Artificial Intelligence
Midterm

1. What does PEAS stand for?
2. Explain Tree-Search using depth first search, breadth first search, depth-limited search, iterative deepening, and bidirectional search.
3. Explain strategies that avoid repeating the same state in Tree-Search like algorithms.
4. Explain greedy best-first search and A*.
5. Explain what happens if the A* heuristics used is not admissible.
6. What is the difference between hill-climbing and simulated annealing?
7. What is the difference between the kinematic and the dynamic approach to steering?
8. Create pseudo-code for kinematic steering behaviors of:
   - seeking,
   - fleeing,
   - cohesion,
   - wandering,
   - facing,
   - arriving.
   Assume that the velocity is constant.
9. How can you implement path-following in dynamic movements?
10. Explain in your own words how to implement collision avoidance among moving characters.
11. Explain in your own words dynamic wall avoidance steering.
12. How is steering behavior combined?
13. Give examples of pathological behavior when using blending for steering.
14. Explain how you would implement 3D throw planning if the physics of the throw is quite accurate.
15. Give different strategies for implementing steering for jumps.
16. Using blending, how can implement flocking from more primitive steering behaviors?
17. What is hierarchical pathfinding?
18. How would you implement pathfinding for an object like a battleship that cannot quickly turn?
19. Give different strategies for solving the $n$-queens problem.
20. Color the following map with three (four) colors using CSP-backtracking search with the most constrained variable (aka minimum remaining values) heuristics, the most constraining variable heuristics, and the least constraining value heuristics, in this order.

21. The same problem with forward checking only.

22. The same problem with forward checking and arc-consistency enforcement.

23. Using alpha-beta pruning, which nodes would have to be evaluated in the following game tree (using left to right priority)