National University of Computer & Emerging Sciences
Artificial Intelligence (CS401)
Class Activity #1

Dated: February 01, 2016 Marks: 40
Time: 40 min. Std-ID: ___SOL_____

Question No. 1 Match the most appropriate values from the two columns. [1x10]

Column A	Column B
1. Percept Sequence	a. Goal Based agent (7)
2. Agent	b. Limited intelligence (6)
3. Sensors	c. Percept Input (3)
4. Feedback based action selections	d. Propositional logic (5)
5. Zero-order logic	e. World is indivisible (9)
6. Simple reflexive agent	f. History of Percept's of an agent (1)
7. Agent has an objective function	g. Agent Knows how the world evolve (10)
8. Actuators	h. Learning agent (4)
9. Atomic Representation	i. Architecture + Program (2)
10. Model Based Agent	j. Agents response to environment (8)

Question No. 2 Consider an intelligent activity of an agent as describe in the following task environment and give PEAS description? [2x5]

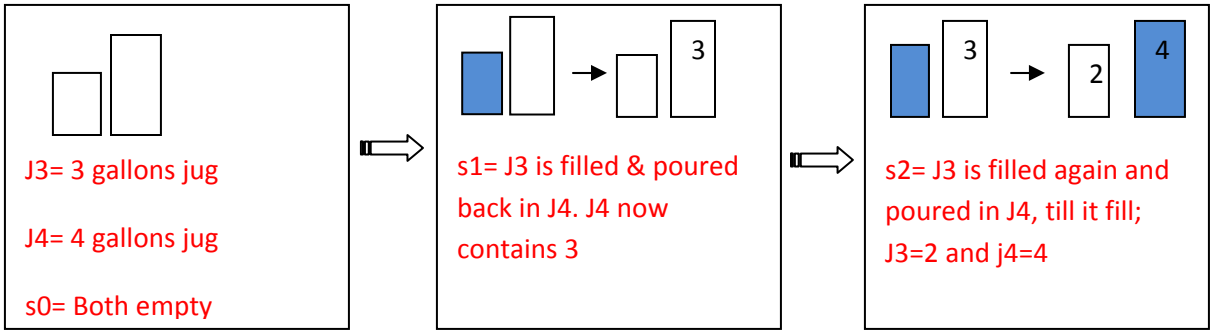
"An agent performing long Jump"

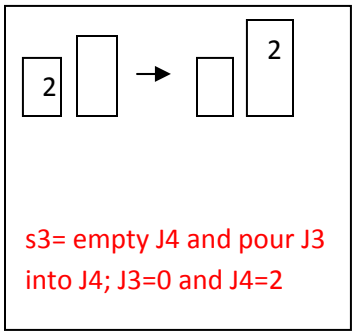
Performance measure	**How long it has jumped? (x units)**
Environment	**Track for performing long jump (Maximum X units)**
Sensors	**Legs, Body**
Actuators	**Eyes (Camera)**

This environment can be considered as fully observable, single agent, stochastic, sequential, dynamic, continuous, unknown

Question No. 3 State-Space-Graph/Search

You are given two jugs, a 4-gallon one and a 3-gallon one, a water source which has unlimited water which you can use to fill the jug, and the drain hose in which water may be poured. Neither jug has any measuring markings on it. How can you get exactly 2 gallons of water in the 4-gallon jug? - Provide state-space transition graph for the entire problem. Clearly mark the initial state and goal state. You can only provide the state(s) that are part of a possible solution. [10]



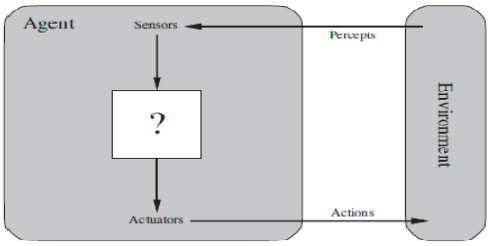


Question No. 4 Intelligent Agents

A Coal Mine watchman agent has four sensors S1,S2,S3 and S4, with possible values for 3,2,4,2 respectively for each sensor. If we want to build a Reflexive Agent for it, what will be the distinct values for possible percepts. [10]

There will be 3 X 2 X 4 X 2 = 48 distinct percents values from the environment, a simple reflexive agent will need to fill the action sequences for all such percepts. This will be a limited percept and action pairs of activity for agent.

<S1S2S3S4>->Action(i)



Percept -

S1XS2XS3XS4=48