Practice Question: Lecture 1

1) Define in your own words:
   (a) Intelligence
   (b) Artificial intelligence
   (c) Agent
   (d) Rationality
   (e) Logical reasoning

2) What is the Loebner Prize? Research and report the latest winner of the Loebner Prize. What technique doe it use? How does it advance the state of the art in AI.

3) There are well-known classes of problems that are intractably difficult for computers and other classes that are provably undecidable. Does this mean that AI is impossible?

4) To what extent are the following computer system instances of artificial intelligence:
   a) Supermarket bar code scanners
   b) Voice –activated telephone menus
   c) Spelling and grammar correction features in Microsoft Word.
   d) Internet routing algorithms that respond dynamically to the state of the network.

5) Is AI a science or is it engineering? Or neither or both ? Explain

6) Examine the AI literature to discover whether the following tasks can currently be solved by computers:
   a) Playing a decent game of table –tennis
   b) Driving in the center of Cairo, Egypt
   c) Driving in Victorville, California
   d) Buying a week's worth of groceries on the Web
   e) Playing a decent game of bridge at a competitive level
   f) Discovering and proving new mathematical theorems
   g) Writing an intentionally funny story
   h) Giving competent legal advice in a specialized area of law.
   i) Translating spoken English into spoken Swedish in real time.
   j) Performing a complex surgical operation.
   For the currently infeasible tasks, try to find out what the difficulties are and predict when, if ever, they will be overcome.
   Reference: Artificial Intelligence : A Modern Approach : Rusell and Norvig

Activities :

1)The Interactive Museum Tour-Guide Robot

This robot was demonstrated in the Deutsches Museum in Bonn, where it guided hundreds of visitors through the museum over a period of six days. It navigated at high speeds, reliably avoiding objects and coping with dense crowds. Once guided to the exhibits, museum visitors could choose to

hear and see a variety of mixed-media descriptions of the objects on show and interact with the robot's on-board panel. Using a variety of probabilistic reasoning, planning, and high level first order problem solving abilities, the robot travelled for over 18 kilometres around the museum during the six days, and guided more than 2000 people. Museum attendance rose by at least 50%. Research on this and summarize your findings in a short report

2) The Brains in Bahrain

Forget Deep Blue, Deep Fritz is currently the number one chess program, and in 2002 it took on Vladimir Kramnik the world (human) number one, in a competition which the organisers nicknamed "the Brains in Bahrain". The match was drawn 4-4 and Kramnik gained a lot of respect for the program. To quote the organisers: "Well, the last time an opponent escaped from Kramnik with a 21-move draw with the black pieces, it was Garry Kasparov!" Research on this and summarize your findings in a short report