**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

1. 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

1. 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**

1. 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

1. 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

1. 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**

1. 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

1. 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**

1. 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

1. 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**

1. 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

1. 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**

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

Answer: B) Performance measure

1. 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**

1. 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

1. 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

1. 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

1. 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**

1. 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.

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

Answer: B) Fully observable

1. 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

1. 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)

1. 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.

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

Answer: B) Static

1. 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

1. 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**

1. 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.

1. 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

1. 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

1. 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"

1. 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

1. 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**

1. 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

1. 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