CS156 Quiz 1 Study Guide

Know the …

1. definitions and difference between intelligent agent and machine learning.
2. three major components/capabilities of an intelligent agent.
3. notion of and definition of a rational agent.
4. meaning and use of performance metrics.
5. PEAS description and process. Given an agent type, provide the PEAS elements for a given task of the agent. See chapter 2 section 3 of the required textbook.
6. different types of environments and be able to describe/define each type.
7. Different types of agents described in lecture and in Chapter 2 of the required textbook.
8. Definitions of the "search problem".
9. method and time complexity, completeness, space complexity, cost optimality for (Section 3.3 textbook)
    a. best first search
    b. uninformed search strategies such as
        i. breadth first search
        ii. depth first search
        iii. depth-limited and iterative deepening search
        iv. greedy best first search (Section 3.5.1 textbook)

10. algorithm of A* and notions such as
    a. heuristic h(n), and g(n).
    b. definition of admissible and consistent heuristic.
    c. tree vs graph search algorithms and when it is and is not appropriate to use each type of algorithm.
    d. dominate vs not dominate heuristic.

11. Alpha-Beta Min-Max Search
    a. How the algorithm works
    b. Know how to use performance metrics

c. Perform min-max and alpha-beta cutoff calculations.

12. Knowledge representation
    a. Know how to represents data and information in propositional logic form.
    b. Know how to form propositional logic sentences and perform logical operations (equivalence, modus pones, … etc) on propositional sentences.