Assignment Sheet
EVEN Semester 2021
B.Tech CSE/IT 6th Semester

Artificial Intelligence Lab (15B17CI574)

Instructions:
- Students have to do a mini project apart from the Lab Assignments.
- The evaluative lab assignments must be evaluated as per the given deadline. The total weightage of all day to day work is 60 Marks.
- There will be two lab tests of 20 marks each. Absence in Lab Test-2 means Fail in the lab course.
- All students are required to attend at least 80% labs. 15 marks are reserved for attendance.
- The evaluative lab assignments must be evaluated as per the given deadline from time to time.

Week-4

Febuary 8-13, 2021

EXERCISE

1. Develop an object for managing a game of Tic Tac Toe. Create a class called TTT Board that defines the following functions:
   a) __init__(self): Initialize a 3x3 tic tac toe board
   b) __str__(self): Returns a string representation of the board
   c) makeMove(self, player, pos): Places a move for player in the position pos (where the board squares a numbered from left to right, starting in the top left square with 0, and beginning at the left in each new row), if possible. 'player' is a character ("X" or "O") and pos is an integer. Returns True if the move was made and False if not (because the spot was full, or outside the boundaries of the board).
   d) hasWon(self,player): Returns True if player has won the game, and False if not
   e) gameOver(self): Returns True if someone has won or if the board is full, False otherwise
   f) clear(self): Clears the board to reset the game

You may represent the board however you like. You may define other functions as well. You may wish also to define a function that allows two players to play the game to make sure your above functions are working correctly.

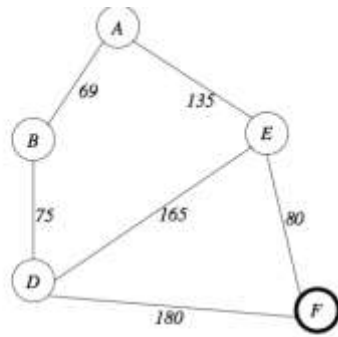**2.** Implement Hill Climbing algorithm for the given below problem,

Start

Goal

3. Implement A star algorithm .

$$h_1(A) = 200 \quad h_2(A) = 205$$
$$h_1(B) = 247 \quad h_2(B) = 270$$
$$h_1(D) = 162 \quad h_2(D) = 175$$
$$h_1(E) = 72 \quad h_2(E) = 82$$
$$h_1(F) = 0 \quad h_2(F) = 0$$