM into each Azure key vault ▪
Create two Azure AD service principals
▪ Configure the virtual machines to use Azure Disk Encryption
▪ Specify a different service principal for the virtual machines in each region

Does this meet the goal?

A. Yes
B. No

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
Explanation:
We use the Azure Premium Key Vault with Hardware Security Modules (HSM) backed keys.
The Key Vault has to be in the same region as the VM that will be encrypted.

Note: If you want to use a key encryption key (KEK) for an additional layer of security for encryption keys, add a KEK to your key vault. Use the Add-AzKeyVaultKey cmdlet to create a key encryption key in the key vault. You can also import a KEK from your on-premises key management HSM.

Reference: https://www.ciraltos.com/azure-disk-encryption-v2/ https://docs.microsoft.com/en-us/azure/security/azure-security-disk-encryption-prerequisites-aad

QUESTION 21
Your network contains an Active Directory domain named contoso.com that is federated to an Azure Active Directory (Azure AD) tenant. The on-premises domain contains a VPN server named Server1 that runs Windows Server 2016.

You have a single on-premises location that uses an address space of 172.16.0.0/16.

You need to implement two-factor authentication for users who establish VPN connections to Server1.

What should you include in the implementation?

A. In Azure AD, create a conditional access policy and a trusted named location
B. Install and configure Azure MFA Server on-premises
C. Configure an Active Directory Federation Services (AD FS) server on-premises
D. In Azure AD, configure the authentication methods. From the multi-factor authentication (MFA) service settings, create a trusted IP range

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:

You need to download, install and configure the MFA Server.

Reference:
https://docs.microsoft.com/en-us/azure/active-directory/authentication/howto-mfaserver-deploy

QUESTION 22
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company has an on-premises Active Directory Domain Services (AD DS) domain and an established Azure Active Directory (Azure AD) environment.

Your company would like users to be automatically signed in to cloud apps when they are on their corporate desktops that are connected to the corporate network.

You need to enable single sign-on (SSO) for company users.

Solution: Install and configure an Azure AD Connect server to use password hash synchronization and select the **Enable single sign-on** option.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:

QUESTION 23
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company has an on-premises Active Directory Domain Services (AD DS) domain and an established Azure Active Directory (Azure AD) environment.

Your company would like users to be automatically signed in to cloud apps when they are on their corporate desktops that are connected to the corporate network.

You need to enable single sign-on (SSO) for company users.

Solution: Install and configure an Azure AD Connect server to use pass-through authentication and select the **Enable single sign-on** option.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:

QUESTION 24
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company has an on-premises Active Directory Domain Services (AD DS) domain and an established Azure Active Directory (Azure AD) environment.

Your company would like users to be automatically signed in to cloud apps when they are on their corporate desktops that are connected to the corporate network.

You need to enable single sign-on (SSO) for company users.

Solution: Configure an AD DS server in an Azure virtual machine (VM). Configure bidirectional replication.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 25
You are designing a security solution for a company's Azure Active Directory (Azure AD). The company currently uses Azure AD Premium for all employees. Contractors will periodically access the corporate network based on demand.

You must ensure that all employees and contractors are required to log on by using two-factor authentication. The solution must minimize costs.

You need to recommend a solution.

What should you recommend?

A. Purchase Azure Multi-Factor Authentication licenses for the employees and the contractors
B. Use the Multi-Factor Authentication provider in Azure and configure the usage model for each authentication type
C. Use the Multi-Factor Authentication provider in Azure and configure the usage model for each enabled user
D. Purchase Azure Multi-Factor Authentication licenses for the contractors only

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:

QUESTION 26
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an Azure Active Directory (Azure AZD) tenant named contoso.com. The tenant contains a group named Group1. Group1 contains all the administrative user accounts.

You discover several login attempts to the Azure portal from countries where administrative users do **NOT** work.

You need to ensure that all login attempts to the Azure portal from those countries require Azure Multi-Factor Authentication (MFA).

Solution: You implement an access package.

Does this solution meet the goal?

A. Yes

B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 27
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an Azure Active Directory (Azure AZD) tenant named contoso.com. The tenant contains a group named Group1. Group1 contains all the administrative user accounts.

You discover several login attempts to the Azure portal from countries where administrative users do **NOT** work.

You need to ensure that all login attempts to the Azure portal from those countries require Azure Multi-Factor Authentication (MFA).

Solution: Implement Azure AD Privileged Identity Management.

Does this solution meet the goal?

A. Yes
B. No

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:

QUESTION 28
Your company has several Azure subscriptions that are part of a Microsoft Enterprise Agreement.

The company's compliance team creates automatic alerts by using Azure Monitor.

You need to recommend a solution to apply the alerts automatically when new subscriptions are added to the Enterprise Agreement.

What should you include in the recommendation?

A. Azure Automation runbooks
B. Azure Log Analytics alerts
C. Azure Monitor action groups
D. Azure Resource Manager templates
E. Azure Policy

Correct Answer: E
Section: [none]
Explanation

Explanation/Reference:

QUESTION 29
You store web access logs data in Azure Blob storage.

You plan to generate monthly reports from the access logs.

You need to recommend an automated process to upload the data to Azure SQL Database every month.

What should you include in the recommendation?

A. Microsoft SQL Server Migration Assistant (SSMA)
B. Azure Data Factory
C. Data Migration Assistant
D. AzCopy

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 30

Your company has the offices shown in the following table.

Location	IP address space	Public NAT segment
Montreal	10.10.0.0/16	190.15.1.0/24
Seattle	172.16.0.0/16	194.25.2.0/24

The network contains an Active Directory domain named contoso.com that is synced to Azure Active Directory (Azure AD).

All users connect to an application hosted in Microsoft 365.

You need to recommend a solution to ensure that all the users use Azure Multi-Factor Authentication (MFA) to connect to the application from one of the offices.

What should you include in the recommendation?

A. a named location and two Microsoft Cloud App Security policies
B. a conditional access policy and two virtual networks
C. a virtual network and two Microsoft Cloud App Security policies
D. a conditional access policy and two named locations

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:

QUESTION 31
HOTSPOT

You have an Azure subscription that contains 300 Azure virtual machines that run Windows Server 2016.

You need to centrally monitor all warning events in the System logs of the virtual machines.

What should you include in the solutions? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Resource to create in Azure: ▼

| An event hub |
| A Log Analytics workspace |
| A search service |
| A storage account |

Configuration to perform on the
virtual machines: ▼

| Create event subscriptions |
| Configure Continuous delivery |
| Install the Microsoft Monitoring Agent |
| Modify the membership of the Event Log Readers Groups |

Correct Answer:

Answer Area

Resource to create in Azure: ▼

| An event hub |
| **A Log Analytics workspace** |
| A search service |
| A storage account |

Configuration to perform on the
virtual machines: ▼

| Create event subscriptions |
| Configure Continuous delivery |
| **Install the Microsoft Monitoring Agent** |
| Modify the membership of the Event Log Readers Groups |

Section: [none]

Explanation
Explanation/Reference:
Reference: https://docs.microsoft.com/en-us/azure/azure-monitor/platform/data-sources-windows-events https://docs.microsoft.com/en-us/azure/azure-monitor/platform/agent-windows

QUESTION 32
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

Your company has an on-premises Active Directory Domain Services (AD DS) domain and an established Azure Active Directory (Azure AD) environment.

Your company would like users to be automatically signed in to cloud apps when they are on their corporate desktops that are connected to the corporate network.

You need to enable single sign-on (SSO) for company users.

Solution: Install and configure an on-premises Active Directory Federation Services (AD FS) server with a trust established between the AD FS server and Azure AD.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Seamless SSO is not applicable to Active Directory Federation Services (ADFS).
Instead install and configure an Azure AD Connect server.

Reference:
https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-sso

QUESTION 33
You have an Azure subscription that contains several resource groups. Including a resource group named RG1. RG1 contains several business-critical resources.

A user named admin1 is assigned the Owner role to the subscription.

You need to prevent admin1 from modifying the resources in RG1. The solution must ensure that admin1 can manage the resources in the other resource groups.

What should you use?

A. a management group
B. an Azure policy
C. a custom role
D. an Azure blueprint

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Role-based access control (RBAC) focuses on user actions at different scopes. You might be added to the contributor role for a resource group, allowing you to make changes to that resource group.

Incorrect Answers:
A: If your organization has many subscriptions, you may need a way to efficiently manage access, policies, and compliance for those subscriptions. Azure management groups provide a level of scope above subscriptions.

B: There are a few key differences between Azure Policy and role-based access control (RBAC). Azure Policy focuses on resource properties during deployment and for already existing resources. Azure Policy controls properties such as the types or locations of resources. Unlike RBAC, Azure Policy is a default allow and explicit deny system.

D: Azure Blueprints enables cloud architects and central information technology groups to define a repeatable set of Azure resources that implements and adheres to an organization's standards, patterns, and requirements.

Reference:
https://docs.microsoft.com/en-us/azure/role-based-access-control/overview

Testlet 1

Case study

This is a case study. **Case studies are not timed separately. You can use as much exam time as you would like to complete each case.** However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all questions included on this exam in the time provided.

To answer the questions included in a case study, you will need to reference information that is provided in the case study. Case studies might contain exhibits and other resources that provide more information about the scenario that is described in the case study. Each question is independent of the other questions in this case study.

At the end of this case study, a review screen will appear. This screen allows you to review your answers and to make changes before you move to the next section of the exam. After you begin a new section, you cannot return to this section.

To start the case study
To display the first question in this case study, click the **Next** button. Use the buttons in the left pane to explore the content of the case study before you answer the questions. Clicking these buttons displays information such as business requirement, existing environment, and problem statements. If the case study has an **All Information** tab, note that the information displayed is identical to the information displayed on the subsequent tabs. When you are ready to answer a question, click the **Question** button to return to the question.

Overview

Fabrikam, Inc. is an engineering company that has offices throughout Europe. The company has a main office in London and three branch offices in Amsterdam, Berlin, and Rome.

Existing Environment

Active Directory Environment

The network contains two Active Directory forests named corp.fabrikam.com and rd.fabrikam.com. There are no trust relationships between the forests.

Corp.fabrikam.com is a production forest that contains identities used for internal user and computer authentication.

Rd.fabrikam.com is used by their research and development (R&D) department only.

Network Infrastructure

Each office contains at least one domain controller from the corp.fabrikam.com domain. The main office contains all the domain controllers for the rd.fabrikam.com forest.

All the offices have a high-speed connection to the Internet.

An existing application named WebApp1 is hosted in the data center of the London office. WebApp1 is used by customers to place and track orders. WebApp1 has a web tier that uses Microsoft Internet Information Services (IIS) and a database tier that runs Microsoft SQL Server 2016. The web tier and the database tier are deployed to virtual machines that run on Hyper-V.

The IT department currently uses a separate Hyper-V environment to test updates to WebApp1.

Fabrikam purchases all Microsoft licenses through a Microsoft Enterprise Agreement that includes Software Assurance.

Problem Statements

The use of WebApp1 is unpredictable. At peak times, users often report delays. At other times, many resources for WebApp1 are underutilized.

Requirements

Planned Changes

Fabrikam plans to move most of its production workloads to Azure during the next few years.

As one of its first projects, the company plans to establish a hybrid identity model, facilitating an upcoming Microsoft Office 365 deployment.

All R&D operations will remain on-premises.

Fabrikam plans to migrate the production and test instances of WebApp1 to Azure.

Technical Requirements

Fabrikam identifies the following technical requirements:

▪ Web site content must be easily updated from a single point.
▪ User input must be minimized when provisioning new web app instances.
▪ Whenever possible, existing on-premises licenses must be used to reduce cost. ▪
Users must always authenticate by using their corp.fabrikam.com UPN identity.
▪ Any new deployments to Azure must be redundant in case an Azure region fails.
▪ Whenever possible, solutions must be deployed to Azure by using platform as a service (PaaS).
▪ An email distribution group named IT Support must be notified of any issues relating to the directory synchronization services.
▪ Directory synchronization between Azure Active Directory (Azure AD) and corp.fabrikam.com must not be affected by a link failure between Azure and the onpremises network.

Fabrikam identifies the following database requirements:

▪ Database metrics for the production instance of WebApp1 must be available for analysis so that database administrators can optimize the performance settings.

▪ To avoid disrupting customer access, database downtime must be minimized when databases are migrated.

▪ Database backups must be retained for a minimum of seven years to meet compliance requirements. **Security**

Requirements

Fabrikam identifies the following security requirements:

▪ Company information including policies, templates, and data must be inaccessible to anyone outside the company.
▪ Users on the on-premises network must be able to authenticate to corp.fabrikam.com if an Internet link fails.
▪ Administrators must be able authenticate to the Azure portal by using their corp.fabrikam.com credentials.
▪ All administrative access to the Azure portal must be secured by using multi-factor authentication. ▪
The testing of WebApp1 updates must not be visible to anyone outside the company.

QUESTION 1
You need to recommend a data storage strategy for WebApp1.

What should you include in the recommendation?

A. a fixed-size DTU Azure SQL database
B. an Azure virtual machine that runs SQL Server
C. an Azure SQL Database elastic poolD. a vCore-based Azure SQL database

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:
Question Set 2

QUESTION 1
You have an Azure subscription that contains an Azure Cosmos DB account.

You need to recommend a solution to generate an alert from Azure Log Analytics when a request charge for a query exceeds 50 request units more than 20 times within a 15-minute window.

What should you recommend?

A. Create a search query to identify when requestCharge_s exceeds 50. Configure an alert threshold of 20 and a period of 15.
B. Create a search query to identify when duration_s exceeds 20 and requestCharge_s exceeds 50. Configure a period of 15.
C. Create a search query to identify when requestCharge_s exceeds 20. Configure a period of 15 and a frequency of 20.
D. Create a search query to identify when duration_s exceeds 20. Configure a period of 15.

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:

QUESTION 2
You are designing a data protection strategy for Azure virtual machines. All the virtual machines are in the Standard tier and use managed disks.

You need to recommend a solution that meets the following requirements:

▪ The use of encryption keys is audited.
▪ All the data is encrypted at rest always.
▪ You manage the encryption keys, not Microsoft.

What should you include in the recommendation?

A. BitLocker Drive Encryption (BitLocker)
B. Azure Storage Service Encryption
C. client-side encryption
D. Azure Disk Encryption

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:
Reference: https://docs.microsoft.com/en-us/azure/security/azure-security-disk-encryption-overview

QUESTION 3
You have 100 servers that run Windows Server 2012 R2 and host Microsoft SQL Server 2012 R2 instances. The instances host databases that have the following characteristics:

▪ The largest database is currently 3 TB. None of the databases will ever exceed 4 TB. ▪
Stored procedures are implemented by using CLR.

You plan to move all the data from SQL Server to Azure.

You need to recommend an Azure service to host the databases. The solution must meet the following requirements:

▪ Whenever possible, minimize management overhead for the migrated databases.
▪ Minimize the number of database changes required to facilitate the migration.
▪ Ensure that users can authenticate by using their Active Directory credentials.

What should you include in the recommendation?

A. Azure SQL Database single databases
B. Azure SQL Database Managed Instance
C. Azure SQL Database elastic pools
D. SQL Server 2016 on Azure virtual machines

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Reference: https://docs.microsoft.com/en-us/azure/sql-database/sql-database-managed-instance

QUESTION 4
You plan to create an Azure Cosmos DB account that uses the SQL API. The account will contain data added by a web application. The web application will send data daily.

You need to recommend a notification solution that meets the following requirements:

▪ Sends email notification when data is received from IoT devices. ▪
Minimizes compute cost.

What should you include in the recommendation?

A. Deploy an Azure logic app that has the Azure Cosmos DB connector configured to use a SendGrid action.
B. Deploy a function app that is configured to use the Consumption plan and a SendGrid binding.
C. Deploy an Azure logic app that has a SendGrid connector configured to use an Azure Cosmos DB action.
D. Deploy a function app that is configured to use the Consumption plan and an Azure Event Hubs binding.

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
You can send email by using SendGrid bindings in Azure Functions. Azure Functions supports an output binding for SendGrid.

Reference: https://docs.microsoft.com/en-us/azure/azure-functions/functions-bindings-sendgrid

QUESTION 5
You have Azure virtual machines that run a custom line-of-business web application.

You plan to use a third-party solution to parse event logs from the virtual machines stored in an Azure storage account.

You need to recommend a solution to save the event logs from the virtual machines to the Azure Storage account. The solution must minimize costs and complexity.

What should you include in the recommendation?

A. Azure VM Diagnostics Extension
B. Azure Monitor Metrics
C. event log subscriptions
D. Azure Monitor Logs

Correct Answer: A
Section: [none]
Explanation
Explanation/Reference:

Explanation:
The Azure Diagnostics VM extension enables you to collect monitoring data, such as performance counters and event logs, from your Windows VM. You can granularly specify what data you want to collect and where you want the data to go, such as an Azure Storage account or an Azure Event Hub.

Reference: https://docs.microsoft.com/en-us/azure/virtual-machines/windows/extensions-diagnostics

QUESTION 6
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You are designing an Azure solution for a company that has four departments. Each department will deploy several Azure app services and Azure SQL databases.

You need to recommend a solution to report the costs for each department to deploy the app services and the databases. The solution must provide a consolidated view for cost reporting.

Solution: Create a resources group for each resource type. Assign tags to each resource group.

Does this meet the goal?

A. Yes
B. No

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Tags enable you to retrieve related resources from different resource groups. This approach is helpful when you need to organize resources for billing or management.

Reference: https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-using-tags

QUESTION 7
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You are designing an Azure solution for a company that has four departments. Each department will deploy several Azure app services and Azure SQL databases.

You need to recommend a solution to report the costs for each department to deploy the app services and the databases. The solution must provide a consolidated view for cost reporting.

Solution: Place all resources in the same resource group. Assign tags to each resource.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead, create a resources group for each resource type. Assign tags to each resource

Note: Tags enable you to retrieve related resources from different resource groups. This approach is helpful when you need to organize resources for billing or management.

Reference: https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-using-tags

QUESTION 8
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You are designing an Azure solution for a company that has four departments. Each department will deploy several Azure app services and Azure SQL databases.

You need to recommend a solution to report the costs for each department to deploy the app services and the databases. The solution must provide a consolidated view for cost reporting.

Solution: Create a new subscription for each department.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead, create a resources group for each resource type. Assign tags to each resource

Note: Tags enable you to retrieve related resources from different resource groups. This approach is helpful when you need to organize resources for billing or management.

Reference: https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-using-tags

QUESTION 9
You have an Azure subscription that contains 100 virtual machines.

You plan to design a data protection strategy to encrypt the virtual disks.

You need to recommend a solution to encrypt the disks by using Azure Disk Encryption. The solution must provide the ability to encrypt operating system disks and data disks.

What should you include in the recommendation?

A. a passphrase
B. a certificate
C. a key
D. a secret

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:

Explanation:
For enhanced virtual machine (VM) security and compliance, virtual disks in Azure can be encrypted. Disks are encrypted by using cryptographic keys that are secured in an Azure Key Vault. You control these cryptographic keys and can audit their use.

Reference:
https://docs.microsoft.com/en-us/azure/virtual-machines/windows/encrypt-disks

QUESTION 10
You deploy Azure App Service Web Apps that connect to on-premises Microsoft SQL Server instances by using Azure ExpressRoute. You plan to migrate the SQL Server instances to Azure.

Migration of the SQL Server instances to Azure must:

▪ Support automatic patching and version updates to SQL Server.
▪ Provide automatic backup services.
▪ Allow for high-availability of the instances.
▪ Provide a native VNET with private IP addressing. ▪
Encrypt all data in transit.
▪ Be in a single-tenant environment with dedicated underlying infrastructure (compute, storage)

You need to migrate the SQL Server instances to Azure.

Which Azure service should you use?

A. Azure SQL Database with elastic pools
B. SQL Server in Docker containers running on Azure Kubernetes Service (AKS)
C. SQL Server Infrastructure-as-a-Service (IaaS) virtual machine (VM)
D. SQL Server in a Docker container running on Azure Container Instances (ACI)
E. Azure SQL Database Managed Instance

Correct Answer: E
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Azure SQL Database Managed Instance configured for Hybrid workloads. Use this topology if your Azure SQL Database Managed Instance is connected to your on-premises network. This approach provides the most simplified network routing and yields maximum data throughput during the migration.

Reference:
https://docs.microsoft.com/en-us/azure/dms/resource-network-topologies

QUESTION 11
You are designing an Azure Web App that includes many static content files.

The application is accessed from locations all over the world by using a custom domain name.

You need to recommend an approach for providing access to the static content with the least amount of latency.

Which two actions should you recommend? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

A. Configure a custom domain name that is an alias for the Azure Storage domain.
B. Configure a CNAME DNS record for the Azure Content Delivery Network (CDN) domain.
C. Place the static content in Azure Table storage.
D. Place the static content in Azure Blob storage and enable Content Delivery Network (CDN) on the account.

Correct Answer: BD
Section: [none]
Explanation

Explanation/Reference:
Explanation:
D: Add Azure Content Delivery Network (CDN) to a web app in Azure App Service.
B: When you use a CDN endpoint to deliver content, a custom domain is necessary if you would like your own domain name to be visible in your CDN URL.
Having a visible domain name can be convenient for your customers and useful for branding purposes.
Create a CNAME DNS record, and associate the custom domain with your CDN endpoint.

Reference: https://docs.microsoft.com/en-us/azure/cdn/cdn-map-content-to-custom-domain

https://docs.microsoft.com/en-us/azure/cdn/cdn-add-to-web-app

Testlet 1

Case study
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To start the case study

To display the first question in this case study, click the **Next** button. Use the buttons in the left pane to explore the content of the case study before you answer the questions. Clicking these buttons displays information such as business requirement, existing environment, and problem statements. If the case study has an **All Information** tab, note that the information displayed is identical to the information displayed on the subsequent tabs. When you are ready to answer a question, click the **Question** button to return to the question. **Overview**

Contoso, Ltd. is a US-based financial services company that has a main office in New York and a branch office in San Francisco.

Existing Environment

Payment Processing System

Contoso hosts a business-critical payment processing system in its New York data center. The system has three tiers: a front-end web app, a middle-tier web API, and a back-end data store implemented as a Microsoft SQL Server 2014 database. All servers run Windows Server 2012 R2.

The front-end and middle-tier components are hosted by using Microsoft Internet Information Services (IIS). The application code is written in C# and ASP.NET. The middle-tier API uses the Entity Framework to communicate to the SQL Server database. Maintenance of the database is performed by using SQL Server Agent jobs.

The database is currently 2 TB and is not expected to grow beyond 3 TB.

The payment processing system has the following compliance-related requirements:

▪ Encrypt data in transit and at rest. Only the front-end and middle-tier components must be able to access the encryption keys that protect the data store.
▪ Keep backups of the data in two separate physical locations that are at least 200 miles apart and can be restored for up to seven years.
▪ Support blocking inbound and outbound traffic based on the source IP address, the destination IP address, and the port number.

▪ Collect Windows security logs from all the middle-tier servers and retain the logs for a period of seven years.
▪ Inspect inbound and outbound traffic from the front-end tier by using highly available network appliances. ▪
Only allow all access to all the tiers from the internal network of Contoso.

Tape backups are configured by using an on-premises deployment of Microsoft System Center Data Protection Manager (DPM), and then shipped offsite for long term storage.

Historical Transaction Query System

Contoso recently migrated a business-critical workload to Azure. The workload contains a .NET web service for querying the historical transaction data residing in Azure Table Storage. The .NET web service is accessible from a client app that was developed in-house and runs on the client computers in the New York office. The data in the table storage is 50 GB and is not expected to increase.

Current Issues

The Contoso IT team discovers poor performance of the historical transaction query system, at the queries frequently cause table scans.

Requirements

Planned Changes

Contoso plans to implement the following changes:

- Migrate the payment processing system to Azure.
- Migrate the historical transaction data to Azure Cosmos DB to address the performance issues. **Migration**

Requirements

Contoso identifies the following general migration requirements:

- Infrastructure services must remain available if a region or a data center fails. Failover must occur without any administrative intervention.
- Whenever possible, Azure managed services must be used to minimize management overhead. ▪
Whenever possible, costs must be minimized.

Contoso identifies the following requirements for the payment processing system:

- If a data center fails, ensure that the payment processing system remains available without any administrative intervention. The middle-tier and the web front end must continue to operate without any additional configurations.
- Ensure that the number of compute nodes of the front-end and the middle tiers of the payment processing system can increase or decrease automatically based on CPU utilization.
- Ensure that each tier of the payment processing system is subject to a Service Level Agreement (SLA) of 99.99 percent availability.
- Minimize the effort required to modify the middle-tier API and the back-end tier of the payment processing system.

- Generate alerts when unauthorized login attempts occur on the middle-tier virtual machines.
- Ensure that the payment processing system preserves its current compliance status. ▪
Host the middle tier of the payment processing system on a virtual machine.

Contoso identifies the following requirements for the historical transaction query system:

- Minimize the use of on-premises infrastructure services.
- Minimize the effort required to modify the .NET web service querying Azure Cosmos DB.
- Minimize the frequency of table scans.
- If a region fails, ensure that the historical transactions query system remains available without any administrative intervention.

Information Security Requirements

The IT security team wants to ensure that identity management is performed by using Active Directory. Password hashes must be stored on-premises only.

Access to all business-critical systems must rely on Active Directory credentials. Any suspicious authentication attempts must trigger a multi-factor authentication prompt automatically. legitimate users must be able to authenticate successfully by using multi-factor authentication.

QUESTION 1
You need to recommend a backup solution for the data store of the payment processing system.

What should you include in the recommendation?

A. Microsoft System Center Data Protection Manager (DPM)
B. Azure SQL long-term backup retention
C. Azure Backup Server
D. a Recovery Services vault
E. Azure Managed Disks

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Reference: https://docs.microsoft.com/en-us/azure/sql-database/sql-database-long-term-backup-retention-configure

QUESTION 2
You need to recommend a disaster recovery solution for the back-end tier of the payment processing system.

What should you include in the recommendation?

A. Always On Failover Cluster Instances
B. active geo-replication
C. Azure Site Recovery

D. an auto-failover group

E. geo-redundant database backups

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Scenario:
▪ The back-end data store is implemented as a Microsoft SQL Server 2014 database.
▪ If a data center fails, ensure that the payment processing system remains available without any administrative intervention.

Note: Auto-failover groups is a SQL Database feature that allows you to manage replication and failover of a group of databases on a SQL Database server or all databases in a managed instance to another region. It is a declarative abstraction on top of the existing active geo-replication feature, designed to simplify deployment and management of geo-replicated databases at scale.

Reference:
https://docs.microsoft.com/en-us/azure/sql-database/sql-database-auto-failover-group

Question Set 2

QUESTION 1
You plan to use Azure Site Recovery to protect several on-premises physical server workloads. Each server workload is independent of the other. The workloads are stateless.

You need to recommend a failover strategy to ensure that if the on-premises data center fails, the workloads are available in Azure as quickly as possible.

Which failover strategy should you include in the recommendation?

A. Latest
B. Latest app-consistent
C. Latest multi-VM processed
D. Latest processed

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:
Reference: https://docs.microsoft.com/en-us/azure/site-recovery/site-recovery-failover

QUESTION 2
You plan to move a web application named App1 from an on-premises data center to Azure.

App1 depends on a custom COM component that is installed on the host server.

You need to recommend a solution to host App1 in Azure. The solution must meet the following requirements:

▪ App1 must be available to users if an Azure data center becomes unavailable. ▪
Costs must be minimized.

What should you include in the recommendation?

A. In two Azure regions, deploy a Traffic Manager profile and a web app.
B. In two Azure regions, deploy a load balancer and a virtual machine scale set.
C. Deploy a load balancer and a virtual machine scale set across two availability zones.
D. In two Azure regions, deploy a load balancer and a web app.

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:

QUESTION 3
You plan to deploy a payroll system to Azure. The payroll system will use Azure virtual machines that run SUSE Linux Enterprise Server and Windows.

You need to recommend a business continuity solution for the payroll system. The solution must meet the following requirements:

▪ Minimize costs.
▪ Provide business continuity if an Azure region fails.
▪ Provide a recovery time objective (RTO) of 120 minutes.
▪ Provide a recovery point objective (RPO) of five minutes.

What should you include in the recommendation?

A. Microsoft System Center Data Protection Manager (DPM)
B. Azure Site Recovery
C. unmanaged disks that use geo-redundant storage (GRS)
D. Azure Backup

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:
Explanation:
If your storage account has GRS enabled, then your data is durable even in the case of a complete regional outage or a disaster in which the primary region isn't recoverable.

Note: The recovery time objective (RTO) is the targeted duration of time and a service level within which a business process must be restored after a disaster (or disruption) in order to avoid unacceptable consequences associated with a break in business continuity.

Incorrect Answers:
B: Azure Site Recovery would not protect against an Azure region failure.

Azure Site Recovery guarantees a two-hour Recovery Time Objective.

Reference: https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy-

grs https://azure.microsoft.com/en-us/support/legal/sla/site-recovery/v1_0/

QUESTION 4
The accounting department at your company migrates to a new financial accounting software. The accounting department must keep file-based database backups for seven years for compliance purposes. It is unlikely that the backups will be used to recover data.

You need to move the backups to Azure. The solution must minimize costs.

Where should you store the backups?

A. Azure SQL Database
B. Azure Blob storage that uses the Archive tier
C. a Recovery Services vault
D. Azure Blob storage that uses the Cool tier

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 5
HOTSPOT

Your company has two on-premises sites in New York and Los Angeles and Azure virtual networks in the East US Azure region and the West US Azure region. Each on-premises site has Azure ExpressRoute circuits to both regions.

You need to recommend a solution that meets the following requirements:

▪ Outbound traffic to the Internet from workloads hosted on the virtual networks must be routed through the closest available on-premises site. ▪
If an on-premises site fails, traffic from the workloads on the virtual networks to the Internet must reroute automatically to the other site.

What should you include in the recommendation? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Routing from the virtual networks to the on-premises locations must be configured by using:	▼
	Azure default routes
	Border Gateway Protocol (BGP)
	User-defined routes

The automatic routing configuration following a failover must be handled by using:	▼
	Border Gateway Protocol (BGP)
	Hot Standby Routing Protocol (HSRP)
	Virtual Router Redundancy Protocol (VRRP)

Correct Answer:

Answer Area

Routing from the virtual networks to the on-premises locations must be configured by using:	▼
	Azure default routes
	Border Gateway Protocol (BGP)
	User-defined routes

The automatic routing configuration following a failover must be handled by using:	▼
	Border Gateway Protocol (BGP)
	Hot Standby Routing Protocol (HSRP)
	Virtual Router Redundancy Protocol (VRRP)

Section: [none]
Explanation
Explanation/Reference:

QUESTION 6
You plan to store data in Azure Blob storage for many years. The stored data will be accessed rarely.

You need to ensure that the data in Blob storage is always available for immediate access. The solution must minimize storage costs.

Which storage tier should you use?

A. Cool
B. Archive
C. Hot

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Azure cool tier is equivalent to the Amazon S3 Infrequent Access (S3-IA) storage in AWS that provides a low cost high performance storage for infrequently access data.

Note: Azure's cool storage tier, also known as Azure cool Blob storage, is for infrequently-accessed data that needs to be stored for a minimum of 30 days. Typical use cases include backing up data before tiering to archival systems, legal data, media files, system audit information, datasets used for big data analysis and more.

The storage cost for this Azure cold storage tier is lower than that of hot storage tier. Since it is expected that the data stored in this tier will be accessed less frequently, the data access charges are high when compared to hot tier. There are no additional changes required in your applications as these tiers can be accessed using APIs in the same manner that you access Azure storage.

Incorrect Answers:
B: Even though Azure archive storage offers the lowest cost in terms of data storage, its data retrieval charges are higher than that of hot and cool tiers. In fact, the data in the archive tier remains offline until the tier of the data is changed using a process called hydration. The process of hydrating data in the archive storage tier and moving it to either hot or cool tier could take up to 15 hours and, hence, it is only intended for data that can afford that kind of access delay.

C: The storage cost for this Azure cold storage tier is lower than that of hot storage tier.

Reference: https://cloud.netapp.com/blog/low-cost-storage-options-on-azure **QUESTION 7**
You have an on-premises network and an Azure subscription. The on-premises network has several branch offices.

A branch office in Toronto contains a virtual machine named VM1 that is configured as a file server. Users access the shared files on VM1 from all the offices.

You need to recommend a solution to ensure that the users can access the shares files as quickly as possible if the Toronto branch office is inaccessible.

What should you include in the recommendation?

A. a Recovery Services vault and Azure Backup
B. an Azure file share and Azure File Sync
C. Azure blob containers and Azure File Sync
D. a Recovery Services vault and Windows Server Backup

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Use Azure File Sync to centralize your organization's file shares in Azure Files, while keeping the flexibility, performance, and compatibility of an on-premises file server. Azure File Sync transforms Windows Server into a quick cache of your Azure file share.

You need an Azure file share in the same region that you want to deploy Azure File Sync.

Incorrect Answers:
A: Backups would be a slower solution.

Reference: https://docs.microsoft.com/en-us/azure/storage/files/storage-sync-files-deployment-guide

QUESTION 8
You have an Azure subscription for used for testing and development purposes only. The subscription contains Azure virtual machines that unmanaged, standard hard disk drives (HDD).

You need to recommend a recovery strategy for the virtual machines if an Azure region fails for a sustained period. The recovery time objective (RTO) can be up to seven days. The solution must minimize costs.

What should you include in the recommendation?

A. Store the disks in a Standard_LRS storage account. Configure Azure site Recovery. If a failure occurs, initiate a manual failover.

B. Store the disks in a Standard_GRS storage account. Configure Azure Recovery. If a failure occurs, initiate a manual failover.
C. Store the disks in a Standard_LRS storage account. If a disaster occurs, manually create the virtual machines by used Azure Resources Manager templates.
D. Store the disks in a Standard_GRS storage account. If a disaster occurs, manually create the virtual machines by used Azure Resources Manager templates.

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Geo-redundant storage (GRS) is designed to provide at least 99.99999999999999% (16 9's) durability of objects over a given year by replicating your data to a secondary region that is hundreds of miles away from the primary region. If your storage account has GRS enabled, then your data is durable even in the case of a complete regional outage or a disaster in which the primary region isn't recoverable.

GRS replicates your data to another data center in a secondary region, but that data is available to be read only if Microsoft initiates a failover from the primary to secondary region.

Incorrect Answers:
A, C: If a datacenter-level disaster (for example, fire or flooding) occurs, all replicas in a storage account using LRS may be lost or unrecoverable. To mitigate this risk, Microsoft recommends using zone-redundant storage (ZRS), geo-redundant storage (GRS), or geo-zone-redundant storage (GZRS).

Reference:
https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy-grs

Testlet 1

Case study
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Overview

Fabrikam, Inc. is an engineering company that has offices throughout Europe. The company has a main office in London and three branch offices in Amsterdam, Berlin, and Rome.

Existing Environment

Active Directory Environment

The network contains two Active Directory forests named corp.fabrikam.com and rd.fabrikam.com. There are no trust relationships between the forests.

Corp.fabrikam.com is a production forest that contains identities used for internal user and computer authentication.

Rd.fabrikam.com is used by the research and development (R&D) department only.

Network Infrastructure

Each office contains at least one domain controller from the corp.fabrikam.com domain. The main office contains all the domain controllers for the rd.fabrikam.com forest.

All the offices have a high-speed connection to the Internet.

An existing application named WebApp1 is hosted in the data center of the London office. WebApp1 is used by customers to place and track orders.

WebApp1 has a web tier that uses Microsoft Internet Information Services (IIS) and a database tier that runs Microsoft SQL Server 2016. The web tier and the database tier are deployed to virtual machines that run on Hyper-V.

The IT department currently uses a separate Hyper-V environment to test updates to WebApp1.

Fabrikam purchases all Microsoft licenses through a Microsoft Enterprise Agreement that includes Software Assurance.

Problem Statements

The use of Web App1 is unpredictable. At peak times, users often report delays. At other times, many resources for WebApp1 are underutilized.

Requirements

Planned Changes

Fabrikam plans to move most of its production workloads to Azure during the next few years.

As one of its first projects, the company plans to establish a hybrid identity model, facilitating an upcoming Microsoft Office 365 deployment.

All R&D operations will remain on-premises.

Fabrikam plans to migrate the production and test instances of WebApp1 to Azure.

Technical Requirements

Fabrikam identifies the following technical requirements:

- Web site content must be easily updated from a single point.
- User input must be minimized when provisioning new app instances.
- Whenever possible, existing on-premises licenses must be used to reduce cost. ▪
Users must always authenticate by using their corp.fabrikam.com UPN identity.
- Any new deployments to Azure must be redundant in case an Azure region fails.

- Whenever possible, solutions must be deployed to Azure by using platform as a service (PaaS).
- An email distribution group named IT Support must be notified of any issues relating to the directory synchronization services.
- Directory synchronization between Azure Active Directory (Azure AD) and corp.fabrikam.com must not be affected by a link failure between Azure and the onpremises network.

Database Requirements

Fabrikam identifies the following database requirements:

- Database metrics for the production instance of WebApp1, must be available for analysis so that database administrators can optimize the performance settings.
- To avoid disrupting customer access, database downtime must be minimized when databases are migrated.
Database backups must be retained for a minimum of seven years to meet compliance requirements.

Security Requirements

Fabrikam identifies the following security requirements:

- Company information including policies, templates, and data must be inaccessible to anyone outside the company.
- Users on the on-premises network must be able to authenticate to corp.fabrikam.com if an Internet link fails.
- Administrators must be able authenticate to the Azure portal by using their corp.fabrikam.com credentials.
- All administrative access to the Azure portal must be secured by using multi-factor authentication.
The testing of WebApp1 updates must not be visible to anyone outside the company.

QUESTION 1
You need to recommend a strategy for migrating the database content of WebApp1 to Azure.

What should you include in the recommendation?

A. Use Azure Site Recovery to replicate the SQL servers to Azure
B. Use SQL Server transactional replication

C. Copy the VHD that contains the Azure SQL database files to Azure Blob storage
D. Copy the BACPAC file that contains the Azure SQL database files to Azure Blob storage

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Question Set 2

QUESTION 1
Your company plans to publish APIs for its services by using Azure API Management.

You discover that service responses include the AspNet-Version header.

You need to recommend a solution to remove AspNet-Version from the response of the published APIs.

What should you include in the recommendation?

A. a new product
B. a modification to the URL scheme
C. a new policy
D. a new revision

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:
Reference: https://docs.microsoft.com/en-us/azure/api-management/transform-api

QUESTION 2
Your company has 300 virtual machines hosted in a Vmware environment. The virtual machines vary in size and have various utilization levels.

You plan to move all the virtual machines to Azure.

You need to recommend how many and what size Azure virtual machines will be required to move the current workloads to Azure. The solution must minimize administrative effort.

What should you use to make the recommendation?

A. Azure Advisor
B. Azure Migrate
C. Azure Pricing calculator
D. Azure Cost Management

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 3
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You are designing an Azure solution for a company that wants to move a .NET Core web application from an on-premises data center to Azure. The web application relies on a Microsoft SQL Server 2016 database on Windows Server 2016. The database server will not move to Azure.

A separate networking team is responsible for configuring network permissions.

The company uses Azure ExpressRoute and has an ExpressRoute gateway connected to an Azure virtual network named VNET1.

You need to recommend a solution for deploying the web application.

Solution:
Deploy the web application to a web app hosted in a Standard App Service plan. Create and configure an Azure App Service Hybrid Connections endpoint. On the on-premises network, deploy the Hybrid Connection Manager. Configure the Hybrid Connection Manager to access both the Hybrid Connection endpoint and the SQL Server instance.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead, use VNet Integration.

Note: VNet Integration gives your web app access to resources in your virtual network. VNet Integration is often used to enable access from apps to a databases and web services running in your VNet.

Reference: https://docs.microsoft.com/en-us/azure/app-service/web-sites-integrate-with-vnet

QUESTION 4
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

A company has custom ASP.NET and Java applications that run old versions of Windows and Linux. The company plans to place applications in containers.

You need to design a solution that includes networking, service discovery, and load balancing for the applications. The solution must support storage orchestration.

Solution: You create an Azure virtual network, public IP address, and load balancer. Then add virtual machines (VMs) to the solution and deploy individual containers on them.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead you should deploy each application to an Azure Container instance.

Note: Docker Containers are the global standard and are natively supported in Azure, offering enterprises an interesting and flexible way to migrate legacy apps for both future proofing and cost benefits.

Reference: https://docs.microsoft.com/en-us/dotnet/standard/modernize-with-azure-and-containers/modernize-existing-apps-to-cloud-optimized/deploy-existing-net-apps-aswindows-containers

QUESTION 5
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

A company has custom ASP.NET and Java applications that run old versions of Windows and Linux. The company plans to place applications in containers.

You need to design a solution that includes networking, service discovery, and load balancing for the applications. The solution must support storage orchestration.

Solution: Deploy a Kubernetes cluster that has the desired number of instances of the applications.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead you should deploy each application to an Azure Container instance.

Note: Docker Containers are the global standard and are natively supported in Azure, offering enterprises an interesting and flexible way to migrate legacy apps for both future proofing and cost benefits.

Reference: https://docs.microsoft.com/en-us/dotnet/standard/modernize-with-azure-and-containers/modernize-existing-apps-to-cloud-optimized/deploy-existing-net-apps-aswindows-containers

QUESTION 6
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

A company has custom ASP.NET and Java applications that run old versions of Windows and Linux. The company plans to place applications in containers.

You need to design a solution that includes networking, service discovery, and load balancing for the applications. The solution must support storage orchestration.

Solution: You deploy each application to an Azure Container instance.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Docker Containers are the global standard and are natively supported in Azure, offering enterprises an interesting and flexible way to migrate legacy apps for both future proofing and cost benefits.

Containers are modular and portable. Docker containers are supported on any server operating system (Linux and Windows), in any major public cloud (Microsoft Azure, Amazon AWS, Google, IBM), and in on-premises and private or hybrid cloud environments.

Reference: https://docs.microsoft.com/en-us/dotnet/standard/modernize-with-azure-and-containers/modernize-existing-apps-to-cloud-optimized/deploy-existing-net-apps-aswindows-containers

QUESTION 7
You manage an application instance. The application consumes data from multiple databases. Application code references database tables using a combination of the server, database, and table name.

You need to migrate the application instance to Azure.

What are two possible ways to achieve this goal? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. SQL Server Stretch Database
B. SQL Server in an Azure virtual machine

C. Azure SQL Database

D. SQL Managed Instance

Correct Answer: AD
Section: [none]
Explanation

Explanation/Reference:
Explanation:
A: Access your SQL Server data seamlessly regardless of whether it's on-premises or stretched to the cloud. You set the policy that determines where data is stored, and SQL Server handles the data movement in the background. The entire table is always online and queryable. And, Stretch Database doesn't require any changes to existing queries or applications - the location of the data is completely transparent to the application.

D: The managed instance deployment model is designed for customers looking to migrate a large number of apps from on-premises or IaaS, self-built, or ISV provided environment to fully managed PaaS cloud environment, with as low migration effort as possible. Using the fully automated Data Migration Service (DMS) in Azure, customers can lift and shift their on-premises SQL Server to a managed instance that offers compatibility with SQL Server on-premises and complete isolation of customer instances with native VNet support.

Reference: https://docs.microsoft.com/en-us/sql/sql-server/stretch-database/stretch-

database https://docs.microsoft.com/en-us/azure/sql-database/sql-database-managed-

instance

QUESTION 8
You have 100 Microsoft SQL Server Integration Services (SSIS) packages that are configured to use 10 on-premises SQL Server databases as their destinations.

You plan to migrate the 10 on-premises databases to Azure SQL Database.

You need to recommend a solution to host the SSIS packages in Azure. The solution must ensure that the packages can target the SQL Database instances as their destinations.

What should you include in the recommendation?

A. SQL Server Migration Assistant (SSMA)

B. Azure Data Factory

C. Data Migration Assistant

D. Azure Data Catalog

Correct Answer: C

Section: [none]
Explanation

Explanation/Reference:

QUESTION 9
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

A company has custom ASP.NET and Java applications that run on old versions of Windows and Linux. The company plans to place applications in containers.

You need to design a solution that includes networking, service discovery, and load balancing for the applications. The solution must support storage orchestration.

Solution: You deploy each application to an Azure Web App that has container support.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

Testlet 1

Case study

This is a case study. **Case studies are not timed separately. You can use as much exam time as you would like to complete each case.** However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all questions included on this exam in the time provided.

To answer the questions included in a case study, you will need to reference information that is provided in the case study. Case studies might contain exhibits and other resources that provide more information about the scenario that is described in the case study. Each question is independent of the other questions in this case study.

At the end of this case study, a review screen will appear. This screen allows you to review your answers and to make changes before you move to the next section of the exam. After you begin a new section, you cannot return to this section.

To start the case study

To display the first question in this case study, click the **Next** button. Use the buttons in the left pane to explore the content of the case study before you answer the questions. Clicking these buttons displays information such as business requirement, existing environment, and problem statements. If the case study has an **All Information** tab, note that the information displayed is identical to the information displayed on the subsequent tabs. When you are ready to answer a question, click the **Question** button to return to the question.

Overview

Fabrikam, Inc. is an engineering company that has offices throughout Europe. The company has a main office in London and three branch offices in Amsterdam, Berlin, and Rome.

Existing Environment

Active Directory Environment

The network contains two Active Directory forests named corp.fabrikam.com and rd.fabrikam.com. There are no trust relationships between the forests.

Corp.fabrikam.com is a production forest that contains identities used for internal user and computer authentication.

Rd.fabrikam.com is used by the research and development (R&D) department only.

Network Infrastructure

Each office contains at least one domain controller from the corp.fabrikam.com domain. The main office contains all the domain controllers for the rd.fabrikam.com forest.

All the offices have a high-speed connection to the Internet.

An existing application named WebApp1 is hosted in the data center of the London office. WebApp1 is used by customers to place and track orders.

WebApp1 has a web tier that uses Microsoft Internet Information Services (IIS) and a database tier that runs Microsoft SQL Server 2016. The web tier and the database tier are deployed to virtual machines that run on Hyper-V.

The IT department currently uses a separate Hyper-V environment to test updates to WebApp1.

Fabrikam purchases all Microsoft licenses through a Microsoft Enterprise Agreement that includes Software Assurance.

Problem Statements

The use of Web App1 is unpredictable. At peak times, users often report delays. At other times, many resources for WebApp1 are underutilized.

Requirements

Planned Changes

Fabrikam plans to move most of its production workloads to Azure during the next few years.

As one of its first projects, the company plans to establish a hybrid identity model, facilitating an upcoming Microsoft Office 365 deployment.

All R&D operations will remain on-premises.

Fabrikam plans to migrate the production and test instances of WebApp1 to Azure.

Technical Requirements

Fabrikam identifies the following technical requirements:

▪ Web site content must be easily updated from a single point.
▪ User input must be minimized when provisioning new app instances.
▪ Whenever possible, existing on-premises licenses must be used to reduce cost. ▪
Users must always authenticate by using their corp.fabrikam.com UPN identity.
▪ Any new deployments to Azure must be redundant in case an Azure region fails.
▪ Whenever possible, solutions must be deployed to Azure by using platform as a service (PaaS).
▪ An email distribution group named IT Support must be notified of any issues relating to the directory synchronization services.
▪ Directory synchronization between Azure Active Directory (Azure AD) and corp.fabrikam.com must not be affected by a link failure between Azure and the onpremises network.

Database Requirements

Fabrikam identifies the following database requirements:

▪ Database metrics for the production instance of WebApp1, must be available for analysis so that database administrators can optimize the performance settings.
▪ To avoid disrupting customer access, database downtime must be minimized when databases are migrated. ▪
Database backups must be retained for a minimum of seven years to meet compliance requirements.

Security Requirements

Fabrikam identifies the following security requirements:

▪ Company information including policies, templates, and data must be inaccessible to anyone outside the company.
▪ Users on the on-premises network must be able to authenticate to corp.fabrikam.com if an Internet link fails.
▪ Administrators must be able authenticate to the Azure portal by using their corp.fabrikam.com credentials.
▪ All administrative access to the Azure portal must be secured by using multi-factor authentication. ▪
The testing of WebApp1 updates must not be visible to anyone outside the company.

QUESTION 1
You need to recommend a notification solution for the IT Support distribution group.

What should you include in the recommendation?

A. Azure Network Watcher
B. an action group
C. a SendGrid account with advanced reporting
D. Azure AD Connect Health

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:
Reference:
https://docs.microsoft.com/en-us/azure/active-directory/hybrid/how-to-connect-health-operations

Question Set 2

QUESTION 1

You deploy two instances of an Azure web app. One instance is in the East US Azure region and the other instance is in the West US Azure region. The web app uses Azure Blob storage to deliver large files to end users.

You need to recommend a solution for delivering the files to the users. The solution must meet the following requirements:

▪ Ensure that the users receive files from the same region as the web app that they access.
▪ Ensure that the files only need to be updated once. ▪ Minimize costs.

What should you include in the recommendation?

A. Azure File Sync
B. Distributed File System (DFS)
C. read-access geo-redundant storage (RA-GRS)
D. geo-redundant storage (GRS)

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:

QUESTION 2
Your company has an on-premises Windows HPC cluster. The cluster runs an intrinsically parallel, compute-intensive workload that performs financial risk modelling.

You plan to migrate the workload to Azure Batch.

You need to design a solution that will support the workload. The solution must meet the following requirements:

▪ Support the large-scale parallel execution of Azure Batch jobs. ▪
Minimize cost.

What should you include in the solution?

A. Basic A-series virtual machines

B. low-priority virtual machines
C. burstable virtual machines

D. Azure virtual machine sizes that support the Message Passing Interface (MPI) API

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Reference: https://docs.microsoft.com/en-us/azure/batch/batch-technical-overview

QUESTION 3
You are designing a container solution in Azure that will include two containers. One container will host a web API that will be available to the public. The other container will perform health monitoring of the web API and will remain private. The two containers will be deployed together as a group.

You need to recommend a compute service for the containers. The solution must minimize costs and maintenance overhead.

What should you include in the recommendation?

A. Azure Service Fabric
B. Azure Container Service
C. Azure Kubernetes Service (AKS)
D. Azure Container Instances

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Azure Container Instances supports the deployment of multiple containers onto a single host using a container group. A container group is useful when building an application sidecar for logging, monitoring, or any other configuration where a service needs a second attached process.

Reference: https://docs.microsoft.com/en-us/azure/container-instances/container-instances-multi-container-group

QUESTION 4
DRAG DROP You
have an on-
premises network

that uses an IP
address space of
172.16.0.0/16.

You plan to deploy 25 virtual machines to a new Azure subscription.
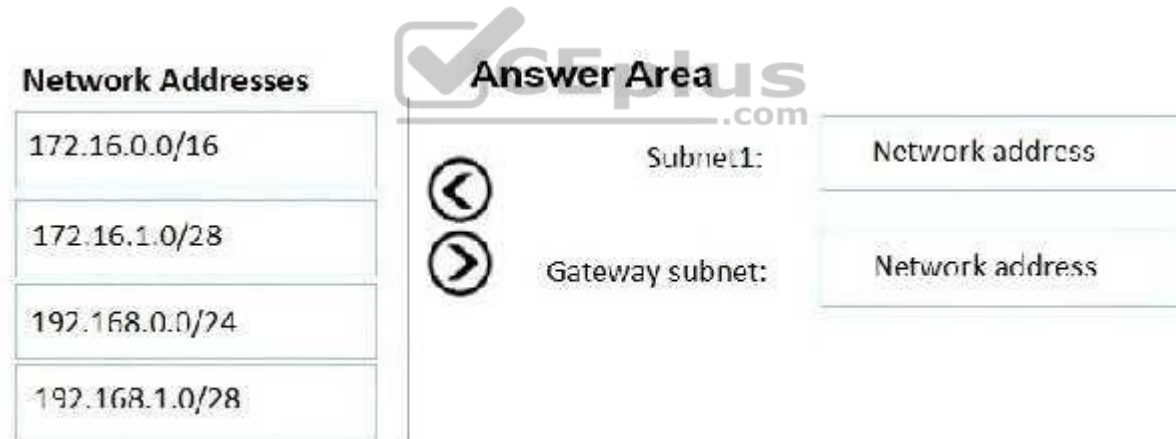
You identify the following technical requirements:

▪ All Azure virtual machines must be placed on the same subnet named Subnet1.
▪ All the Azure virtual machines must be able to communicate with all on-premises servers.
▪ The servers must be able to communicate between the on-premises network and Azure by using a site-to-site VPN.

You need to recommend a subnet design that meets the technical requirements.

What should you include in the recommendation? To answer, drag the appropriate network addresses to the correct subnets. Each network address may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:

Network Addresses		Answer Area	
172.16.0.0/16		Subnet1:	Network address
172.16.1.0/28		Gateway subnet:	Network address
192.168.0.0/24			
192.168.1.0/28			

Correct Answer:

Network Addresses		Answer Area	
172.16.0.0/16		Subnet1:	192.168.0.0/24
172.16.1.0/28	◄ ►	Gateway subnet:	192.168.1.0/28

Section: [none]
Explanation

Explanation/Reference:

QUESTION 5
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You are migrating an on-premises application to Azure. One component of the application is a legacy Windows native executable that performs image processing.

The image processing application must run every hour. During times that the image processing application is not running, it should not be consuming any Azure compute resources.

You need to ensure that the image processing application runs correctly every hour.

Solution: Create an Azure WebJob that runs the image processing application every hour.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead use an Azure Logic Apps, which helps you automate workflows that run on a schedule.

Reference: https://docs.microsoft.com/en-us/azure/logic-apps/tutorial-build-schedule-recurring-logic-app-workflow

QUESTION 6
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You are migrating an on-premises application to Azure. One component of the application is a legacy Windows native executable that performs image processing.

The image processing application must run every hour. During times that the image processing application is not running, it should not be consuming any Azure compute resources.

You need to ensure that the image processing application runs correctly every hour.

Solution: Create an Azure Function to run the image processing application every hour.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead use an Azure Logic Apps, which helps you automate workflows that run on a schedule.

Reference:

https://docs.microsoft.com/en-us/azure/logic-apps/tutorial-build-schedule-recurring-logic-app-workflow

QUESTION 7
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You are designing an Azure solution for a company that wants to move a .NET Core web application from an on-premises data center to Azure. The web application relies on a Microsoft SQL Server 2016 database on Windows Server 2016. The database server will not move to Azure.

A separate networking team is responsible for configuring network permissions.

The company uses Azure ExpressRoute and has an ExpressRoute gateway connected to an Azure virtual network named VNET1.

You need to recommend a solution for deploying the web application.

Solution: Deploy the web application to a web app hosted in a Premium App Service plan. Configure VNET Integration for the App Service plan.

Does this meet the goal?

A. Yes
B. No

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
Explanation:
VNet Integration gives your web app access to resources in your virtual network. VNet Integration is often used to enable access from apps to a databases and web services running in your VNet.

Reference: https://docs.microsoft.com/en-us/azure/app-service/web-sites-integrate-with-vnet

QUESTION 8
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.
You are designing an Azure solution for a company that wants to move a .NET Core web application from an on-premises data center to Azure. The web application relies on a Microsoft SQL Server 2016 database on Windows Server 2016. The database server will not move to Azure.

A separate networking team is responsible for configuring network permissions.

The company uses Azure ExpressRoute and has an ExpressRoute gateway connected to an Azure virtual network named VNET1.

You need to recommend a solution for deploying the web application.

Solution: Deploy the web application by using an Azure Kubernetes Service (AKS) container on VNET1.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead, use VNet Integration.

Note: VNet Integration gives your web app access to resources in your virtual network. VNet Integration is often used to enable access from apps to a databases and web services running in your VNet.

Reference: https://docs.microsoft.com/en-us/azure/app-service/web-sites-integrate-with-vnet

QUESTION 9
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You are designing an Azure solution for a company that wants to move a .NET Core web application from an on-premises data center to Azure. The web application relies on a Microsoft SQL Server 2016 database on Windows Server 2016. The database server will not move to Azure.

A separate networking team is responsible for configuring network permissions.

The company uses Azure ExpressRoute and has an ExpressRoute gateway connected to an Azure virtual network named VNET1.

You need to recommend a solution for deploying the web application.

Solution: Deploy the web application to a web app hosted in an isolated App Service plan on VNET1.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead, use VNet Integration.

Note: VNet Integration gives your web app access to resources in your virtual network. VNet Integration is often used to enable access from apps to a databases and web services running in your VNet.

Reference:
https://docs.microsoft.com/en-us/azure/app-service/web-sites-integrate-with-vnet

QUESTION 10
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You need to deploy resources to host a stateless web app in an Azure subscription. The solution must meet the following requirements:

▪ Provide access to the full .NET framework.
▪ Provide redundancy if an Azure region fails.
▪ Grant administrators access to the operating system to install custom application dependencies.

Solution: You deploy a virtual machine scale set that uses autoscaling.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead, you should deploy an Azure virtual machine to two Azure regions, and you create a Traffic Manager profile.

QUESTION 11
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You need to deploy resources to host a stateless web app in an Azure subscription. The solution must meet the following requirements:

▪ Provide access to the full .NET framework.
▪ Provide redundancy if an Azure region fails.
▪ Grant administrators access to the operating system to install custom application dependencies.

Solution: You deploy an Azure virtual machine to two Azure regions, and you create a Traffic Manager profile.

Does this meet the goal?

A. Yes
B. No

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:

QUESTION 12

Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You need to deploy resources to host a stateless web app in an Azure subscription. The solution must meet the following requirements:

▪ Provide access to the full .NET framework.
▪ Provide redundancy if an Azure region fails.
▪ Grant administrators access to the operating system to install custom application dependencies.

Solution: You deploy an Azure virtual machine to two Azure regions, and you deploy an Azure Application Gateway.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
You deploy an Azure virtual machine to two Azure regions, but also create a Traffic Manager profile.

QUESTION 13
You plan to deploy an API by using Azure API Management.

You need to recommend a solution to protect the API from a distributed denial of service (DDoS) attack.

What should you recommend?

A. Create network security groups (NSGs).
B. Enable quotas.
C. Enable rate limiting.
D. Strip the Powered-By responsible header.

Correct Answer: C

Section: [none]
Explanation

Explanation/Reference:
QUESTION 14
You use a virtual network to extend an on-premises IT environment into the cloud. The virtual network has two virtual machines (VMs) that store sensitive data.

The data must only be available using internal communication channels. Internet access to those VMs is not permitted.

You need to ensure that the VMs cannot access the Internet.

Which two options should you recommend? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. network interface (NIC)
B. Source Network Address Translation (SNAT)
C. Azure ExpressRoute
D. Network Security Groups (NSG)

Correct Answer: CD
Section: [none]
Explanation

Explanation/Reference:

QUESTION 15
Your company plans to migrate its on-premises data to Azure.

You need to recommend which Azure services can be used to store the data. The solution must meet the following requirements:

▪ Encrypt all data while at rest.
▪ Encrypt data only by using a key generated by the company.

Which two possible services can you recommend? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. Azure Table storage

B. Azure Backup
C. Azure Blob storage

D. Azure Queue storage
E. Azure Files

Correct Answer: CE
Section: [none]
Explanation

Explanation/Reference:
Reference: https://docs.microsoft.com/en-us/azure/storage/common/storage-service-encryption-customer-managed-keys

QUESTION 16
You architect a solution that calculates 3D geometry from height-map data.

You have the following requirements:

▪ Perform calculations in Azure.
▪ Each node must communicate data to every other node.
▪ Maximize the number of nodes to calculate multiple scenes as fast as possible. ▪
Require the least amount of effort to implement.

You need to recommend a solution.

Which two actions should you recommend? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

A. Create a render farm that uses Azure Batch.
B. Enable parallel file systems on Azure.
C. Enable parallel task execution on compute nodes.
D. Create a render farm that uses virtual machine (VM) scale sets.
E. Create a render farm that uses virtual machines (VMs).

Correct Answer: AC
Section: [none]
Explanation

Explanation/Reference:

QUESTION 17
You are developing a web application that provides streaming video to users. You configure the application to use continuous integration and deployment.

The app must be highly available and provide a continuous streaming experience for users.

You need to recommend a solution that allows the application to store data in a geographical location that is closest to the user.

What should you recommend?

A. Azure App Service Web Apps
B. Azure App Service Isolated
C. Azure Redis Cache
D. Azure Content Delivery Network (CDN)

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Azure Content Delivery Network (CDN) is a global CDN solution for delivering high-bandwidth content. It can be hosted in Azure or any other location. With Azure CDN, you can cache static objects loaded from Azure Blob storage, a web application, or any publicly accessible web server, by using the closest point of presence (POP) server. Azure CDN can also accelerate dynamic content, which cannot be cached, by leveraging various network and routing optimizations.

Reference:
https://docs.microsoft.com/en-in/azure/cdn/

QUESTION 18
HOTSPOT

Your company deploys an Azure App Service Web App.

During testing the application fails under load. The application cannot handle more than 100 concurrent user sessions. You enable the Always On feature. You also configure auto-scaling to increase counts from two to 10 based on HTTP queue length.

You need to improve the performance of the application.

Which solution should you use for each application scenario? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Scenario | Solution

Store content close to end users.

| Azure Redis Cache |
| Azure Traffic Manager |
| Azure Content Delivery Network |
| Azure Application Gateway |

Store content close to the application.

| Azure Redis Cache |
| Azure Traffic Manager |
| Azure Content Delivery Network |
| Azure Application Gateway |

Correct Answer:

Answer Area

Scenario	Solution
Store content close to end users.	▼

Azure Redis Cache
Azure Traffic Manager
Azure Content Delivery Network
Azure Application Gateway

| Store content close to the application. | ▼ |

Azure Redis Cache
Azure Traffic Manager
Azure Content Delivery Network
Azure Application Gateway

Section: [none]
Explanation

Explanation/Reference:
Explanation:

Box 1: Content Delivery Network
A content delivery network (CDN) is a distributed network of servers that can efficiently deliver web content to users. CDNs store cached content on edge servers in point-of-presence (POP) locations that are close to end users, to minimize latency.

Azure Content Delivery Network (CDN) offers developers a global solution for rapidly delivering high-bandwidth content to users by caching their content at strategically placed physical nodes across the world. Azure CDN can also accelerate dynamic content, which cannot be cached, by leveraging various network optimizations using CDN POPs. For example, route optimization to bypass Border Gateway Protocol (BGP).

Box 2: Azure Redis Cache
Azure Cache for Redis is based on the popular software Redis. It is typically used as a cache to improve the performance and scalability of systems that rely heavily on backend data-stores. Performance is improved by temporarily copying frequently accessed data to fast storage located close to the application. With Azure Cache for Redis, this fast storage is located in-memory with Azure Cache for Redis instead of being loaded from disk by a database.

Reference:
https://docs.microsoft.com/en-us/azure/azure-cache-for-redis/cache-overview

QUESTION 19
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You need to deploy resources to host a stateless web app in an Azure subscription. The solution must meet the following requirements:

▪ Provide access to the full .NET framework.
▪ Provide redundancy if an Azure region fails.
▪ Grant administrators access to the operating system to install custom application dependencies.

Solution: You deploy a web app in an Isolated App Service plan.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead, you should deploy an Azure virtual machine to two Azure regions, and you create a Traffic Manager profile.

QUESTION 20
You are designing an Azure solution.

The network traffic for the solution must be securely distributed by providing the following features:

- HTTPS protocol
- Round robin routing

- SSL offloading

You need to recommend a load balancing option.

What should you recommend?

A. Azure Load Balancer
B. Azure Traffic Manager
C. Azure Internal Load Balancer (ILB)
D. Azure Application Gateway

Correct Answer: D
Section: [none]
Explanation

Explanation/Reference:
Explanation:
If you are looking for Transport Layer Security (TLS) protocol termination ("SSL offload") or per-HTTP/HTTPS request, application-layer processing, review Application Gateway.

Application Gateway is a layer 7 load balancer, which means it works only with web traffic (HTTP, HTTPS, WebSocket, and HTTP/2). It supports capabilities such as SSL termination, cookie-based session affinity, and round robin for load-balancing traffic. Load Balancer load-balances traffic at layer 4 (TCP or UDP).

Reference:
https://docs.microsoft.com/en-us/azure/application-gateway/application-gateway-faq

QUESTION 21
You manage a solution in Azure.

You must collect usage data including MAC addresses from all devices on the network.

You need to recommend a monitoring solution.

What should you recommend?

A. Activity Log Analytics

B. Azure Network Security Group Analytics

C. Network Performance Monitor

D. Azure Application Gateway Analytics

E. Azure Wire Data

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
A network security group (NSG) includes rules that allow or deny traffic to a virtual network subnet, network interface, or both. When you enable diagnostic logging for an NSG, you can log the following categories of information:

Event: Entries are logged for which NSG rules are applied to VMs, based on MAC address. The status for these rules is collected every 60 seconds.
Rule counter: Contains entries for how many times each NSG rule is applied to deny or allow traffic.

Reference:
https://docs.microsoft.com/en-us/azure/virtual-network/virtual-network-nsg-manage-log

QUESTION 22
A partner manages on-premises and Azure environments. The partner deploys an on-premises solution that needs to use Azure services. The partner deploys a virtual appliance.

All network traffic that is directed to a specific subnet must flow through the virtual appliance.

You need to recommend solutions to manage network traffic.

Which two options should you recommend? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. Configure Azure Traffic Manager

B. Implement an Azure virtual network

C. Configure a routing table with forced tunneling

D. Implement Azure ExpressRoute

Correct Answer: CD

Section: [none]
Explanation

Explanation/Reference:
Explanation:
C: Forced tunneling lets you redirect or "force" all Internet-bound traffic back to your on-premises location via a Site-to-Site VPN tunnel for inspection and auditing. This is a critical security requirement for most enterprise IT policies. Without forced tunneling, Internet-bound traffic from your VMs in Azure always traverses from Azure network infrastructure directly out to the Internet, without the option to allow you to inspect or audit the traffic.

Forced tunneling in Azure is configured via virtual network user-defined routes.

D: ExpressRoute lets you extend your on-premises networks into the Microsoft cloud over a private connection facilitated by a connectivity provider. With ExpressRoute, you can establish connections to Microsoft cloud services, such as Microsoft Azure, Office 365, and Dynamics 365.

Connectivity can be from an any-to-any (IP VPN) network, a point-to-point Ethernet network, or a virtual cross-connection through a connectivity provider at a colocation facility. ExpressRoute connections do not go over the public Internet. This allows ExpressRoute connections to offer more reliability, faster speeds, lower latencies, and higher security than typical connections over the Internet.

Reference:
https://docs.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-forced-tunneling-rm

https://docs.microsoft.com/en-us/azure/expressroute/expressroute-introduction

QUESTION 23
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You are migrating an on-premises application to Azure. One component of the application is a legacy Windows native executable that performs image processing.

The image processing application must run every hour. During times that the image processing application is not running, it should not be consuming any Azure compute resources.

You need to ensure that the image processing application runs correctly every hour.

Solution: Create an Azure Batch application that runs the image processing application every hour.

Does the solution meet the goal?

A. Yes

B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Instead use an Azure Logic Apps, which helps you automate workflows that run on a schedule.

Reference:
https://docs.microsoft.com/en-us/azure/logic-apps/tutorial-build-schedule-recurring-logic-app-workflow

QUESTION 24
You plan to run an image rendering workload in Azure. The workload uses parallel compute processes.

What is the best service to use to run the workload? More than one answer choice may achieve the goal. Select the **BEST** answer.

A. an Azure virtual machine scale set
B. Azure Kubernetes Service (AKS)
C. Azure Batch
D. Azure Container Service

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Azure Batch works well with intrinsically parallel (also known as "embarrassingly parallel") workloads. Intrinsically parallel workloads are those where the applications can run independently, and each instance completes part of the work. When the applications are executing, they might access some common data, but they do not communicate with other instances of the application. Intrinsically parallel workloads can therefore run at a large scale, determined by the amount of compute resources available to run applications simultaneously.

Reference:
https://docs.microsoft.com/en-us/azure/batch/batch-technical-overview

QUESTION 25

Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You are designing a storage solution to support on-premises resources and Azure-hosted resources.

You need to provide on-premises storage that has built-in replication to Azure.

Solution: You include Azure Blob storage in the design.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Azure StorSimple replicates to Azure Blob storage.

QUESTION 26
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You are designing a storage solution to support on-premises resources and Azure-hosted resources.

You need to provide on-premises storage that has built-in replication to Azure.

Solution: You include Azure Data Lake Storage in the design.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 27
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You are designing a storage solution to support on-premises resources and Azure-hosted resources.

You need to provide on-premises storage that has built-in replication to Azure.

Solution: You include Azure Data Table Storage in the design.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 28
Note: This question is part of series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You are designing a storage solution to support on-premises resources and Azure-hosted resources.

You need to provide on-premises storage that has built-in replication to Azure.

Solution: You include Azure StorSimple in the design.

Does the solution meet the goal?

A. Yes
B. No

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:

QUESTION 29
You use Azure virtual machines to run a custom application that uses an Azure SQL Database instance on the back end.

The IT department at your company recently enabled forced tunneling.

Since the configuration change, developers have noticed degraded performance when they access the database.

You need to recommend a solution to minimize latency when accessing the database. The solution must minimize costs.

What should you include in the recommendation?

A. Azure SQL Database Managed Instance
B. virtual network service endpoints
C. Always On availability groups
D. Azure virtual machines that run Microsoft SQL Server servers

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 30
DRAG DROP

You are designing a network connectivity strategy for a new Azure subscription. You identify the following requirements:

▪ The Azure virtual machines on a subnet named Subnet1 must be accessible only from the computers in your London office.
▪ Engineers require access to the Azure virtual machine on a subnet named Subnet2 over the Internet on a specific TCP/IP management port.
▪ The Azure virtual machines in the West Europe Azure region must be able to communicate on all ports to the Azure virtual machines in the North Europe Azure region.

You need to recommend which components must be used to meet the requirements. The solution must minimize costs and administrative effort whenever possible.

What should you include in the recommendation? To answer, drag the appropriate components to the correct requirements. Each component may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:

Components	Answer Area	
An Azure ExpressRoute connection	The Azure virtual machines on Subnet1 must be accessible only from the computers in the London office:	Component
A network security group (NSG)	Engineers require access to the Azure virtual machines on Subnet2 over the Internet on a specific TCP/IP management port:	Component
A new virtual network	The Azure virtual machines in the West Europe region must be able to communicate on all ports to the Azure virtual machines in the North Europe region:	Component
A site-to-site VPN		
Virtual network peering		

Correct Answer:

Components	Answer Area

Components

An Azure ExpressRoute connection

A network security group (NSG)

A new virtual network

A site-to-site VPN

Virtual network peering

Answer Area

The Azure virtual machines on Subnet1 must be accessible only from the computers in the London office.	A site-to-site VPN
Engineers require access to the Azure virtual machines on Subnet2 over the Internet on a specific TCP/IP management port.	A network security group (NSG)
The Azure virtual machines in the West Europe region must be able to communicate on all ports to the Azure virtual machines in the North Europe region.	Virtual network peering

Section: [none]
Explanation
Explanation/Reference:

QUESTION 31
You develop a new Azure Web App that uses multiple Azure blobs and static content. The Web App uses a large number of JavaScript files and cascading style sheets. Some of these files contain references to other files. Users are geographically dispersed.

You need to minimize the time to load individual pages.

What should you do?

A. Migrate the Web App to Azure Service Fabric
B. Use an Azure Content Delivery Network (CDN)
C. Implement an Azure Redis Cache
D. Create a services layer by using an Azure-hosted ASP.NET web API
E. Enable the Always On feature of the Web App

Correct Answer: B
Section: [none]
Explanation

Explanation/Reference:

QUESTION 32
You have 100 Standard_F2s_v2 Azure virtual machines. Each virtual machine has two network adapters.

You need to increase the network performance of the workloads running on the virtual machines. The solution must meet the following requirements:

▪ The CPU-to-memory ratio must remain the same. ▪
The solution must minimize costs.

What should you do?

A. Configure NIC teaming
B. Enable RDMA over InfiniBand
C. Enable SR-IOV
D. Install an additional network adapter

Correct Answer: C
Section: [none]
Explanation

Explanation/Reference:
Explanation:
Accelerated networking enables single root I/O virtualization (SR-IOV) to a VM, greatly improving its networking performance. This high-performance path bypasses the host from the datapath, reducing latency, jitter, and CPU utilization, for use with the most demanding network workloads on supported VM types.

Reference:
https://docs.microsoft.com/en-us/azure/virtual-network/create-vm-accelerated-networking-cli

QUESTION 33
You have a .NET web service named Service1 that has the following requirements:

▪ Must read and write temporary files to the local file system. ▪
Must write to the Windows Application event log.

You need to recommend a solution to host Service1 in Azure. The solution must meet the following requirements:

▪ Minimize maintenance overhead. ▪
Minimize costs.

What should you include in the recommendation?

A. an Azure virtual machine scale set
B. an Azure function
C. an App Service Environment
D. an Azure web app

Correct Answer: A
Section: [none]
Explanation

Explanation/Reference:

QUESTION 34
You have a web app named App1 that is hosted on-premises and on four Azure virtual machines. Each virtual machine is in a different region.

You need to recommend a solution to ensure that users will always connect to the closest instance of App1. The solution must prevent the users from attempting to connect to a failed instance of App1.

Which two possible recommendations achieve the goal? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. Azure Front Door Service
B. Azure Load Balancer
C. round-robin DNS
D. Azure Traffic Manager
E. Azure Application Gateway

Correct Answer: AD
Section: [none]
Explanation

Explanation/Reference: