Artificial Intelligence

Assignment #1

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Q1. What are the four categories in which "artificial intelligence" is defined? Which of these four categories are we following in this course?

A. Thinking humanly, thinking rationally, Acting humanly and Acting rationally are those four categories and out of those four thinking rationally and acting rationally are the two categories we follow in this course.

Q2. What are the Four basic kinds of agent programs?

A. The Four basic kinds of agent programs are:
   - Simple reflex agents
   - Model-based reflex agents
   - Goal-based agents
   - Utility-based agents

Q3. What does PEAS stand for in the context of task environment?

A. P for **P**erformance Measure, E for **E**nvironment, A for **A**ctuators and S for **S**ensors.

Q4. For each of the following assertions, say whether it is true or false.

a. An agent that senses only partial information about the state cannot be perfectly rational. (**FALSE**)
b. There exist task environments in which no pure reflex agent can behave rationally. (**TRUE**)
c. There exists a task environment in which every agent is rational (**TRUE**)
d. The input to an agent program is the same as the input to the agent function. (**FALSE**)
e. Every agent function is implementable by some program/machine combination. (**FALSE**)
f. Suppose an agent selects its action uniformly at random from the set of possible actions. There exists a deterministic task environment in which this agent is rational. (**TRUE**)
g. It is possible for a given agent to be perfectly rational in two distinct task environments. (**TRUE**)
h. Every agent is rational in an unobservable environment. (**FALSE**)
i. A perfectly rational poker-playing agent never loses. (**FALSE**)