Artificial Intelligence: Assignment 3

Due date: March 5 (Wednesday)

Problem 1 (4 points)
Read Chapters 4 and 5 of the textbook and answer the following questions:

(a) Explain the main differences between puzzle-solving search and game playing.

(b) Argue that game playing is inherently more difficult than solving one-player puzzles.

(c) Take the opposite position and argue that developing efficient techniques for puzzles is no easier than designing effective game strategies.

Problem 2 (6 points)
The 6×6 Pawn Game involves two players; each player has twelve pawns (see the picture), which move in the same way as the chess pawns. When a pawn reaches the last row, it becomes a queen, which moves in the same way as the chess queen. The owner of the white pawns makes the first move. A player wins if either (1) she captures all pieces of the opponent or (2) the opponent can make no move, that is, all pieces of the opponent are blocked.

Write a program for playing this game. It should prompt the user to specify the player ("1" or "2") and act as this player. For example, if the user enters "1," the program makes the first move. For the full credit, it should win against the instructor and teaching assistant.