1. **Question**: What business benefit should a company expect from creating a webchat bot for customer queries?
    - **Answer**: A reduced workload for customer service agents.
    - **Reason**: The bot handles routine inquiries, allowing agents to focus on complex issues.
2. **Question**: Which Microsoft guiding principle for responsible AI is exemplified by designing an AI system that includes people with impairments?
    - **Answer**: Inclusiveness.
    - **Reason**: It ensures the AI system is accessible to diverse user groups, including those with disabilities.
3. **Question**: Which Microsoft principle for responsible AI should be applied in developing AI for self-driving cars to ensure safe operation?
    - **Answer**: Reliability and safety.
    - **Reason**: It ensures the system operates safely and reliably, even in unforeseen situations.
4. **Question**: What is used to extract dates, quantities, and locations from text?
    - **Answer**: Named Entity Recognition (NER).
    - **Reason**: NER identifies and categorizes entities within unstructured text.
5. **Question**: What computer vision task involves returning a bounding box indicating the location of a vehicle in an image?
    - **Answer**: Object detection.
    - **Reason**: It identifies and locates objects within images by drawing bounding boxes around them.
6. **Question**: What is used to generate additional features in a dataset?
    - **Answer**: Feature engineering.
    - **Reason**: It involves creating new features or transforming existing ones to improve model performance.
7. **Question**: According to Microsoft, which principle of responsible AI focuses on not reflecting biases from training datasets?
    - **Answer**: Fairness.
    - **Reason**: It emphasizes ensuring AI systems are unbiased and do not discriminate.
8. **Question**: What technology extracts text from handwritten documents?
    - **Answer**: Optical character recognition (OCR).
    - **Reason**: It converts images of text into machine-readable text.
9. **Question**: To predict sea levels for the next 10 years, which type of machine learning should be used?
    - **Answer**: Regression.
    - **Reason**: Regression predicts continuous numerical values based on input features.

10. **Question**: What service is capable of extracting subtotals and totals from a receipt?
    - **Answer**: Form Recognizer.
    - **Reason**: It extracts structured data from documents like receipts using machine learning.
11. **Question**: Predicting overtime hours based on the number of orders received is an example of which type of machine learning?
    - **Answer**: Regression.
    - **Reason**: It predicts continuous numerical values, like hours of overtime.
12. **Question**: In a project using brain scan images for early detection of haemorrhage types, which machine learning type is used?
    - **Answer**: Classification.
    - **Reason**: It involves categorizing images into predefined types of brain hemorrhages.
13. **Question**: Predicting the number of vehicles crossing a bridge on a given day exemplifies which type of machine learning?
    - **Answer**: Regression.
    - **Reason**: It predicts a continuous numerical value, like the count of vehicles.
14. **Question**: To identify groups with similar purchasing habits, which machine learning type should be used?
    - **Answer**: Clustering.
    - **Reason**: It groups individuals based on similarities without needing predefined labels.
15. **Question**: Which models predict the sale price of auctioned items?
    - **Answer**: Regression.
    - **Reason**: It predicts continuous numerical values like item prices.
16. **Question**: In Azure Machine Learning designer, which two components can be dragged onto a canvas?
    - **Answer**: Dataset, Module.
    - **Reason**: Datasets represent data sources, and modules represent steps in the pipeline.
17. **Question**: To create training and validation datasets from an existing dataset in Azure Machine Learning designer, which module is used?
    - **Answer**: Split Data.
    - **Reason**: It splits a dataset into training and validation datasets.
18. **Question**: What represents the calculated probability of correct image classification?
    - **Answer**: Confidence.
    - **Reason**: It indicates the model's certainty in its prediction.
19. **Question**: Ensuring an AI system avoids prediction when fields have unusual or missing values aligns with which principle?

- **Answer**: Reliability and safety.
- **Reason**: It emphasizes reliable and safe operation, including handling unexpected data.

20. **Question**: To predict the animal population of an area, which Azure Machine Learning type should be used?
    - **Answer**: Regression.
    - **Reason**: It's suited for predicting continuous numerical values like population size.

SET 2

1. **Question**: Which two principles should you follow to ensure an AI-based app uses principles for responsible AI?
    - **Answer**: Implement a process of AI model validation and establish a risk governance committee.
    - **Reason**: Model validation ensures AI models are tested and validated, aligning with responsible AI. A risk governance committee ensures potential AI risks are mitigated, promoting accountability and compliance.
2. **Question**: Which two parameters should you use to access an Azure Machine Learning designer web service?
    - **Answer**: The authentication key and the REST endpoint.
    - **Reason**: The authentication key secures requests, and the REST endpoint provides the interface for sending requests and receiving responses.
3. **Question**: To deploy a real-time inference pipeline as a service, you must deploy the model to _____?
    - **Answer**: Azure Kubernetes Service (AKS).
    - **Reason**: AKS simplifies the deployment, management, and scaling of applications, including ML models, making it suitable for real-time inference pipelines.
4. **Question**: Which metric is not used when model training in Custom Vision?
    - **Answer**: F1 Score.
    - **Reason**: While Precision, Recall, and Mean Average Precision are used, the F1 Score's inclusion is incorrect, likely due to the specific metrics emphasized in Custom Vision training.
5. **Question**: Which is not an entity type of LUIS application intents?
    - **Answer**: Filter.
    - **Reason**: LUIS applications use List, RegEx, and Machine-Learned entities for intents, not "Filter" as an entity type.
6. **Question**: What is known as the fraction of time when the model is correct?

- **Answer**: Accuracy.
- **Reason**: Accuracy represents the proportion of correctly classified instances, reflecting the model's overall correctness.

7. **Question**: Which regression type is used to predict a variable that can be considered as a label?
    - **Answer**: Ordinal.
    - **Reason**: Ordinal regression is suitable for predicting variables with ordered categories or levels.
8. **Question**: Designing an AI system for loan approvals to be explainable exemplifies which Microsoft guiding principle?
    - **Answer**: Transparency.
    - **Reason**: Transparency involves making AI decisions understandable and explainable, crucial for loan approval processes.
9. **Question**: A banking system predicting whether a loan will be repaid exemplifies which type of machine learning?
    - **Answer**: Classification.
    - **Reason**: This task involves predicting categorical outcomes (repaid or not), making it a classification problem.
10. **Question**: What is a use case for classification?
    - **Answer**: Predicting whether someone uses a bicycle to travel to work.
    - **Reason**: This involves categorizing individuals into discrete classes (e.g., bicycle users and non-users), a classification task.
11. **Question**: Which service can train an object detection model using your own images?
    - **Answer**: Custom Vision.
    - **Reason**: Custom Vision is designed for training custom image classification and object detection models with user-provided images.
12. **Question**: To read numbers on runners' shirts in photos, which computer vision type should you use?
    - **Answer**: Optical character recognition (OCR).
    - **Reason**: OCR specializes in recognizing and extracting text from images, suitable for identifying numbers on shirts.
13. **Question**: Counting animals based on a video feed is an example of _____?
    - **Answer**: Computer vision.
    - **Reason**: Analyzing visual data to count animals involves computer vision, a field focused on interpreting visual information.
14. **Question**: In which two scenarios can you use the Form Recognizer service?
    - **Answer**: Extract the invoice number from an invoice and identify the retailer from a receipt.
    - **Reason**: Form Recognizer excels at extracting structured data from documents like invoices or receipts.

15. **Question**: Which two languages can you use to write custom code for Azure Machine Learning designer?
    - **Answer**: Python, R.
    - **Reason**: Azure Machine Learning designer supports Python and R for custom code development, reflecting their prominence in data science and machine learning.

SET 3

1. **Question**: What are the three processes into which statistical analysis can be broken down?
    - **Answer**: Transformation, Visualization, Modeling.
    - **Reason**: These processes involve transforming data for analysis, visualizing it for insights, and modeling for predictions or inferences.
2. **Question**: When developing a mobile app for employees to scan and store their expenses while traveling, which type of computer vision should be used?
    - **Answer**: Optical character recognition (OCR).
    - **Reason**: OCR extracts text from documents, ideal for a mobile expense scanning app.
3. **Question**: For a project using drones to identify where weeds grow between rows of crops for targeted removal, which type of computer vision is applicable?
    - **Answer**: Object detection.
    - **Reason**: Object detection identifies and locates weeds, aiding in precision agriculture.
4. **Question**: Which Azure service should be used when developing a chatbot solution to determine a user's intent?
    - **Answer**: Language Understanding (LUIS).
    - **Reason**: LUIS interprets natural language and extracts user intents, essential for chatbot functionality.
5. **Question**: To determine the location of cars in an image and estimate the distance between them, which type of computer vision technique should be employed?
    - **Answer**: Object detection.
    - **Reason**: Object detection locates objects (cars) in images, enabling distance estimation between them.
6. **Question**: Which Computer Vision feature can generate automatic captions for digital photographs?
    - **Answer**: Describe the images.

- **Reason**: The "Describe the images" feature generates captions summarizing image content, aiding in image understanding.

7. **Question**: What are two tasks that can be performed using the Computer Vision service?
    - **Answer**: Detect faces in an image and recognize handwritten text.
    - **Reason**: These tasks involve analyzing images for facial attributes and extracting handwritten text, respectively, utilizing Computer Vision's capabilities.
8. **Question**: To automatically extract text, key/value pairs, and table data from scanned documents, which service should be used?
    - **Answer**: Form Recognizer.
    - **Reason**: Form Recognizer specializes in extracting structured data from documents, streamlining data processing.
9. **Question**: For a charity event posting photos on Twitter, requiring retweeting only photos that include faces and at least one person wearing sunglasses, what should be used to analyze the images?
    - **Answer**: The Detect operation in the Face service.
    - **Reason**: This operation detects faces and facial attributes like sunglasses, ensuring photos meet the specified criteria.
10. **Question**: Ensuring that the numeric variables in training data are on a similar scale is an example of what?
    - **Answer**: Feature selection.
    - **Reason**: While the task aligns with data preprocessing, it's essential for feature selection, ensuring models use relevant, scaled features.
11. **Question**: Handling unusual or missing values in an AI system aligns with which Microsoft principle for responsible AI?
    - **Answer**: Reliability and safety.
    - **Reason**: This principle ensures AI systems operate safely and reliably, even with unexpected data inputs.
12. **Question**: To ensure a service meets the Microsoft transparency principle for responsible AI, which task should be included?
    - **Answer**: Provide documentation to help developers debug code.
    - **Reason**: Documentation enhances understanding and trust in AI systems by explaining operations and decision-making processes.
13. **Question**: Azure Machine Learning designer allows creating machine learning models by doing what?
    - **Answer**: Adding and connecting modules on a visual canvas.
    - **Reason**: This drag-and-drop interface facilitates building machine learning pipelines visually, without coding.
14. **Question**: For a tool that processes images from retail stores to identify competitor products using a custom model, which Azure Cognitive Services service is suitable?

- **Answer**: Custom Vision.
- **Reason**: Custom Vision enables building and deploying custom image classification and object detection models tailored to specific needs.

15. **Question**: What are three Microsoft guiding principles for responsible AI?
    - **Answer**: Reliability and safety, inclusiveness, fairness.
    - **Reason**: These principles emphasize creating AI that is safe, inclusive to all user groups, and fair, avoiding bias.