Artificial Intelligence Course – 2022
Assignment 1

1. Examine the AI literature to discover whether the following task can currently be solved by computer and include your reference(s) (10 point – 2.5 points for each)
   a. Writing a poem or story
   b. Driving in California
   c. Giving competent psychological advice in a specialized area of mental health
   d. Performing stage act as pop idol
2. Is AI a science or is it engineering? Or neither of both. Explain your answer (5 points)
3. For each the following activities, give a PEAS description of the task environment (10 points – 2.5 points for each)
   a. A mobile game playing tennis match
   b. A website for shopping for used books on the internet
   c. A mobile application for Recommending medication
   d. A robot performing a high jump
4. Explain why problem formulation must follow goal formulation (5 points)
5. Write pseudocode agent program for utility-based agents (20 points)
6. Create a simple program for playing tic-tac-toe that implement minimax algorithm (50 points) based on the following criteria: (50 points)
   a. The player should be able to choose the character (X or O). For initialization X will play first. (5 points)
   b. The action should return set of possible action. You can represent each action as a tuple (x,y) where x corresponds to the row and y corresponds to the cell. Possible move are any cells that do not have X or O. (10 points)
   c. The result function takes a board and an action as input and should return a new board state without modifying the original board. The winner function should accept a board as input and return winner of the board if there is one. (10 points)
   d. The terminal function should accept a board as input and return a Boolean value indicating whether the game is over. (5 points)
   e. Utility function should accept a terminal boar and output the utility of the board. (points)
   f. The minimax function should return optional action for the agent (10 points)