AI Lab Test-1

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VIVA

1) What A* search algorithm
2) What are the different methods used to calculate distance approximation heuristically.
3) what is a heuristic function
4) what are agents
5) How an agent uses sensor function (or senses)
6) Why IDS algorithm is better than other search algorithm
7) Where are IDS and A* implemented in real life.

1) A* is an informed search algorithm, which finds the best path or shortest path or cost effective path result of a search using heuristic
It uses the idea of avoiding the paths that are expensive.

Evaluation function $f(n) = g(n) + h(n)$

- $f(n)$: estimated total cost of path through n to goal.
- $g(n)$: cost so far to reach n
- $h(n)$: estimated cost from n to goal

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2) Different methods used to calculate distance approximation
   a) Euclidean distance
   b) Manhattan distance
   c) ~~Hamming~~ Hamming distance ~~etc~~.
   d) Diagonal distance etc.

3) Heuristic means "rule of thumb". Heuristics are criteria for deciding which among several alternative courses of action promises to be the most effective in order to achive the goal
In search algorithms, heuristics are used to identify the ~~to~~ least cost path or most promising path.

4) Agent is anything that can be viewed as perceiving its environment through sensors and acts upon that environment through actuators.

5) Agent uses perception of the environment and makes decisions. This perception capability is called sensor.
The ~~perception~~ actions depend on most recent perception or the entire history (percept sequence) or knowledge base

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6) IDS is optimal like breath first search and uses much less memory
It doesn't ~~run into~~ ~~infinite~~ infinite loops which may happen in DFS

7) Chess
8 puzzle game
Vaccuum cleaner
maze ~~problem~~ problem