

CS341 Artificial Intelligence and Machine Learning – Fall 2018
Exam 1 – Review

1. Chapter 2
 - (a) Overview of agent-environment interaction
 - (b) Ideal rational agent
 - (c) Environment Characterizations
 - (d) Five Agent Program Designs
2. Chapter 3
 - (a) Problem Solving Agents
 - (b) Terminology: well-posed problem, operators, states, state space, path cost, search trees, etc.
 - (c) Six Uniformed Search Tree Strategies
 - i. Strengths, weaknesses
 - (d) Dealing with Repeated States
 - (e) Informed Search Strategies
 - i. Greedy best first
 - ii. A*
 - (f) Heuristic Functions
 - i. Definitions
 - ii. Construction
3. Chapter 4
 - (a) Local Search Algorithms
 - i. Hill-climbing
 - ii. Simulated annealing
 - iii. Local beam search
 - (b) On-line Search
4. Chapter 5
 - (a) Mini-max algorithm
 - (b) Alpha/beta cutoffs
5. Chapter 6
 - (a) CSP: Definitions
 - (b) Backtracking algorithm
 - i. Basic algorithm
 - ii. Branch-and-bound
 - iii. Forward checking
 - iv. Arc-consistency
 - (c) Heuristics
 - i. minimum-remaining-values
 - ii. least-constraining-value
 - (d) Local Search Methods
6. Examples
 - (a) 8 Puzzle
 - (b) n-Queens problem
 - (c) Missionaries and cannibals
 - (d) Graph coloring