Classification of students.
Flowers.

Describe local maxima – maximum point in particular state or region.

Hill climbing search and simulated analysing. Eg 8 Puzzle (Eg: in pong ball) to be given

A* search   Assignment

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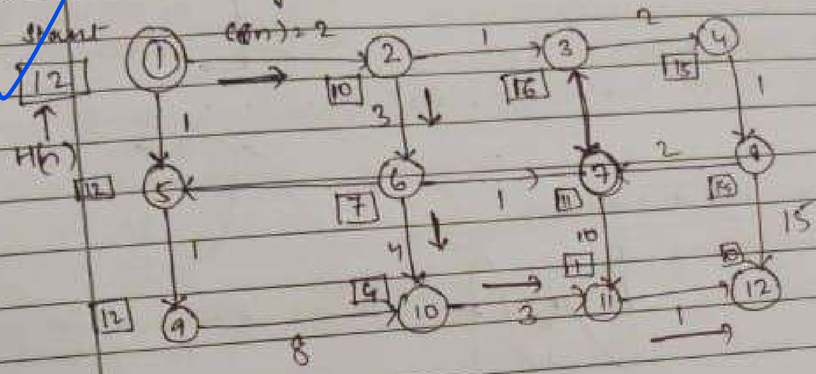


Path :-

Open

1^{12}

$2^{(10+2)}$ $5^{(12+1)}$

$3^{(16+1+2)}$ $6^{(7+3+2)}$ 5^{13}

3^{19} 5^{13} $7^{19(11+1+3+2)}$ $10^{13(4+4+3+2)}$

3^{19} 10^{13} 7^{17} $9^{14(12+1+1)}$

3^{19} 7^{19} 9^{14} $11^{13(1+3+4+3+2)}$

3^{19} 7^{17} 9^{14} $12^{13(0+1+3+4+3+2)}$

Closed

1^{12}

2^{12}

6^{12}

5^{13}

10^{13}

11^{13}

12^{13}

Path :- (1) –2→ (2) –3→ (6) –4→ (7) –3→ (10) –3→ (11) –1→ (12)

CSP (Constraint Satisfaction Problem)

State - x_i (x_1, x_2, x_3, x_4, x_5)

Domain - d_i (d_1, d_2, d_3, d_4, d_5)

1 + 1 + 3 + 3 + 3 + 2 + 3 + 3

= Important Question

1. 4 approaches of AI (Turing Test)
2. Definition of AI, Examples.
3. Uninformed → bidirectional search (short question Depth time & space complexity). Diagram (with pencil)
4. Eg of Robotic Frog. (Pseudo code + Diagram).
5. 2 ply game using minimax algorithm.
6. 8 puzzle game (Find Manhattan dist)
7. Diagram of learning agent & explain its component
8. What is the difference bet^n agent function & program
9. Eg - 5 eg of heuristic fun^n used in real world problem
10. What is hill climbing search (dia). Ridge, Plateau, etc (short no
11. Using iterative deepening DFS (steps) along with diag
12. Eg of α, β pruning
13. Compare evaluation of fun^n in A* search, greedy se ucs.
14. Find out heuristic by no. of misplaced tile + Manhatt dist (Tiles problem start & stop state will be given)

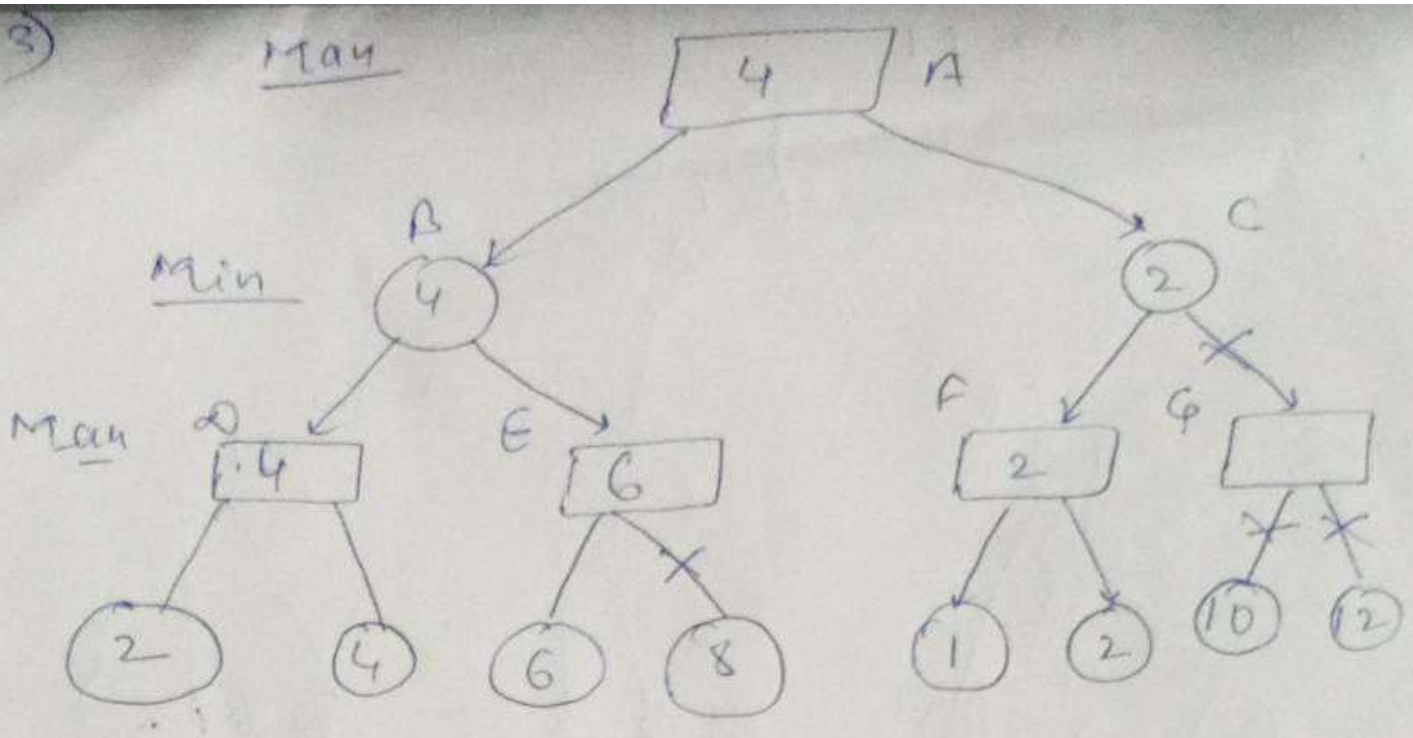
Long :-

1. Describe 3 types of AI agents. (Piece description)

Playing soccer
Refrigerator
Submarine
Nuclear missile
Paint filling Robot

2. Compare DFS & BFS and solve ~~one~~ eg given.
3. A* search and step by step algo and why it is complete and optimal + Problem.

• 3)



- We start at A : $\alpha = -\infty$ $\beta = \infty$.
- We move down to the left most node

Here, $\max(-\infty, 2) = 2$

Then, $\max(2, 4) = 4$.

- We move upto D where, $\alpha = \infty$, $\beta = 4$.

Then, we move upto G, where

$\alpha = -\infty$, $\beta = 4$

here, $\alpha = \max(-\infty, 6) = 6$.

Then, next node will be pruned (marked as x)

Now, we go back to B, then to A where $\alpha = 4$, $\beta = \infty$

Then, we go to C, where $\alpha = 4$, $\beta = \infty$

Then, F, where $\alpha = 4$, $\beta = \infty$

here F = 2

Now, we go back to C, where

$\alpha = 4$, $\beta = 2$

$\alpha \geq \beta$

So, other subtree pruned