Given a 5 liters jug filled with water and an empty 2-liter jug, how can one obtain precisely 1 liter in 2 liters jug? Water may either be discarded or poured from one jug to another; however no more than 5 liter is available. Specify a global database, rules and termination condition to solve the given water jug problem.

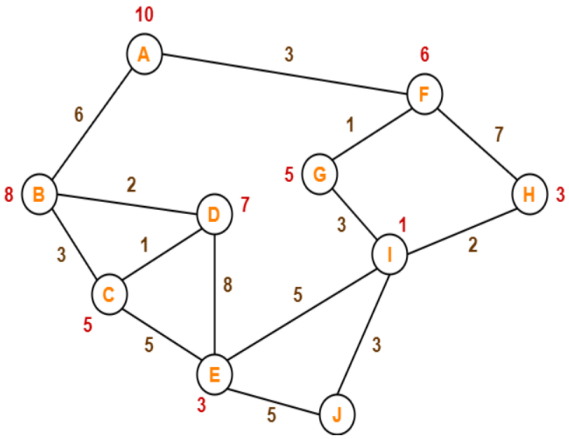
A hungry monkey finds himself in a room in which a bunch of bananas is hanging from the ceiling. The monkey, unfortunately, cannot reach the bananas. However, in the room there are also a chair and a stick. The ceiling is just the right height so that a monkey standing on a chair could knock the bananas down with the stick. The monkey knows how to move around, carry other things around, reach for the bananas, and wave a stick in the air. Identify the best sequence of actions for the monkey to acquire lunch?

Explain Mini-max algorithm and solve the problem of Tic-Tac-Toe.

Explain A* search algorithm and find the most cost-effective path to reach from start state
CO60

1.2

A to final state **J**



You have a production system with the three rules:

R1: IF A , THEN E
R2: IF B AND F ,
THEN GR3: IF
C AND E , THEN F
and you have four initial facts: A, B, C, D.
Utilize “backward chaining” to show explicitly how it can be used to determine the truth, or otherwise, of fact G.

The law says that it is a crime for an American to sell weapons to hostile nations. The country Nono, an enemy of America, has some missiles, and all of its missiles were sold to it by Jack, who is American. Prove that "**Jack is criminal**" using Forward chaining & Backward chaining.

Consider the following sentences

a) John likes all kind of food

b) Apple is food

c) Chicken is Food

d) Anything anyone eats and isn't killed by is food

e) Bill eats peanuts and still alive

f) Sue eats everything that Bill eats

i) Translate these sentences into formulas in predicate logic.

ii) Convert the formulas of part i into clause form.

The Wumpus world is a cave with 16 rooms (4×4). Each room is connected to others through walkways (no rooms are connected diagonally). The knowledge-based agent starts from Room [1, 1]. The cave has – some **pits**, a **treasure** and a beast named **Wumpus**. The Wumpus cannot move but eats the one who enters its room. If the agent enters the pit, it gets stuck there. The goal of the agent is to take the treasure and come out of the cave. The agent is rewarded, when the goal conditions aremet. The agent is penalized, when it falls into a pit or being eaten by the Wumpus. Some elements support the agent to explore the cave, like -The Wumpus's adjacent rooms are stenchy. -The agent is given one arrow which it can use to kill the Wumpus when facing it (Wumpus screams when it is killed). – The adjacent rooms of the room with pits are filled with breeze. - The treasure room is always glittery. Explain the concept of Knowledge based agent to solve it.

Explain the basics of Prolog programming, also use appropriate technique to write a program for the following

a) Find the last element of a list.
b) Eliminate consecutive duplicates of list elements.
c) Determine the greatest common divisor of two positive integer numbers.

Explain Unification Algorithm and Find the MGU for Unify {King(x), King (John)}.