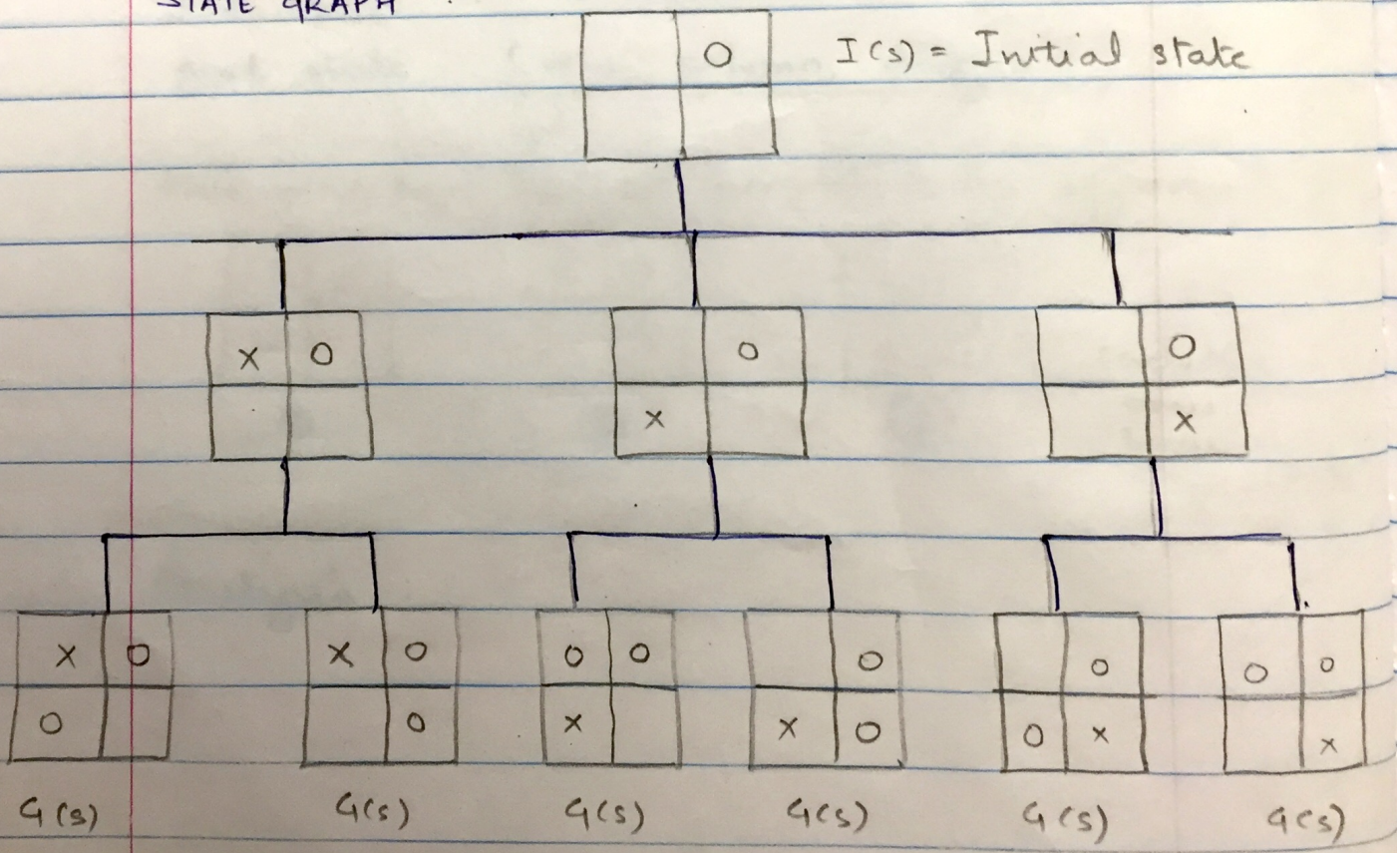
Solution 1.

Given : Tic-Tac-Toe puzzle ; if a player completes row / column / diagonal, he loses.

Assumption : O goes first : not considering symmetrical states (mirrored & rotational).

STATE GRAPH :



G(s) - Goal state

Game finishes here as '0' loses the match.

Solution 2

Given : 8-Puzzle problem.

Objective : To show that permutation inversion as a heuristic function is not admissible.

To show that a function is admissible:

$$0 \leq h(N) \leq h^*(N).$$

where $h^*(N)$ is the optimal solution

Approach used : CONTRADICTION.

Let us assume ; permutation inversion is an admissible function for 8-puzzle problem.

Let it be called as $h(N)$.

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