Azure Fundamentals **MCQ set with explanations** for all 55 questions, presented in sequence:

Virtual Machines (VM)

1. **Which of the following operating systems can be deployed on an Azure Virtual Machine?**
    a) Windows Server
    b) Ubuntu
    c) Red Hat Enterprise Linux
    d) All of the above
    Correct Answer: d) All of the above
    Explanation: Azure Virtual Machines support various operating systems, including Windows Server and Linux distributions like Ubuntu and Red Hat. This flexibility allows businesses to run workloads on their preferred OS. Azure also offers pre-configured images or the ability to upload custom images.

2. **What is the minimum virtual hard disk (VHD) size required to create an Azure VM?**
    a) 4 GB
    b) 8 GB
    c) 32 GB
    d) 64 GB
    Correct Answer: b) 8 GB
    Explanation: Azure requires a minimum VHD size of 8 GB to ensure enough space for the operating system and essential files. Smaller disks may not meet the requirements for hosting the OS and related operations.

3. **What is the purpose of Azure VM Scale Sets?**
    a) Managing data analytics
    b) Deploying multiple virtual machines for load balancing
    c) Reducing storage costs
    d) Monitoring VMs
    Correct Answer: b) Deploying multiple virtual machines for load balancing
    Explanation: Azure VM Scale Sets allow you to deploy and manage a group of identical VMs for scaling workloads. They automatically handle load balancing, scaling up or down based on demand, ensuring high availability for applications.

4. **Which tool is primarily used to manage Azure Virtual Machines?**
    a) Azure CLI
    b) Windows Admin Center
    c) Microsoft Intune
    d) PowerShell DSC
    Correct Answer: a) Azure CLI
    Explanation: Azure CLI is a cross-platform command-line tool used to create, manage, and configure Azure resources, including VMs. It simplifies the automation of tasks through scripting.

5. **What is the default disk type for Azure Virtual Machines?**
   a) HDD
   b) SSD
   c) Premium SSD
   d) Standard SSD
   Correct Answer: d) Standard SSD
   Explanation: Azure VMs use Standard SSD as the default disk type, providing a balance of performance and cost. Premium SSDs are available for high-performance workloads, while Standard HDDs are more cost-effective for archival data.

Virtual Networks (VNet)

6. **What is the purpose of an Azure Virtual Network (VNet)?**
   a) To create isolated networks for Azure resources
   b) To host web applications
   c) To store sensitive data
   d) To create hybrid cloud environments
   Correct Answer: a) To create isolated networks for Azure resources
   Explanation: An Azure VNet provides a secure, isolated network environment where Azure resources such as VMs, databases, and services can communicate privately. It enables customization of IP ranges, subnets, and routing.
7. **What is the maximum number of IP addresses a single VNet can have?**
   a) 65,536
   b) 1,024
   c) 50,000
   d) Unlimited
   Correct Answer: a) 65,536
   Explanation: The maximum number of IP addresses is determined by the CIDR block assigned to the VNet. Using a /16 subnet mask allows up to 65,536 addresses, making Azure VNets highly scalable.
8. **Which service allows connecting multiple VNets in Azure?**
   a) VNet Gateway
   b) ExpressRoute
   c) VNet Peering
   d) Site-to-Site VPN
   Correct Answer: c) VNet Peering
   Explanation: VNet Peering enables seamless and secure communication between VNets. It reduces latency and simplifies network architecture by allowing resources in different VNets to communicate without using external IPs.
9. **Which of the following is not supported within a VNet?**
   a) Subnets
   b) Private Endpoints
   c) Public IP Addresses
   d) External IP Routing
   Correct Answer: d) External IP Routing
   Explanation: VNets are designed for internal Azure networking. While public IPs are

supported for connecting to the internet, external IP routing (beyond Azure-managed endpoints) is not part of VNet functionality.

10. **What is the maximum number of subnets allowed per VNet?**
    a) 1,000
    b) 10,000
    c) 2,500
    d) 500
    Correct Answer: a) 1,000
    Explanation: Azure allows up to 1,000 subnets per VNet. Each subnet provides a logical partition for resources, enabling better organization and management of network traffic within the VNet.

Storage Accounts

11. **Which type of storage account is optimized for unstructured data?**
    a) Blob Storage
    b) File Storage
    c) Queue Storage
    d) Disk Storage
    Correct Answer: a) Blob Storage
    Explanation: Azure Blob Storage is designed for storing unstructured data such as images, videos, and backups. It supports different tiers (Hot, Cool, Archive) for cost-efficient storage based on access frequency.

12. **What replication strategy ensures high durability across regions?**
    a) Locally Redundant Storage (LRS)
    b) Zone-Redundant Storage (ZRS)
    c) Geo-Redundant Storage (GRS)
    d) Read-Access Geo-Redundant Storage (RA-GRS)
    Correct Answer: c) Geo-Redundant Storage (GRS)
    Explanation: GRS replicates data to a secondary region, ensuring durability even in case of regional failures. RA-GRS further enhances this by allowing read access in the secondary region.

13. **What is the primary purpose of Azure Storage Account Access Keys?**
    a) Encrypt data in storage
    b) Provide administrative access to storage resources
    c) Define storage quotas
    d) Set up blob lifecycle policies
    Correct Answer: b) Provide administrative access to storage resources
    Explanation: Storage account access keys are used to authenticate and manage storage resources programmatically. They provide full access to the storage account, enabling operations such as reading, writing, and deleting data.

Storage Accounts (Continued)

14. **What is the maximum file size for a single blob in Azure Blob Storage?**
    a) 100 GB
    b) 1 TB
    c) 4.75 TB
    d) 200 TB
    Correct Answer: c) 4.75 TB
    Explanation: Azure Blob Storage supports up to 4.75 TB per single blob file. This makes it suitable for storing large unstructured data like backups, videos, or logs. For larger datasets, you can split data across multiple blobs.

15. **Which access level allows blobs to be read without authentication?**
    a) Private
    b) Blob
    c) Container
    d) Public
    Correct Answer: b) Blob
    Explanation: Setting the blob access level to "Blob" enables public read access to individual blob files without authentication. This is often used for publicly shared content such as images or documents.

16. **What is the purpose of Azure Storage Explorer?**
    a) Monitoring storage account performance
    b) Managing storage resources
    c) Automating backup jobs
    d) Creating subnets within a VNet
    Correct Answer: b) Managing storage resources
    Explanation: Azure Storage Explorer is a tool that simplifies the management of Azure Storage resources. It allows users to upload, download, and manage data in Blob, Queue, Table, and File Storage accounts through a user-friendly interface.

17. **Which Azure Storage service is recommended for storing message queues?**
    a) Blob Storage
    b) Table Storage
    c) Queue Storage
    d) File Share
    Correct Answer: c) Queue Storage
    Explanation: Azure Queue Storage is designed for storing messages and enabling asynchronous communication between application components. It supports reliable delivery of messages in distributed systems.

18. **What is the recommended replication option for ensuring read access during region failures?**
    a) LRS
    b) ZRS
    c) GRS
    d) RA-GRS
    Correct Answer: d) RA-GRS
    Explanation: RA-GRS (Read-Access Geo-Redundant Storage) replicates data across regions and allows read access to the replicated data in the secondary region. This ensures high availability during regional outages.

File Share

19. **What protocol is used by Azure File Share for on-premises connectivity?**
    a) SMB
    b) NFS
    c) HTTP
    d) SFTP
    Correct Answer: a) SMB
    Explanation: Azure File Share uses the Server Message Block (SMB) protocol, allowing seamless integration with on-premises systems. It supports file sharing across multiple machines, ideal for lift-and-shift migrations.

20. **What is the primary use case for Azure File Sync?**
    a) Backing up virtual machines
    b) Synchronizing on-premises file servers with Azure File Share
    c) Managing database schemas
    d) Hosting NoSQL data
    Correct Answer: b) Synchronizing on-premises file servers with Azure File Share
    Explanation: Azure File Sync extends on-premises file servers to Azure by synchronizing their content with Azure File Shares. This reduces storage costs and simplifies file server management.

21. **What is the maximum capacity for a single Azure File Share?**
    a) 1 TB
    b) 5 TB
    c) 100 TB
    d) 200 TB
    Correct Answer: c) 100 TB
    Explanation: Azure File Shares can store up to 100 TB of data. This makes it suitable for hosting large file systems and enabling cloud-based file sharing for enterprise use cases.

22. **Which access tier is available for Azure File Share?**
    a) Hot
    b) Cool
    c) Archive
    d) All of the above
    Correct Answer: d) All of the above
    Explanation: Azure File Share supports Hot, Cool, and Archive tiers. Hot is for frequently accessed data, Cool for infrequently accessed data, and Archive for rarely accessed, long-term storage.

23. **What is required to mount an Azure File Share on a Windows machine?**
    a) Public IP
    b) Storage account key
    c) Custom DNS configuration
    d) Azure Kubernetes Service
    Correct Answer: b) Storage account key
    Explanation: To mount an Azure File Share on Windows, you need the storage

account key, which acts as a credential to authenticate and authorize access to the File Share.

MS SQL Database

24. **What is the primary use case for Azure SQL Database?**
    a) Managing large volumes of NoSQL data
    b) Hosting relational databases in the cloud
    c) Processing streaming data
    d) Running batch jobs
    Correct Answer: b) Hosting relational databases in the cloud
    Explanation: Azure SQL Database is a managed PaaS offering for hosting and managing relational databases. It supports advanced features like scaling, automatic backups, and high availability.

25. **What pricing model does Azure SQL Database use?**
    a) Per-second billing
    b) Per-minute billing
    c) DTU or vCore-based billing
    d) Reserved instances only
    Correct Answer: c) DTU or vCore-based billing
    Explanation: Azure SQL Database uses two pricing models: DTU-based (Database Transaction Unit) for simplified workloads or vCore-based for more granular control over compute and storage resources.

26. **Which feature ensures database recovery in Azure SQL Database?**
    a) Point-in-time restore
    b) Virtual Machine snapshots
    c) Azure Monitor Alerts
    d) Network Security Groups
    Correct Answer: a) Point-in-time restore
    Explanation: Azure SQL Database supports point-in-time restore, allowing users to recover databases to a specific time within the retention period. This feature is essential for handling accidental data loss or corruption.

27. **What tool is commonly used to query Azure SQL Databases?**
    a) Azure Data Factory
    b) SQL Server Management Studio (SSMS)
    c) Azure CLI
    d) Microsoft Intune
    Correct Answer: b) SQL Server Management Studio (SSMS)
    Explanation: SSMS is a widely used tool for managing and querying SQL databases, including Azure SQL Database. It provides an intuitive interface for running queries, managing schemas, and monitoring performance.

28. **What is the default high-availability model for Azure SQL Database?**
    a) Zone-redundant architecture
    b) Active geo-replication
    c) Always On availability groups
    d) Built-in fault-tolerant replication

Correct Answer: d) Built-in fault-tolerant replication
Explanation: Azure SQL Database automatically provides high availability through built-in fault-tolerant replication across Azure regions or availability zones, ensuring minimal downtime.

Identity and Access Management (IAM)

29. **What is the primary purpose of Azure Active Directory (Azure AD)?**
    a) Encrypting sensitive data
    b) Managing user identities and access
    c) Monitoring application performance
    d) Hosting web applications
    Correct Answer: b) Managing user identities and access
    Explanation: Azure AD is a cloud-based identity and access management service. It helps manage user identities and enables secure access to applications, including Microsoft 365, Azure resources, and custom applications.

30. **Which role in Azure AD has full access to manage all Azure resources?**
    a) Owner
    b) Contributor
    c) Reader
    d) Security Administrator
    Correct Answer: a) Owner
    Explanation: The Owner role has full access to manage resources, including granting access to others. It is the highest level of control in Azure's role-based access control (RBAC).

31. **What does RBAC stand for in Azure?**
    a) Resource-Based Access Control
    b) Role-Based Access Control
    c) Read-Write Access Configuration
    d) Regional Backup and Configuration
    Correct Answer: b) Role-Based Access Control
    Explanation: Role-Based Access Control (RBAC) allows granular permissions management in Azure. It assigns roles like Owner, Contributor, or Reader to users, groups, or services, ensuring secure and scoped access.

32. **Which feature in Azure AD allows users to log in using their social media accounts?**
    a) Self-Service Password Reset
    b) B2B Collaboration
    c) B2C Identity Management
    d) Conditional Access
    Correct Answer: c) B2C Identity Management
    Explanation: Azure AD B2C enables customer identity management, allowing users to sign in using social media accounts like Facebook or Google. It's tailored for external customer-facing applications.

33. **What is the purpose of Conditional Access in Azure AD?**
    a) Automating resource provisioning
    b) Enforcing access policies based on conditions
    c) Creating virtual machines
    d) Managing storage tiers
    Correct Answer: b) Enforcing access policies based on conditions
    Explanation: Conditional Access enforces policies based on conditions such as user location, device, or application. For example, users logging in from an unknown location may be required to complete multi-factor authentication (MFA).

34. **What is a Service Principal in Azure AD?**
    a) A user account for employees
    b) An identity for applications or services to access Azure resources
    c) A virtual machine role
    d) An encryption service
    Correct Answer: b) An identity for applications or services to access Azure resources
    Explanation: A Service Principal represents an identity used by applications or services to access Azure resources securely, eliminating the need for storing user credentials in the application code.

35. **Which Azure AD feature protects against compromised credentials?**
    a) MFA
    b) Identity Protection
    c) RBAC
    d) Conditional Access
    Correct Answer: b) Identity Protection
    Explanation: Azure AD Identity Protection uses machine learning to detect compromised accounts. It triggers alerts and enforces policies such as blocking logins or requiring password resets.

36. **What is Privileged Identity Management (PIM)?**
    a) A storage replication service
    b) A service to manage and monitor elevated access in Azure
    c) A database performance tuning tool
    d) A feature for managing Azure billing
    Correct Answer: b) A service to manage and monitor elevated access in Azure
    Explanation: PIM allows temporary and controlled access to privileged roles in Azure, reducing the risk of misuse or compromise of high-level accounts.

Azure Managed Services

37. **Which service is designed for deploying and managing containerized applications?**
    a) Azure Kubernetes Service (AKS)
    b) Azure App Service
    c) Azure Functions
    d) Azure Logic Apps
    Correct Answer: a) Azure Kubernetes Service (AKS)

Explanation: AKS is a managed Kubernetes service for deploying, scaling, and managing containerized applications. It simplifies Kubernetes operations, allowing developers to focus on applications rather than infrastructure.

38. **What is the primary purpose of Azure Logic Apps?**
    a) Hosting websites
    b) Automating workflows and business processes
    c) Managing virtual networks
    d) Monitoring virtual machines
    Correct Answer: b) Automating workflows and business processes
    Explanation: Azure Logic Apps help automate workflows by connecting services like email, databases, and external APIs. They are ideal for tasks like data integration and process automation.

39. **What is Azure App Service used for?**
    a) Hosting web applications and APIs
    b) Managing virtual machines
    c) Running analytics workloads
    d) Monitoring network traffic
    Correct Answer: a) Hosting web applications and APIs
    Explanation: Azure App Service is a PaaS offering that allows developers to host web applications, RESTful APIs, and mobile backends. It supports multiple programming languages and scales automatically.

40. **Which Azure service is best for event-driven serverless computing?**
    a) Azure Functions
    b) Azure Logic Apps
    c) Azure Kubernetes Service
    d) Azure App Service
    Correct Answer: a) Azure Functions
    Explanation: Azure Functions is a serverless compute service that executes code in response to events or triggers, such as HTTP requests or database changes. It eliminates the need to manage servers.

41. **What is the main use case for Azure Event Grid?**
    a) Storing unstructured data
    b) Routing events between Azure services or applications
    c) Monitoring virtual machine logs
    d) Automating resource deployments
    Correct Answer: b) Routing events between Azure services or applications
    Explanation: Azure Event Grid is an event routing service that connects event sources like Azure Storage with handlers like Azure Functions. It ensures efficient, reliable event-driven architectures.

42. **Which Azure service provides serverless orchestration for microservices?**
    a) Azure Logic Apps
    b) Azure Functions
    c) Azure Service Fabric
    d) Azure App Service
    Correct Answer: c) Azure Service Fabric
    Explanation: Azure Service Fabric provides serverless orchestration and management for microservices. It enables high availability and scalability for distributed applications.

43. **What is the primary purpose of Azure Monitor?**
    a) Deploying virtual machines
    b) Monitoring resource performance and health
    c) Storing database backups
    d) Managing network traffic
    Correct Answer: b) Monitoring resource performance and health
    Explanation: Azure Monitor collects and analyzes telemetry data to provide insights into resource performance and health, helping to optimize operations and troubleshoot issues.
44. **Which service is used for managing infrastructure as code in Azure?**
    a) Azure Policy
    b) Azure Resource Manager (ARM) Templates
    c) Azure DevOps
    d) Azure Logic Apps
    Correct Answer: b) Azure Resource Manager (ARM) Templates
    Explanation: ARM templates enable the deployment and management of Azure resources as code. They support infrastructure automation and ensure consistency across environments.
45. **What is the role of Azure Cost Management?**
    a) Encrypting resource data
    b) Optimizing cloud spending and cost visibility
    c) Monitoring application performance
    d) Automating billing processes
    Correct Answer: b) Optimizing cloud spending and cost visibility
    Explanation: Azure Cost Management helps monitor, analyze, and optimize cloud spending. It provides insights into usage and costs, enabling organizations to control expenses effectively.

Identity and Access Management (IAM) (Continued)

46. **What is the benefit of Multi-Factor Authentication (MFA) in Azure AD?**
    a) Faster sign-in process
    b) Enhanced security with additional authentication layers
    c) Reduced storage costs
    d) Automatic resource provisioning
    Correct Answer: b) Enhanced security with additional authentication layers
    Explanation: Azure MFA adds an extra layer of security by requiring users to verify their identity through methods like a phone call, text message, or app notification, reducing the risk of compromised accounts.
47. **What does the "Reader" role in RBAC allow?**
    a) Modify resources
    b) Create resources
    c) View resources without making changes
    d) Manage role assignments

Correct Answer: c) View resources without making changes
Explanation: The Reader role provides read-only access to Azure resources. It is ideal for users who need to monitor resources or access reports without modifying configurations.

48. **Which Azure AD license is required for Conditional Access?**
    a) Free
    b) Premium P1
    c) Premium P2
    d) Enterprise Mobility + Security
    Correct Answer: b) Premium P1
    Explanation: Azure AD Premium P1 includes Conditional Access, enabling organizations to apply access policies based on user, location, and device conditions. Premium P2 adds Identity Protection and advanced features.

49. **What is an Azure Managed Identity used for?**
    a) User account management
    b) Application authentication without credentials
    c) Managing Azure billing
    d) Monitoring resource usage
    Correct Answer: b) Application authentication without credentials
    Explanation: Azure Managed Identities allow applications to authenticate to Azure services without embedding credentials in the code. Azure manages the identity lifecycle securely.

50. **What is Azure AD B2B collaboration used for?**
    a) Synchronizing on-premises directories
    b) Enabling secure collaboration with external users
    c) Hosting virtual machines
    d) Managing billing accounts
    Correct Answer: b) Enabling secure collaboration with external users
    Explanation: Azure AD B2B allows organizations to securely share applications and services with external partners and contractors without requiring additional Azure AD licenses for them.

Azure Managed Services (Continued)

51. **Which Azure service is recommended for creating predictive machine learning models?**
    a) Azure Synapse Analytics
    b) Azure Machine Learning
    c) Azure Databricks
    d) Azure Cognitive Services
    Correct Answer: b) Azure Machine Learning
    Explanation: Azure Machine Learning is a platform for building, training, and deploying predictive models. It supports a wide range of ML frameworks and tools, making it suitable for advanced AI workloads.

52. **What is the primary use of Azure Cognitive Services?**
    a) Hosting web applications

b) Adding AI capabilities like speech and vision to applications
c) Managing IoT devices
d) Running analytics workloads
Correct Answer: b) Adding AI capabilities like speech and vision to applications
Explanation: Azure Cognitive Services provides pre-built AI capabilities such as text analysis, image recognition, and language translation, enabling developers to integrate AI into their applications quickly.

53. **Which service provides real-time analysis of large datasets in Azure?**
    a) Azure Data Factory
    b) Azure Stream Analytics
    c) Azure Monitor
    d) Azure Backup
    Correct Answer: b) Azure Stream Analytics
    Explanation: Azure Stream Analytics processes and analyzes real-time data streams from sources like IoT devices, Azure Event Hubs, or Azure IoT Hub. It is ideal for scenarios like fraud detection or IoT telemetry analysis.

54. **What is Azure Service Bus used for?**
    a) Creating machine learning models
    b) Secure messaging between services and applications
    c) Hosting containerized applications
    d) Managing virtual machines
    Correct Answer: b) Secure messaging between services and applications
    Explanation: Azure Service Bus is a fully managed enterprise message broker. It ensures reliable and secure communication between distributed applications, supporting queue-based and publish-subscribe messaging.

55. **Which service in Azure helps manage cloud compliance and governance?**
    a) Azure Policy
    b) Azure Functions
    c) Azure App Service
    d) Azure SQL Database
    Correct Answer: a) Azure Policy
    Explanation: Azure Policy enforces compliance and governance by applying rules to Azure resources. For example, it can prevent users from creating resources in non-approved regions or ensure resources have tags.

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SET 2

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Azure General Questions

1. **Which Azure service allows organizations to establish a private connection between Azure and their on-premises networks?**
   a) Azure ExpressRoute
   b) Azure VPN Gateway
   c) Azure Traffic Manager
   d) Azure Load Balancer
   Correct Answer: a) Azure ExpressRoute
   Explanation: Azure ExpressRoute enables private, dedicated, high-bandwidth connectivity between Azure and on-premises environments. It is often used for secure and reliable hybrid cloud implementations.

2. **What is the purpose of Azure Policy?**
   a) Managing user roles and access
   b) Enforcing organizational standards and compliance
   c) Monitoring application performance
   d) Automating resource provisioning
   Correct Answer: b) Enforcing organizational standards and compliance
   Explanation: Azure Policy ensures resources in your Azure environment comply with defined standards, such as restricting regions for deployments or enforcing tagging conventions.

3. **Which service provides real-time monitoring and alerting for Azure resources?**
   a) Azure Monitor
   b) Azure Security Center
   c) Azure Cost Management
   d) Azure Advisor
   Correct Answer: a) Azure Monitor
   Explanation: Azure Monitor collects metrics and logs, enabling real-time monitoring of Azure resources. It can trigger alerts based on custom thresholds.

4. **What is Azure Resource Manager (ARM) used for?**
   a) Managing virtual machines
   b) Automating deployments and managing Azure resources as a group
   c) Hosting containerized applications
   d) Monitoring cloud costs
   Correct Answer: b) Automating deployments and managing Azure resources as a group
   Explanation: ARM enables users to define, deploy, and manage Azure resources as a single entity using templates, ensuring consistency and reusability in resource management.

5. **Which feature allows multiple Azure virtual machines to share the same IP address?**
   a) Load Balancer
   b) Application Gateway
   c) Traffic Manager
   d) Azure Bastion
   Correct Answer: a) Load Balancer
   Explanation: An Azure Load Balancer distributes incoming network traffic across multiple VMs, enabling scalability and fault tolerance. It uses the same frontend IP address for all requests.

6. **What is the primary purpose of Azure Traffic Manager?**
   a) Distributing traffic to different regions based on DNS
   b) Managing virtual networks
   c) Monitoring application health
   d) Controlling resource tags
   Correct Answer: a) Distributing traffic to different regions based on DNS
   Explanation: Azure Traffic Manager is a DNS-based load balancer that directs user traffic to the most appropriate endpoint, considering performance, priority, or geographic location.

7. **Which service would you use to archive infrequently accessed data in Azure?**
   a) Azure Blob Hot Tier
   b) Azure Blob Archive Tier
   c) Azure File Share
   d) Azure Table Storage
   Correct Answer: b) Azure Blob Archive Tier
   Explanation: The Blob Archive tier is designed for infrequently accessed data, providing the lowest storage cost but higher retrieval latency compared to the Hot or Cool tiers.

8. **What is Azure Site Recovery (ASR) used for?**
   a) Backing up application data
   b) Replicating and recovering workloads during disasters
   c) Monitoring virtual machine performance
   d) Storing snapshots of databases
   Correct Answer: b) Replicating and recovering workloads during disasters
   Explanation: ASR ensures business continuity by replicating workloads to Azure or another site and orchestrating failover and recovery during disruptions.

9. **What does the Azure Security Center provide?**
   a) Cost analysis
   b) Recommendations to improve the security posture
   c) Automated deployment tools
   d) A platform for AI development
   Correct Answer: b) Recommendations to improve the security posture
   Explanation: Azure Security Center identifies vulnerabilities and provides actionable recommendations to strengthen the security of your Azure and on-premises resources.

10. **Which service would you use for orchestrating workflows in Azure?**
    a) Azure Logic Apps
    b) Azure Functions
    c) Azure Service Fabric
    d) Azure Monitor
    Correct Answer: a) Azure Logic Apps
    Explanation: Azure Logic Apps automates workflows and integrates services, enabling tasks like data movement, system integration, and event-based triggers.

Scenario-Based Troubleshooting Questions

11. **Scenario**: You deployed a VM in Azure, but it is not accessible over RDP. What could be the issue?
    a) Missing NSG rule for port 3389
    b) VM is in a stopped state
    c) Incorrect region
    d) Incorrect subscription
    Correct Answer: a) Missing NSG rule for port 3389
    Explanation: To allow RDP access, a Network Security Group (NSG) rule must permit inbound traffic on port 3389. Verify the NSG rules attached to the VM's subnet or network interface.

12. **Scenario**: An Azure Web App is not responding. How would you troubleshoot it?
    a) Check App Service logs and metrics in Azure Monitor
    b) Restart the Azure portal
    c) Redeploy the code without checking logs
    d) Enable VPN access to the app
    Correct Answer: a) Check App Service logs and metrics in Azure Monitor
    Explanation: Use Azure Monitor to review logs, metrics, and application insights for performance or error issues. You can also restart the app if necessary.

13. **Scenario**: Your Azure SQL Database queries are slower than expected. What should you check first?
    a) Query performance using Query Performance Insights
    b) Enable replication
    c) Increase the database size
    d) Disable firewalls
    Correct Answer: a) Query performance using Query Performance Insights
    Explanation: Query Performance Insights in Azure SQL Database identifies slow or resource-intensive queries, providing recommendations for optimization.

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14. **Scenario**: Users cannot access an Azure File Share. What could be the problem?
    a) Storage account firewall settings
    b) Storage account in archive tier
    c) Incorrect DNS configuration
    d) Virtual network misconfiguration
    Correct Answer: a) Storage account firewall settings
    Explanation: If the storage account has firewall rules enabled, ensure that the client IP or virtual network is allowed. Verify access permissions as well.

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15. **Scenario**: You are unable to deploy a resource due to "Quota exceeded" errors. What is your next step?
    a) Request a quota increase in the Azure portal
    b) Delete unused resources
    c) Change the subscription type
    d) Enable resource tagging
    Correct Answer: a) Request a quota increase in the Azure portal
    Explanation: Azure enforces quotas to prevent overuse of resources. If limits are exceeded, submit a request for an increase via the Azure portal.

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16. **Scenario**: Azure VPN Gateway fails to connect to on-premises. What might be the cause?
    a) Incorrect shared key configuration
    b) VM misconfiguration
    c) Unencrypted data traffic
    d) Incomplete blob storage setup
    Correct Answer: a) Incorrect shared key configuration
    Explanation: Verify that the shared key used in both Azure and on-premises VPN configurations matches. Misconfigured keys are a common cause of connection issues.

17. **Scenario**: A virtual machine suddenly stops responding. What is the first step?
    a) Check Azure VM status in the portal
    b) Delete and recreate the VM
    c) Configure DNS settings
    d) Change the storage tier
    Correct Answer: a) Check Azure VM status in the portal
    Explanation: Check the VM status (Running, Stopped, etc.) and review activity logs for any clues. Restart the VM if necessary.

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18. **Scenario**: Azure Function fails to execute. What should you do?
    a) Review function logs and triggers in Application Insights
    b) Redeploy the Azure Function
    c) Increase the pricing tier
    d) Change to a Kubernetes deployment
    Correct Answer: a) Review function logs and triggers in Application Insights
    Explanation: Application Insights provides logs and details about triggers, helping identify issues such as missing dependencies or incorrect configurations.

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19. **Scenario**: A storage blob cannot be accessed. What might be the issue?
    a) Incorrect SAS token configuration
    b) Virtual network misconfiguration
    c) Expired SSL certificate
    d) Lack of multi-region deployment
    Correct Answer: a) Incorrect SAS token configuration
    Explanation: If the Shared Access Signature (SAS) token is misconfigured or expired, the blob will be inaccessible. Generate a valid token with appropriate permissions.

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20. **Scenario**: Autoscaling is not triggering for your Azure VM Scale Set. What could be wrong?
    a) Incorrect autoscale rules or thresholds
    b) Lack of a custom image
    c) Misconfigured App Service plan
    d) Missing user identity configuration
    Correct Answer: a) Incorrect autoscale rules or thresholds
    Explanation: Verify that autoscale rules are configured properly with accurate thresholds. Ensure metrics like CPU or memory utilization are being monitored correctly.

Azure Entra (Identity and Access Management)

1. **What is Azure Entra primarily used for?**
   a) Monitoring VM performance
   b) Managing identities and secure access to resources
   c) Setting up CI/CD pipelines
   d) Hosting web applications
   Correct Answer: b) Managing identities and secure access to resources
   Explanation: Azure Entra is a suite of tools for identity management, including Azure Active Directory (Azure AD), identity governance, and cross-cloud security access.

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2. **What feature does Azure Entra Verified ID provide?**
   a) Multi-factor authentication
   b) Issuance and verification of decentralized identity credentials
   c) Automatic VM scaling
   d) Hybrid cloud management
   Correct Answer: b) Issuance and verification of decentralized identity credentials
   Explanation: Azure Entra Verified ID allows organizations to issue, verify, and manage digital credentials securely for employees, partners, and customers.

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3. **Which of the following describes Conditional Access in Azure Entra?**
   a) Controlling access based on real-time risk assessment
   b) Restricting user access based on subscription type
   c) Providing offline access to resources
   d) Automating database backups
   Correct Answer: a) Controlling access based on real-time risk assessment
   Explanation: Conditional Access evaluates signals like user location, device, and risk level to enforce access policies dynamically.

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4. **What is the role of Privileged Identity Management (PIM) in Azure Entra?**
   a) Monitoring VM utilization
   b) Granting just-in-time privileged access
   c) Automating application deployment
   d) Enabling geo-redundancy
   Correct Answer: b) Granting just-in-time privileged access
   Explanation: PIM minimizes risks by allowing time-limited, role-based access to critical Azure resources and reducing the number of standing administrative privileges.

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5. **Which of the following is true for Entra Permissions Management?**
   a) It identifies excessive permissions across multi-cloud environments.
   b) It manages billing alerts in Azure.
   c) It provides governance over application deployments.

d) It automates resource tagging.
Correct Answer: a) It identifies excessive permissions across multi-cloud environments.
Explanation: Entra Permissions Management helps monitor and enforce least-privilege access across Azure, AWS, and GCP, improving security posture.

Azure Billing

6. **What is the purpose of Azure Cost Management + Billing?**
   a) Monitoring application logs
   b) Optimizing cloud spending and providing cost insights
   c) Managing identity access
   d) Automating Azure deployment pipelines
   Correct Answer: b) Optimizing cloud spending and providing cost insights
   Explanation: Azure Cost Management helps track resource usage, allocate budgets, and identify cost-saving opportunities through analytics and insights.

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7. **Which of the following is true about Reserved Instances in Azure?**
   a) They require upfront payment but offer discounted pricing.
   b) They are only available for Azure SQL Database.
   c) They are charged hourly.
   d) They are limited to Pay-As-You-Go subscriptions.
   Correct Answer: a) They require upfront payment but offer discounted pricing.
   Explanation: Reserved Instances allow you to save costs by committing to one- or three-year plans for certain Azure services like VMs, storage, or databases.

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8. **How does Azure Budget help in cost management?**
   a) By tracking under-utilized resources
   b) By sending alerts when spending exceeds thresholds
   c) By managing RBAC permissions
   d) By scaling down unused VMs automatically
   Correct Answer: b) By sending alerts when spending exceeds thresholds
   Explanation: Azure Budgets enable users to set spending limits and receive notifications when thresholds are crossed, helping organizations avoid cost overruns.

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9. **Which pricing model is used for Azure App Services?**
   a) Pay-as-you-go
   b) Reserved Instance
   c) Dedicated Host Pricing
   d) Per transaction
   Correct Answer: a) Pay-as-you-go

Explanation: Azure App Services follow a flexible pay-as-you-go pricing model based on the compute resources consumed. Scaling options are also available to optimize costs.

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10. **What is the role of the Azure Advisor in cost optimization?**
    a) Automating application deployment
    b) Providing recommendations for cost savings, security, and reliability
    c) Managing resource groups
    d) Monitoring virtual machine performance
    Correct Answer: b) Providing recommendations for cost savings, security, and reliability
    Explanation: Azure Advisor evaluates your resources and provides actionable recommendations for reducing costs, improving reliability, and optimizing performance.

Azure App Service

11. **Which programming languages are supported by Azure App Service?**
    a) Only .NET
    b) Python, Java, .NET, PHP, and Node.js
    c) C++ and C# only
    d) COBOL
    Correct Answer: b) Python, Java, .NET, PHP, and Node.js
    Explanation: Azure App Service is a fully managed platform that supports multiple programming languages, making it ideal for hosting web applications and APIs.

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12. **Which App Service Plan tier allows deployment in a private VNet?**
    a) Free
    b) Shared
    c) Premium
    d) Consumption
    Correct Answer: c) Premium
    Explanation: The Premium App Service Plan tier supports advanced networking capabilities like deployment into private VNets for enhanced security.

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13. **How does Azure App Service manage scaling?**
    a) Manually only
    b) Automatic scaling based on traffic and load
    c) Based on VM configuration
    d) Through Azure Monitor integration
    Correct Answer: b) Automatic scaling based on traffic and load

Explanation: Azure App Service supports autoscaling, allowing applications to handle varying traffic loads without manual intervention.

Azure Kubernetes Service (AKS)

14. **What is Azure Kubernetes Service (AKS) primarily used for?**
    a) Managing serverless applications
    b) Orchestrating and managing containerized applications
    c) Hosting databases
    d) Storing files and backups
    Correct Answer: b) Orchestrating and managing containerized applications
    Explanation: AKS is a managed Kubernetes service that simplifies deployment, scaling, and management of containerized applications.

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15. **Which networking option provides internal load balancing for AKS pods?**
    a) NodePort
    b) ClusterIP
    c) LoadBalancer
    d) Application Gateway
    Correct Answer: b) ClusterIP
    Explanation: ClusterIP creates an internal load balancer accessible only within the AKS cluster, ensuring secure internal communication between services.

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16. **How does AKS handle scaling?**
    a) Manual pod replication
    b) Horizontal Pod Autoscaler (HPA)
    c) Fixed resource allocation
    d) Using VM Reserved Instances
    Correct Answer: b) Horizontal Pod Autoscaler (HPA)
    Explanation: HPA automatically adjusts the number of pods in an AKS deployment based on resource utilization metrics like CPU or memory usage.