

## Lesson 1 – Question Bank

1.2 Read Turing's original paper on AI (Turing, 1950). In the paper, he discusses several objections to his proposed enterprise and his test for intelligence. Which objections still carry weight? Are his refutations valid? Can you think of new objections arising from developments since he wrote the paper? In the paper, he predicts that, by the year 2000, a computer will have a 30% chance of passing a five-minute Turing Test with an unskilled interrogator. What chance do you think a computer would have today? In another 50 years?

1.3 Are reflex actions (such as flinching from a hot stove) rational? Are they intelligent?

1.7 To what extent are the following computer systems instances of artificial intelligence:

- Supermarket bar code scanners.
- Web search engines.
- Voice-activated telephone menus.
- Internet routing algorithms that respond dynamically to the state of the network.

1.8 Many of the computational models of cognitive activities that have been proposed involve quite complex mathematical operations, such as convolving an image with a Gaussian or finding a minimum of the entropy function. Most humans (and certainly all animals) never learn this kind of mathematics at all, almost no one learns it before college, and almost no one can compute the convolution of a function with a Gaussian in their head. What sense does it make to say that the "vision system" is doing this kind of mathematics, whereas the actual person has no idea how to do it?

1.11 "Surely computers cannot be intelligent—they can do only what their programmers tell them." Is the latter statement true, and does it imply the former?

1.14 Examine the AI literature to discover whether the following tasks can currently be solved by computers:

- a. Playing a decent game of table tennis (Ping-Pong).
- b. Driving in the center of Cairo, Egypt.
- c. Driving in Victorville, California.
- d. Buying a week's worth of groceries at the market.
- e. Buying a week's worth of groceries on the Web.
- f. Playing a decent game of bridge at a competitive level.
- g. Discovering and proving new mathematical theorems.
- h. Writing an intentionally funny story.

- i. Giving competent legal advice in a specialized area of law.
- j. Translating spoken English into spoken Swedish in real time.
- k. Performing a complex surgical operation.