Microsoft Azure AI-900: AI Fundamentals – Study Guide

Comprehensive guide for preparing the Microsoft AI-900 certification exam.

1. Overview of AI-900 Exam

- Exam Code: AI-900
- Certification: Microsoft Certified – Azure AI Fundamentals
- Focus: Fundamental knowledge of AI and its implementation using Azure services
- Ideal for: Beginners, students, and professionals exploring AI concepts

2. Core AI Concepts

- Definition and types of Artificial Intelligence (Narrow, General, Super AI)
- Difference between AI, Machine Learning, and Deep Learning
- Common AI workloads: Machine Learning, Computer Vision, Natural Language Processing, Conversational AI
- Examples of AI in daily life – recommendation systems, chatbots, image recognition, and fraud detection

3. Machine Learning Fundamentals

- Supervised Learning – trained on labeled data (Regression, Classification)
- Unsupervised Learning – patterns from unlabeled data (Clustering)
- Reinforcement Learning – reward-based learning for agents
- Model training, validation, and evaluation using metrics like accuracy, precision, recall, F1-score
- Overfitting vs Underfitting concepts
- Azure ML Studio: No-code/low-code environment for ML model creation and deployment

4. Computer Vision

- Understanding image classification, object detection, and facial recognition
- Azure Cognitive Services – Computer Vision API, Face API, Custom Vision
- Image tagging, Optical Character Recognition (OCR), and scene analysis

5. Natural Language Processing (NLP) and Conversational AI

- Processing human language – speech and text
- Azure Language Service – sentiment analysis, key phrase extraction, translation
- Conversational AI – Azure Bot Service and Language Understanding (LUIS)
- Speech Services – speech recognition and synthesis (Text-to-Speech)

6. Responsible AI Principles

- Fairness – models should not create bias
- Reliability & Safety – consistent and accurate outputs
- Privacy & Security – protecting sensitive data
- Inclusiveness – accessible and unbiased AI for all users
- Transparency & Accountability – clear model explainability

7. Sample Practice Questions

Q1: Which AI workload is best suited for identifying objects in images? A. NLP B. Computer Vision C. Conversational AI D. Reinforcement Learning **Answer:** B

Q2: Which Azure service is used to build chatbots? A. Azure Bot Service B. Azure Machine Learning C. Azure Cognitive Search D. Azure Data Factory **Answer:** A

Q3: Which ML type uses labeled data to make predictions? A. Unsupervised B. Supervised C. Reinforcement D. Deep Learning **Answer:** B

Q4: What principle ensures AI does not discriminate among users? A. Reliability B. Transparency C. Fairness D. Safety **Answer:** C