INF5390 – Artificial Intelligence (spring 2012)

Exercise 1

Please prepare your response to the two assignments below and send by e-mail to the lecturer Roar Fjellheim, roarfj@ifi.uio.no, not later than **March 30th, 2012**. You may use Norwegian or English and submit the response in either .doc(x) or .pdf format.

The response must be received on time and approved for you to be allowed to enter the exam in June.

1) ### Solving Problems by Searching (INF5390-03)

You have 3 containers that may hold 12 liters, 8 liters and 3 liters of water, respectively, as well as access to a water faucet. You can fill a container from the faucet, pour it into another container, or empty it onto the ground. The goal is to measure out exactly one liter of water.

a. Give a precise specification of the task as a search problem.
b. Select and provide arguments for a particular uninformed search algorithm to solve the problem
c. Draw a picture of a search tree for a solution (or program the algorithm)

2) ### Logical Agents (INF5390-04)

Ref. figure 7.4 (a) in the AIMA text book, showing the agent in square [1,2], after having sensed nothing in [1,1], a breeze in [2,1] and a stench in [1,2]. The agent is now concerned with the contents of [1,3], [2,2] and [3,1]. Each may contain a pit, and at most one can contain the monster (wumpus).

Use a truth table to show that the wumpus is in [1,3], i.e. that the statement "There is a wumpus in [1,3]" is implied by the agent's knowledge base KB.