Question 1:

You are designing an application to parse images of business forms and upload the data to a database. The upload process will occur once a week.

You need to recommend which services to use for the application. The solution must minimize infrastructure costs.

Which services should you recommend? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Parse the images:

Azure Bot Service
Azure Cognitive Services
Azure Linguistic Analysis API

Upload the data to the database:

Azure API Apps
Azure Batch AI
Azure Data Factory
Azure Functions

Question 2:
You need to build an interactive website that will accept uploaded images, and then ask a series of predefined questions based on each image.
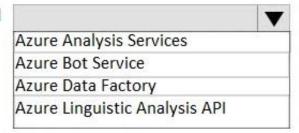Which services should you use? To answer, select the appropriate options in the answer area.
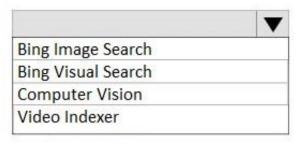NOTE: Each correct selection is worth one point.
Hot Area:

Answer Area

Dynamically ask questions based on an uploaded image:

▼
Azure Analysis Services
Azure Bot Service
Azure Data Factory
Azure Linguistic Analysis API

Analyze and classify an image:

▼
Bing Image Search
Bing Visual Search
Computer Vision
Video Indexer

Question 3
You are designing an AI solution that will analyze millions of pictures.
You need to recommend a solution for storing the pictures. The solution must minimize costs.
Which storage solution should you recommend?

- A. an Azure Data Lake store
- B. Azure File Storage
- C. Azure Blob storage
- D. Azure Table storage

Question 4
You have a Face API solution that updates in real time. A pilot of the solution runs successfully on a small dataset.
When you attempt to use the solution on a larger dataset that continually changes, the performance degrades, slowing how long it takes to recognize existing faces.
You need to recommend changes to reduce the time it takes to recognize existing faces without increasing costs.
What should you recommend?

- A. Change the solution to use the Computer Vision API instead of the Face API.
- B. Separate training into an independent pipeline and schedule the pipeline to run daily.
- C. Change the solution to use the Bing Image Search API instead of the Face API.
- D. Distribute the face recognition inference process across many Azure Cognitive Services instances.

Question 5
You have several AI applications that use an Azure Kubernetes Service (AKS) cluster. The cluster supports a maximum of 32 nodes.
You discover that occasionally and unpredictably, the application requires more than 32 nodes.
You need to recommend a solution to handle the unpredictable application load.
Which scaling method should you recommend?

- A. horizontal pod autoscaler
- B. cluster autoscaler
- C. manual scaling
- D. Azure Container Instances

Question 6
Your company has 1,000 AI developers who are responsible for provisioning environments in Azure.
You need to control the type, size, and location of the resources that the developers can provision.
What should you use?

- A. Azure Key Vault
- B. Azure service principals
- C. Azure managed identities
- D. Azure Security Center
- E. Azure Policy

Question 7
You are designing an AI solution in Azure that will perform image classification.
You need to identify which processing platform will provide you with the ability to update the logic over time. The solution must have the lowest latency for inferencing without having to batch.
Which compute target should you identify?

- A. graphics processing units (GPUs)
- B. field-programmable gate arrays (FPGAs)
- C. central processing units (CPUs)
- D. application-specific integrated circuits (ASICs)

Question 8
You have a solution that runs on a five-node Azure Kubernetes Service (AKS) cluster. The cluster uses an N-series virtual machine.
An Azure Batch AI process runs once a day and rarely on demand.
You need to recommend a solution to maintain the cluster configuration when the cluster is not in use. The solution must not incur any compute costs.
What should you include in the recommendation?

- A. Downscale the cluster to one node
- B. Downscale the cluster to zero nodes
- C. Delete the cluster

Question 9

You are designing an AI solution that will be used to find buildings in aerial pictures.

Users will upload the pictures to an Azure Storage account. A separate JSON document will contain for the pictures.

The solution must meet the following requirements:

❏ Store metadata for the pictures in a data store.

❏ Run a custom vision Azure Machine Learning module to identify the buildings in a picture and the position of the buildings' edges.

❏ Run a custom mathematical module to calculate the dimensions of the buildings in a picture based on the metadata and data from the vision module.

You need to identify which Azure infrastructure services are used for each component of the AI workflow. The solution must execute as quickly as possible.

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

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Location to store the metadata:

Azure Blob storage
Azure Cosmos DB
Azure File Storage

Virtual machine series to run the vision module:

A
F
NV

Virtual machine series to run the mathematical module:

A
F
NV

Question 10

You need to build a solution to monitor Twitter. The solution must meet the following requirements:

✎ Send an email message to the marketing department when negative Twitter messages are detected.

✎ Run sentiment analysis on Twitter messages that mention specific tags.

✎ Use the least amount of custom code possible.

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

NOTE: Each correct selection is worth one point.

- A. Azure Databricks
- B. Azure Stream Analytics
- C. Azure Functions
- D. Azure Cognitive Services
- E. Azure Logic Apps

Question 11
You need to configure security for an Azure Machine Learning service used by groups of data scientists.
The groups must have access to only their own experiments and must be able to grant permissions to
the members of their team.
What should you do? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.
Hot Area:

Answer Area

Grant permissions to:

A resource group
A subscription
A workspace

Role to assign to manage access:

Contributor
Owner
Reader

Question 12
You plan to build an application that will perform predictive analytics. Users will be able to consume the application data by using Microsoft Power BI or a custom website.
You need to ensure that you can audit application usage.
Which auditing solution should you use?

- A. Azure Storage Analytics
- B. Azure Application Insights
- C. Azure diagnostics logs
- D. Azure Active Directory (Azure AD) reporting

Question 13
You need to build a sentiment analysis solution that will use input data from JSON documents and PDF documents. The JSON documents must be processed in batches and aggregated.
Which storage type should you use for each file type? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.
Hot Area:

Answer Area

JSON documents:

| Azure Blob storage |
| Azure Cosmos DB |
| Azure Data Lake |
| Azure Table storage |

PDF documents:

| Azure Blob storage |
| Azure Cosmos DB |
| Azure Data Lake |
| Azure Table storage |

Question 14
You are developing a mobile application that will perform optical character recognition (OCR) from photos.
The application will annotate the photos by using metadata, store the photos in Azure Blob storage, and then score the photos by using an Azure Machine
Learning model.
What should you use to process the data?

- A. Azure Event Hubs
- B. Azure Functions
- C. Azure Stream Analytics
- D. Azure Logic Apps

Question 15
You create an Azure Cognitive Services resource.
A data scientist needs to call the resource from Azure Logic Apps.
Which two values should you provide to the data scientist? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

- A. Endpoint URL
- B. Resource name
- C. Access key
- D. Resource group name
- E. Subscription ID

Question 16
You plan to deploy an AI solution that tracks the behavior of 10 custom mobile apps. Each mobile app has several thousand users.
You need to recommend a solution for real-time data ingestion for the data originating from the mobile app users.
Which Microsoft Azure service should you include in the recommendation?

- A. Azure Event Hubs
- B. Azure Service Bus queries
- C. Azure Service Bus topics and subscriptions
- D. Apache Storm on Azure HDInsight

Question 17
HOTSPOT -

You are designing a solution that will ingest temperature data from IoT devices, calculate the average temperature, and then take action based on the aggregated data. The solution must meet the following requirements:

☞ Minimize the amount of uploaded data.

☞ Take action based on the aggregated data as quickly as possible.

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

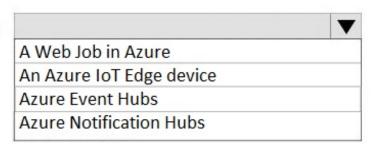NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Service to use:

Apache Hive
Azure Data Factory
Azure Functions
Azure Stream Analytics

Location to deploy the job:

A Web Job in Azure
An Azure IoT Edge device
Azure Event Hubs
Azure Notification Hubs

Question 18

You have a database that contains sales data.

You plan to process the sales data by using two data streams named Stream1 and Stream2. Stream1 will be used for purchase order data. Stream2 will be used for reference data.

The reference data is stored in CSV files.

You need to recommend an ingestion solution for each data stream.

What two solutions should you recommend? Each correct answer is a complete solution.

NOTE: Each correct selection is worth one point.

- A. an Azure event hub for Stream1 and Azure Blob storage for Stream2
- B. Azure Blob storage for Stream1 and Stream2
- C. an Azure event hub for Stream1 and Stream2
- D. Azure Blob storage for Stream1 and Azure Cosmos DB for Stream2
- E. Azure Cosmos DB for Stream1 and an Azure event hub for Stream2

Question 19
You are developing a Computer Vision application.
You plan to use a workflow that will load data from an on-premises database to Azure Blob storage, and then connect to an Azure Machine Learning service.
What should you use to orchestrate the workflow?

- A. Azure Kubernetes Service (AKS)
- B. Azure Pipelines
- C. Azure Data Factory
- D. Azure Container Instances

Question 20
You are designing a solution that will ingest data from an Azure IoT Edge device, preprocess the data in Azure Machine Learning, and then move the data to
Azure HDInsight for further processing.
What should you include in the solution? To answer, select the appropriate options in the answer area.
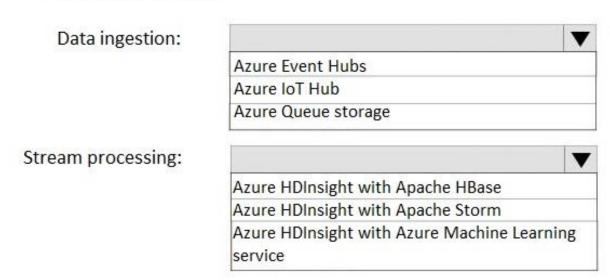NOTE: Each correct selection is worth one point.
Hot Area:

Answer Area

Machine Learning module to use to move the data into HDInsight:

Export Data
Load Trained Model
Partition and Sample
Unpack Zipped Datasets

Query type to use:

Apache Hive
Apache Spark
C#
Transact-SQL

Output the data to:

Azure Cosmos DB
Azure Data Lake
Azure Table storage
HDFS

Question 21

You are developing an application that will perform clickstream analysis. The application will ingest and analyze millions of messages in the real time.

You need to ensure that communication between the application and devices is bidirectional. What should you use for data ingestion and stream processing? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Data ingestion: ▼

Azure Event Hubs
Azure IoT Hub
Azure Queue storage

Stream processing: ▼

Azure HDInsight with Apache HBase
Azure HDInsight with Apache Storm
Azure HDInsight with Azure Machine Learning service

Question 22

You plan to design a solution for an AI implementation that uses data from IoT devices.

You need to recommend a data storage solution for the IoT devices that meets the following requirements:

☞ Allow data to be queried in real-time as it streams into the solution.

☞ Provide the lowest amount of latency for loading data into the solution.

What should you include in the recommendation?

- A. a Microsoft Azure Table Storage solution
- B. a Microsoft Azure HDInsight R Server cluster
- C. a Microsoft Azure HDInsight Hadoop cluster
- D. a Microsoft Azure SQL database that has In-Memory OLTP enabled

Question 32
Your company has factories in 10 countries. Each factory contains several thousand IoT devices.
The devices present status and trending data on a dashboard.
You need to ingest the data from the IoT devices into a data warehouse.
Which two Microsoft Azure technologies should you use? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

- A. Azure Stream Analytics
- B. Azure Data Factory
- C. an Azure HDInsight cluster
- D. Azure Batch
- E. Azure Data Lake

Question 23
You are designing an AI workflow that will aggregate data stored in Azure as JSON documents.
You expect to store more than 2 TB of new data daily.
You need to choose the data storage service for the data. The solution must minimize costs.
Which data storage service should you choose?

- A. Azure Manage Disks
- B. Azure Blob Storage
- C. Azure File Storage
- D. Azure Data Lake Storage

Question 25

You design an AI workflow that combines data from multiple data sources for analysis. The data sources are composed of:

☞ JSON files uploaded to an Azure Storage account

☞ On-premises Oracle databases

☞ Azure SQL databases

Which service should you use to ingest the data?

- A. Azure Data Factory
- B. Azure SQL Data Warehouse
- C. Azure Data Lake Storage
- D. Azure Databricks

Question 26
You have thousands of images that contain text.
You need to process the text from the images to a machine-readable character stream.
Which Azure Cognitive Services service should you use?

- A. the Image Moderation API
- B. Text Analytics
- C. Translator Text
- D. Computer Vision

Question 27
You design an AI solution that uses an Azure Stream Analytics job to process data from an Azure IoT hub. The IoT hub receives time series data from thousands of IoT devices at a factory.
The job outputs millions of messages per second. Different applications consume the messages as they are available. The messages must be purged.
You need to choose an output type for the job.
What is the best output type to achieve the goal? More than one answer choice may achieve the goal.

- A. Azure Event Hubs
- B. Azure SQL Database
- C. Azure Blob storage
- D. Azure Cosmos DB

Question 28
You need to design an application that will analyze real-time data from financial feeds.
The data will be ingested into Azure IoT Hub. The data must be processed as quickly as possible in the order in which it is ingested.
Which service should you include in the design?

- A. Azure Data Factory
- B. Azure Queue storage
- C. Azure Stream Analytics
- D. Azure Notification Hubs

Question 39
You are designing an AI solution that will provide feedback to teachers who train students over the Internet. The students will be in classrooms located in remote areas. The solution will capture video and audio data of the students in the classrooms.
You need to recommend Azure Cognitive Services for the AI solution to meet the following requirements:
☞ Alert teachers if a student seems angry or distracted.
☞ Identify each student in the classrooms for attendance purposes.
☞ Allow the teachers to log the text of conversations between themselves and the students.
Which Cognitive Services should you recommend?

- A. Computer Vision, Text Analytics, and Face API
- B. Video Indexer, Face API, and Text Analytics
- C. Computer Vision, Speech to Text, and Text Analytics
- D. Text Analytics, QnA Maker, and Computer Vision
- E. Video Indexer, Speech to Text, and Face API

Question 30
You are designing a solution that will use the Azure Content Moderator service to moderate user-generated content.
You need to moderate custom predefined content without repeatedly scanning the collected content.
Which API should you use?

- A. Term List API
- B. Text Moderation API
- C. Image Moderation API
- D. Workflow API

Introductory Info Overview -
Contoso, Ltd. has an office in New York to serve its North American customers and an office in Paris to serve its European customers.

Existing Environment -

Infrastructure -
Each office has a small data center that hosts Active Directory services and a few off-the-shelf software solutions used by internal users.
The network contains a single Active Directory forest that contains a single domain named contoso.com. Azure Active Directory (Azure AD) Connect is used to extend identity management to Azure.
The company has an Azure subscription. Each office has an Azure ExpressRoute connection to the subscription. The New York office connects to a virtual network hosted in the US East 2 Azure region. The Paris office connects to a virtual network hosted in the West Europe Azure region.
The New York office has an Azure Stack Development Kit (ASDK) deployment that is used for development and testing.

Current Business Model -
Contoso has a web app named Bookings hosted in an App Service Environment (ASE). The ASE is in the virtual network in the East US 2 region. Contoso employees and customers use Bookings to reserve hotel rooms.

Data Environment -
Bookings connects to a Microsoft SQL Server database named hotelDB in the New York office. The database has a view named vwAvailability that consolidates columns from the tables named Hotels, Rooms, and RoomAvailability. The database contains data that was collected during the last 20 years.

Problem Statements -
Contoso identifies the following issues with its current business model:

European users report that access to Booking is slow, and they lose customers who must wait on the phone while they search for available rooms.
Users report that Bookings was unavailable during an outage in the New York data center for more than 24 hours.

Requirements -
Contoso identifies the following issues with its current business model:
European users report that access to Bookings is slow, and they lose customers who must wait on the phone while they search for available rooms.
Users report that Bookings was unavailable during on outage in the New York data center for more than 24 hours.

Business Goals -
Contoso wants to provide a new version of the Bookings app that will provide a highly available, reliable service for booking travel packages by interacting with a chatbot named Butler.
Contoso plans to move all production workloads to the cloud.

Technical requirements -
Contoso identifies the following technical requirements:
Data scientists must test Butler by using ASDK.
Whenever possible, solutions must minimize costs.
Butler must greet users by name when they first connect.
Butler must be able to handle up to 10,000 messages a day.
Butler must recognize the users' intent based on basic utterances.
All configurations to the Azure Bot Service must be logged centrally.
Whenever possible, solutions must use the principle of least privilege.
Internal users must be able to access Butler by using Microsoft Skype for Business.
The new Bookings app must provide a user interface where users can interact with Butler.
Users in an Azure AD group named KeyManagers must be able to manage keys for all Azure Cognitive Services.
Butler must provide users with the ability to reserve a room, cancel a reservation, and view existing reservations.
The new Bookings app must be available to users in North America and Europe if a single data center or Azure region fails.
For continuous improvement, you must be able to test Butler by sending sample utterances and comparing the chatbot's responses to the actual intent.**Question**Which two services should be implemented so that Butler can find available rooms on the technical requirements? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

- A. QnA Maker
- B. Bing Entity Search
- C. Language Understanding (LUIS)

- D. Azure Search
- E. Content Moderator

Question 31

Your company is building custom models that integrate into microservices architecture on Azure Kubernetes Services (AKS).
The model is built by using Python and published to AKS.
You need to update the model and enable Azure Application Insights for the model.
What should you use?

- A. the Azure CLI
- B. MLNET Model Builder
- C. the Azure Machine Learning SDK
- D. the Azure portal

Question 32
Your company plans to develop a mobile app to provide meeting transcripts by using speech-to-text. Audio from the meetings will be streamed to provide real-time transcription.
You need to recommend which task each meeting participant must perform to ensure that the transcripts of the meetings can identify all participants.
Which task should you recommend?

- A. Record the meeting as an MP4.
- B. Create a voice signature.
- C. Sign up for Azure Speech Services.
- D. Sign up as a guest in Azure Active Directory (Azure AD)

Question 33

You are designing an AI solution that will provide feedback to teachers who train students over the Internet. The students will be in classrooms located in remote areas. The solution will capture video and audio data of the students in the classrooms.

You need to recommend Azure Cognitive Services for the AI solution to meet the following requirements:

☞ Alert teachers if a student facial expression indicates the student is angry or scared.

☞ Identify each student in the classrooms for attendance purposes.

☞ Allow the teachers to log voice conversations as text.

Which Cognitive Services should you recommend?

- A. Face API and Text Analytics
- B. Computer Vision and Text Analytics
- C. QnA Maker and Computer Vision
- D. Speech to Text and Face API

Question 34
You need to evaluate trends in fuel prices during a period of 10 years. The solution must identify unusual fluctuations in prices and produce visual representations.
Which Azure Cognitive Services API should you use?

- A. Anomaly Detector
- B. Computer Vision
- C. Text Analytics
- D. Bing Autosuggest

Question 35

You plan to deploy an Azure Data Factory pipeline that will perform the following:

☞ Move data from on-premises to the cloud.

☞ Consume Azure Cognitive Services APIs.

You need to recommend which technologies the pipeline should use. The solution must minimize custom code.
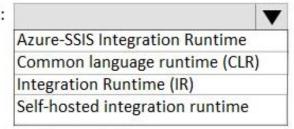
What should you include in the recommendation? To answer, select the appropriate options in the answer area.

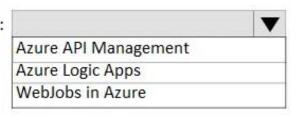NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Move data from on-premises to the cloud: ▼

| Azure-SSIS Integration Runtime |
| Common language runtime (CLR) |
| Integration Runtime (IR) |
| Self-hosted integration runtime |

Consume Cognitive Services APIs: ▼

| Azure API Management |
| Azure Logic Apps |
| WebJobs in Azure |

Question 36
You are configuring data persistence for a Microsoft Bot Framework application. The application requires a structured NoSQL cloud data store.
You need to identify a storage solution for the application. The solution must **minimize costs.**
What should you identify?

- A. Azure Blob storage
- B. Azure Cosmos DB
- C. Azure HDInsight
- D. Azure Table storage

Question 48
You need to build an API pipeline that analyzes streaming data. The pipeline will perform the following:
☞ Visual text recognition
☞ Audio transcription
☞ Sentiment analysis
☞ Face detection
Which Azure Cognitive Services should you use in the pipeline?

- Custom Speech Service
- Face API
- Text Analytics
- Video Indexer

Question 49

☞ Image recognition
☞ Deep learning that uses convolutional neural networks.
You need to select a compute infrastructure for each model. The solution must minimize the processing time.
What should you use for each model?

Compute Infrastructures

Compute optimized virtual machines	Image recognition: _____
Memory optimized virtual machines	Deep learning that uses convolutional neural networks: _____
GPU optimized virtual machines	