Week 1 Quiz

Q1.

A search problem in the context of Artificial Intelligence is:

    A. A problem that involves searching for information on the internet.

    B. A computational problem that involves exploring a set of possible states to achieve a goal.

    C. A problem related to finding optimal routes on a map.

    D. A problem involving searching for lost items.

Q2.

In the context of the car moving from point A to point B, the state space represents:

    A. The destination point B.

    B. The different paths the car can take.

    C. The starting position of the car at point A.

    D. The set of all possible locations and conditions of the car between points A and B.

Q3.

What is the purpose of a transition model in a search problem?

    A. To model the initial state of the problem.

    B. To define the goal state of the problem.

    C. To determine the sequence of actions needed to reach the goal.

    D. To describe how the system moves from one state to another based on actions.

Q4.

What is the primary disadvantage of uninformed search algorithms, as demonstrated in the 15-Puzzle problem?

    A. They are too fast.

    B. They use too much memory.

    C. They require additional information.

    D. They are not effective for puzzles.

Q5.

What is a heuristic function in the context of informed search algorithms?

A. A function that provides a guess of the cost from the current state to the goal state.

B. A function that assesses alternatives in search algorithms so we can choose the best option.

C. A function used only in uninformed search algorithms.

D. A function that counts the number of moves.

Q6.

Use the graph below to answer the following questions. D is the starting node, and I is the goal node.
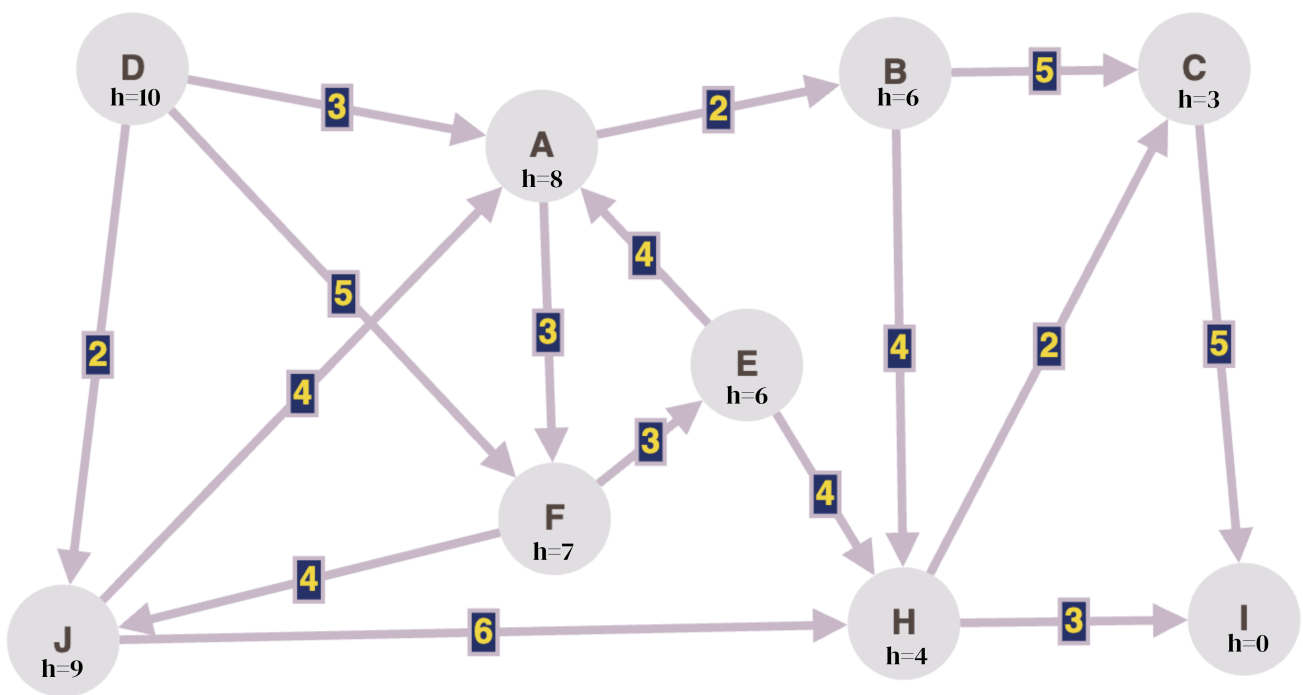
Q6.1.

Which solution path will the Breadth-First Search (BFS) algorithm identify?
* Expanding the successors of a node in alphabetical order (e.g., if a node has three successors, A, B, and C, then A will be expanded before B, and B will be expanded before C).

A. D − A − B − C − I

B. D − F − E − H - I

C. D − J − H − I

D. D − A − B − H − I

E. D − A − B − H − C − I

F. BFS will not find a solution.

Q6.2.

Which solution path will the A* algorithm identify?

    A. D – J – H – I

    B. D – A – F – J – H – C – I

    C. D – A – B – H – I

    D. D – A – F – J – H – I

    E. D – J – H – C – I

    F. Algorithm A will not find a solution.