Rainbow
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Roll No:- 41258

AIR Unit test

1) A) ~~Problem~~ AI Agent:-

i) It is a autonomous entity which acts, ~~directly~~ i directing its activity towards achieving goals, upon a environment using observation through senses & consequent acutators.

2) These are used in search strategies or algorithms to solve a specific problem & provide the best result.

3) The AI agents has to solve the problem an reach to goal and to find out which sequence of action will be get to the goal state.

4) It has to define the problem, convert the problem into state space ie space of collection of all the possible valid states, gather knowledge, plan ie decide strategy and data structure, ~~app~~ apply and execute the task to solve the problem.

5) AI agent help to increase preformance.

B) i) Best first search can be used while solving puzzle problem.

ii) Process will start with initial state. In this process the heuristic used could be the number of tiles not in correct position (ie misplaced tiles).

iii) In this solution 2 lists are taken and visited state is put in 2 list while upcoming state are inserted in another list.

iv) Smaller value at heuristic function leads to earlier to goal state.

v) On other hand A^* is ~~comparable~~ complete & ~~gua~~ guarantee solution.

vi) It takes the ~~summation of~~ summation of initial state mis-alignment and final state misalignment to determine next step. These A^* algorithm ~~also~~ does more optimal to solve puzzle problem.

2B) a) Yes, A* search is a Heuristic searching technique.
b) It is a weak Heuristic search technique.
c) Yes A* is optimal as it can only have a node as a solution that it has selected for expansion.
d) A search algorithm is optimal if there is no other search algorithm uses less time or space or expands fewer nodes, both with a guarantee of solution quality.
e. Optimal algorithm pick the correct node at each choice.
~~f. A* only can have a solution node~~
f. A* is best-first search algorithm that relies on an open list and closed list to find a path that is both optimal & complete towards the goal.
g. It works by combining the benefits of the uniformed cost search and greedy search algorithm.

2A) Informed search:- It is more useful for large search space It uses the idea of heuristic search

Techniques:-

a) A* algorithm

b) Best first search algorithm.

Uninformed search:- A class of general purpose search algorithms which operates in brute force search.

techniques:-

Breadth first search

3A). The aim of AI is to drive a system which can solve the various problems on its own. But challenge is to understan the problem.

a) Steps to solve the problem are:-

A) Define a problem:-
Agent defines the problem to an extent so that a particular state space can be represented through it. Analysis of the problem is important.

B. Form the state Space:-
Convert the problem statement into state space which is a collection of all valid states that the agent can reside in.

C. Gather knowledge:-
Collect & isolate the knowledge which is required by the agent to solve the problem.

D] Planning:-
Deciding suitable data structure and suitable strategy is important.

E. Apply & Execute
Applying the strategy and executing it to get the solution to the problem.

08 FOL

1) First Order Logic is a another way of knowledge representation in AI.
2) Also known as Predicate logic or first order predicate logic.
3) Logic has two parts:-
   Syntax and Semantics.
4) Yes, Knowledge Bank can consists Atomic sentences.
5) Proportional logic :-
   a) it is simple statement.
   b) It studies the way statements can be interact with each other.
   c) It does not care about the content of the logic.
   d) statement can be either true or false.
   e) It has to be one or other not both.

EXAMPLE

These are propositional:-
The reactor it on;
the wing flaps are up
John Major is prime minister.

These are not propositional:-
2+3
are you going out somewhere?
