Multiple Choice Questions for Lecture 1: Introduction to AI

What is AI?

1. What does AI stand for?
    - A) Automated Information
    - B) Artificial Intelligence
    - C) Advanced Internet
    - D) Automatic Interaction

Answer: B) Artificial Intelligence

2. Which statement best describes what AI is?
    - A) The ability of computers to perform tasks that normally require human intelligence.
    - B) The study of robots only
    - C) Using the internet to find information
    - D) Making computer games more fun

Answer: A) The ability of computers to perform tasks that normally require human intelligence

3. How does AI help us understand intelligence?
    - A) By reading books about intelligence
    - B) By studying animal behavior
    - C) By using computers as models for thinking
    - D) By asking people questions

Answer: C) By using computers as models for thinking

AI Applications

4. In healthcare, AI is used for:
    - A) Cleaning hospital rooms
    - B) Playing music for patients
    - C) Detecting tumors in medical scans
    - D) Training new doctors

Answer: C) Detecting tumors in medical scans

5. How is AI used in e-commerce?
    - A) Delivering packages
    - B) Making products
    - C) Recommending products based on browsing history
    - D) Creating websites

Answer: C) Recommending products based on browsing history

6. Which of these is an example of natural language processing?
    - A) Playing chess
    - B) Driving a car
    - C) Recognizing faces
    - D) Virtual assistants like Siri and Google Assistant

Answer: D) Virtual assistants like Siri and Google Assistant

AI Categories

7. Narrow AI is:
    - A) AI that can only solve small problems
    - B) AI designed for specific tasks like chess or translation
    - C) AI that is physically small
    - D) AI that is not very smart

Answer: B) AI designed for specific tasks like chess or translation

8. Which type of AI does NOT exist yet in the real world?
    - A) Narrow AI
    - B) Machine Learning AI
    - C) General AI with human-like reasoning
    - D) Computer vision AI

Answer: C) General AI with human-like reasoning

AI Systems

9. What is machine learning?
    - A) When AI models learn from data to make predictions
    - B) When humans learn to program
    - C) When computers learn to build themselves
    - D) When robots learn to walk

Answer: A) When AI models learn from data to make predictions

10. Deep learning is:
    - A) Learning that happens deep underwater
    - B) Learning about deep space
    - C) Advanced machine learning using neural networks
    - D) Learning complex philosophical ideas

Answer: C) Advanced machine learning using neural networks

Intelligent Agents

11. What are sensors in an AI agent?
    - A) Components that help the agent take action
    - B) Components that help the agent perceive the world
    - C) Components that store memory
    - D) Components that generate power

Answer: B) Components that help the agent perceive the world

12. In a self-driving car, what would be an example of an actuator?
    - A) Camera
    - B) GPS
    - C) Motor
    - D) Map

Answer: C) Motor

PEAS Framework

13. What does the "P" in PEAS stand for?
    - A) Programming
    - B) Performance measure
    - C) Perception
    - D) Processing

Answer: B) Performance measure

14. In the PEAS framework for an AI taxi driver, what would be an example of an environment?
    - A) Passengers
    - B) Steering wheel
    - C) Roads and traffic
    - D) GPS

Answer: C) Roads and traffic

Advantages and Limitations

15. Which is an advantage of AI?
    - A) It never needs electricity
    - B) It automates repetitive tasks
    - C) It can feel emotions
    - D) It can work without any data

Answer: B) It automates repetitive tasks

16. Which is a limitation of AI?
    - A) It cannot think creatively like humans
    - B) It is too slow
    - C) It cannot use the internet
    - D) It cannot work with computers

Answer: A) It cannot think creatively like humans

17. Why do most AI systems need large amounts of data?
    - A) To sell the data to companies
    - B) To share data with other computers
    - C) For training and learning patterns
    - D) To store information about their owners

Answer: C) For training and learning patterns

Multiple Choice Questions for Lecture 2: AI Agents and Environment Properties

Environment Basics

1. In AI, what is the environment?
    - A) The weather conditions
    - B) The temperature of the computer
    - C) Everything the AI agent interacts with
    - D) The location where the computer is placed

Answer: C) Everything the AI agent interacts with

2. Why is understanding the environment important for AI?
    - A) It affects how the AI agent behaves
    - B) It helps the computer stay cool
    - C) It makes the AI look nicer
    - D) It uses less electricity

Answer: A) It affects how the AI agent behaves

Environment Properties

3. What does "fully observable environment" mean?
    - A) The environment is very bright
    - B) The agent can see everything in the environment
    - C) The environment can be seen by humans
    - D) The environment has cameras

Answer: B) The agent can see everything in the environment.

4. Chess is an example of what type of environment?
    - A) Partially observable
    - B) Fully observable
    - C) Invisible
    - D) Super observable

Answer: B) Fully observable

5. In a deterministic environment:
    - A) The same action always produces the same result
    - B) Nothing can be determined
    - C) Results are always random
    - D) The environment determines the AI's goals

Answer: A) The same action always produces the same result

6. Traffic navigation for self-driving cars is an example of what type of environment?
    - A) Deterministic
    - B) Static
    - C) Stochastic (random)
    - D) Simple

Answer: C) Stochastic (random)

7. What is the difference between episodic and sequential environments?
    - A) Episodic environments are in TV shows, sequential are in movies
    - B) In episodic environments, each action is independent; in sequential, current actions affect future outcomes
    - C) Episodic environments are easier to program
    - D) Sequential environments always change, episodic never change

Answer: B) In episodic environments, each action is independent; in sequential, current actions affect future outcomes.

8. A crossword puzzle is an example of what type of environment?
    - A) Dynamic
    - B) Static
    - C) Continuous
    - D) Multi-agent

Answer: B) Static

9. What makes an environment "discrete" instead of "continuous"?
    - A) It has a fixed number of choices
    - B) It is smaller in size
    - C) It works on digital computers
    - D) It is disconnected from the internet

Answer: A) It has a fixed number of choices

10. A poker AI is an example of what type of environment?
    - A) Single-agent
    - B) Static
    - C) Multi-agent
    - D) Fully observable

Answer: C) Multi-agent

Types of AI Agents

11. What is the main characteristic of a simple reflex agent?
    - A) It has a complex memory system
    - B) It uses IF-THEN rules and has no memory
    - C) It can learn from its mistakes
    - D) It always asks for help

Answer: B) It uses IF-THEN rules and has no memory.

12. What can a model-based reflex agent do that a simple reflex agent cannot?
    - A) Connect to the internet
    - B) Use memory to store past experiences
    - C) Move physically
    - D) Change its own programming

Answer: B) Use memory to store past experiences

13. A navigation app that finds the shortest route is an example of:
    - A) Simple reflex agent
    - B) Model-based reflex agent
    - C) Goal-based agent
    - D) Random agent

Answer: C) Goal-based agent

14. What makes a utility-based agent different from a goal-based agent?
    - A) It uses electricity more efficiently
    - B) It can have multiple goals
    - C) It optimizes performance using a "utility function"
    - D) It works faster

Answer: C) It optimizes performance using a "utility function"

15. Which type of agent learns from experience and improves over time?
    - A) Simple reflex agent
    - B) Learning agent
    - C) Static agent
    - D) Basic agent

Answer: B) Learning agent

16. A chess AI that gets better by playing more games is an example of:
    - A) Simple reflex agent
    - B) Model-based agent
    - C) Learning agent
    - D) Static agent

Answer: C) Learning agent

Real-World Examples

17. A self-driving car's environment is:
    - A) Fully observable, deterministic, static
    - B) Partially observable, stochastic, dynamic
    - C) Fully observable, stochastic, static
    - D) Partially observable, deterministic, dynamic

Answer: B) Partially observable, stochastic, dynamic

18. Medical diagnosis AI is typically what type of agent?
    - A) Simple reflex agent
    - B) Learning agent in a dynamic environment
    - C) Utility-based agent in a static environment
    - D) Multi-agent system

Answer: C) Utility-based agent in a static environment