National University of Singapore
School of Computing
CS3243: Introduction to Artificial Intelligence
Tutorial 1

Readings: AIMA Chapters 1 & 2

1. Rich and Knight defined AI as "the study of how to make computers do things at which, at the moment, people are better". Can you name a computer system that does things at which people are not doing better and hence the system cannot be called an AI system? Similarly, name a system that is not doing better than people and hence can qualify as an AI system. Do you think this definition is reasonable?

2. Is the Turing test reproducible? Is it amenable to mathematical analysis? Justify your answer.

3. Consider a system that provides on-line translation of telephone conversation between English and Japanese speakers. Discuss its performance measure, environment, actuators, and sensors. Is its environment fully observable? deterministic? episodic? static? discrete? single agent? Justify your answer.

4. In the framework of Chapter 2, what is the difference between a performance measure and a utility function?

5. Consider an agent which functions as a medical diagnosis system. Determine what type of agent design is the most appropriate for such an agent (simple reflex, model-based reflex, goal-based, or utility-based). Justify your answer.

6. Weizenbaum's ELIZA program simulates the behaviour of a psychotherapist carrying out a conversation with a patient. It basically works by finding keywords in the user's input so as to fire certain rules based on the keywords. Which AI definition does ELIZA fit in? (Thinking humanly? Acting humanly? Thinking rationally? Acting rationally?) Discuss how an ELIZA-like system will behave, if it is modelled according to each of the four agent types, namely, "simple reflex agent", "model-based reflex agent", "goal-based agent", and "utility-based agent".