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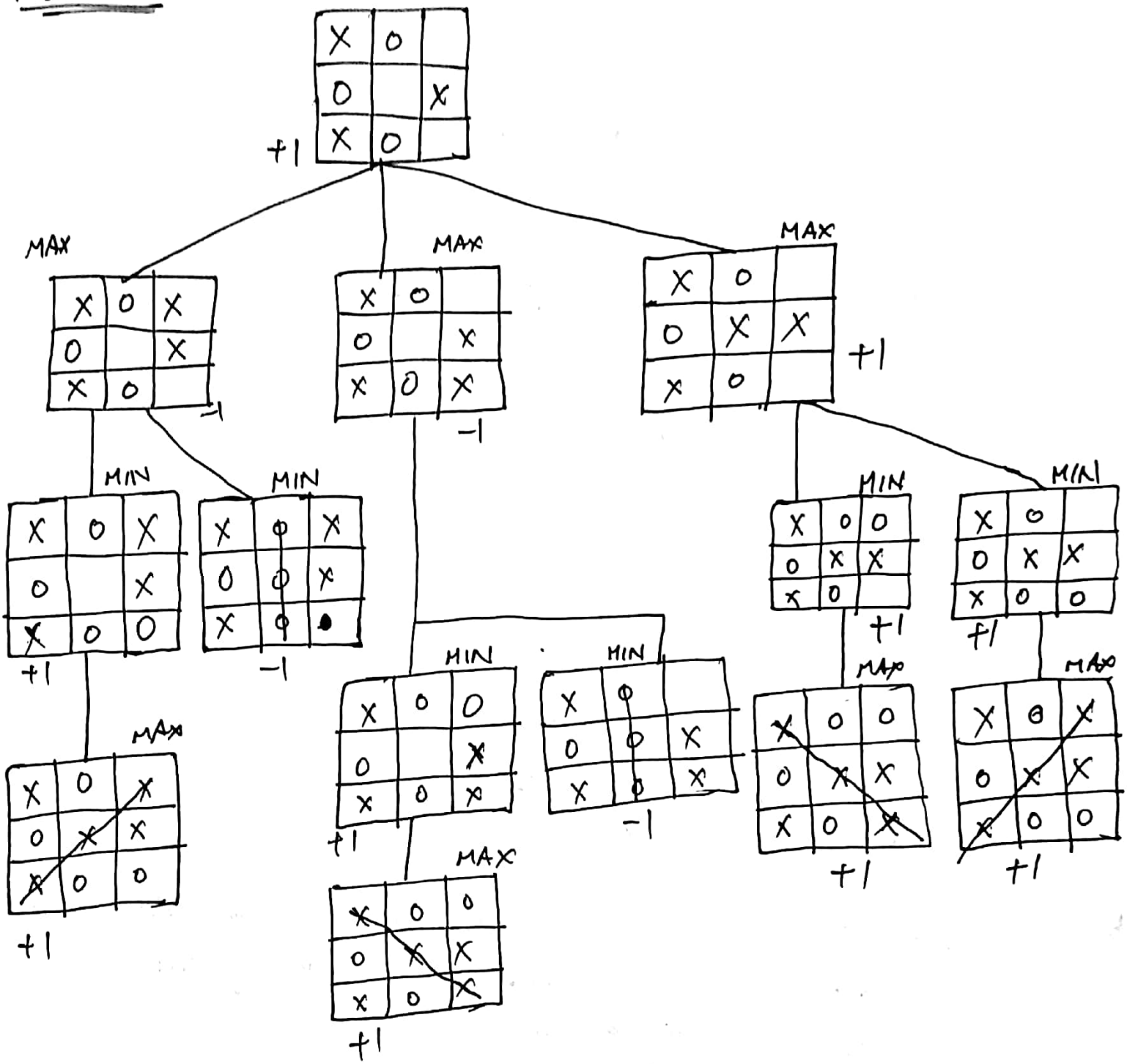
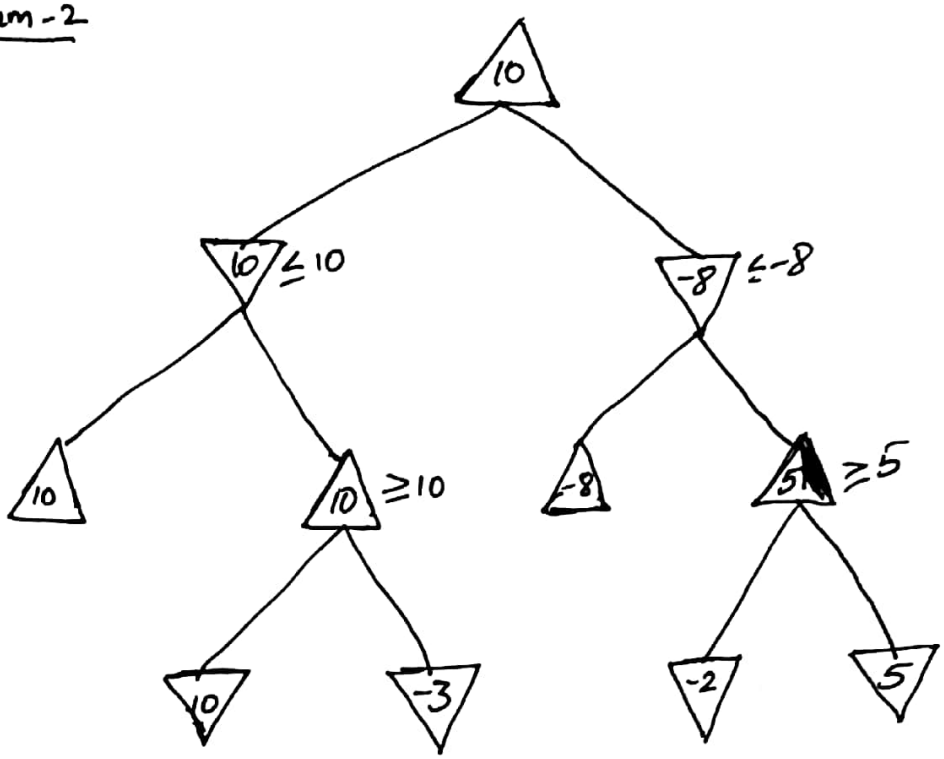
Assignment - 3

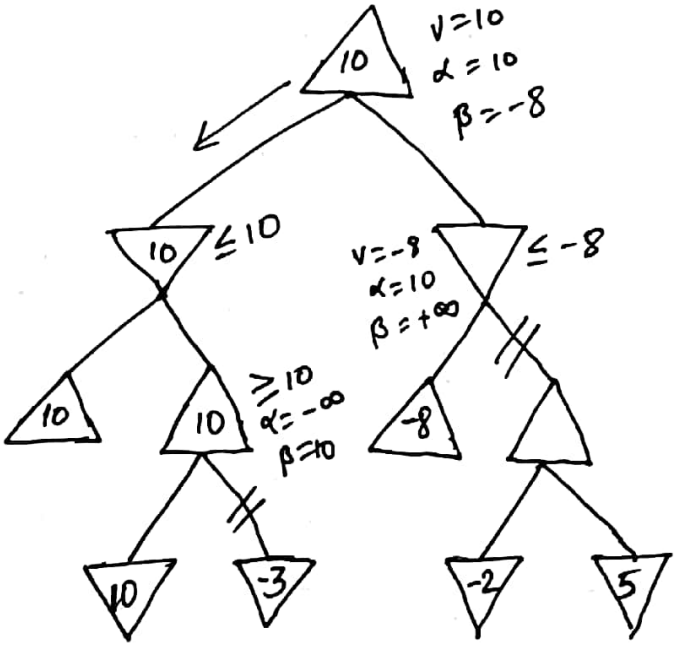
Problem - 1



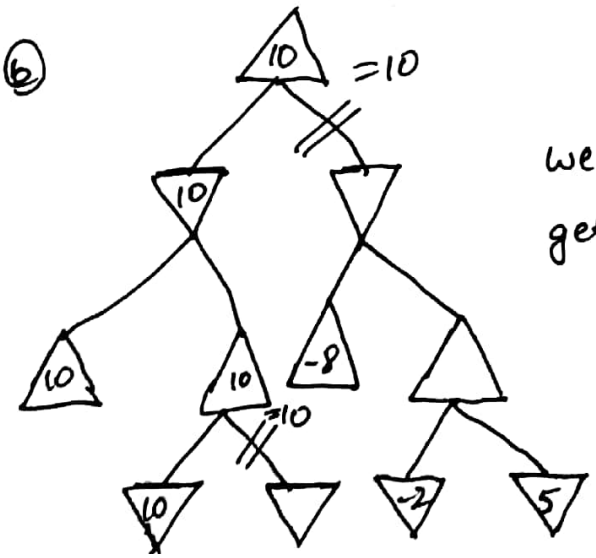
Problem - 2



(a)



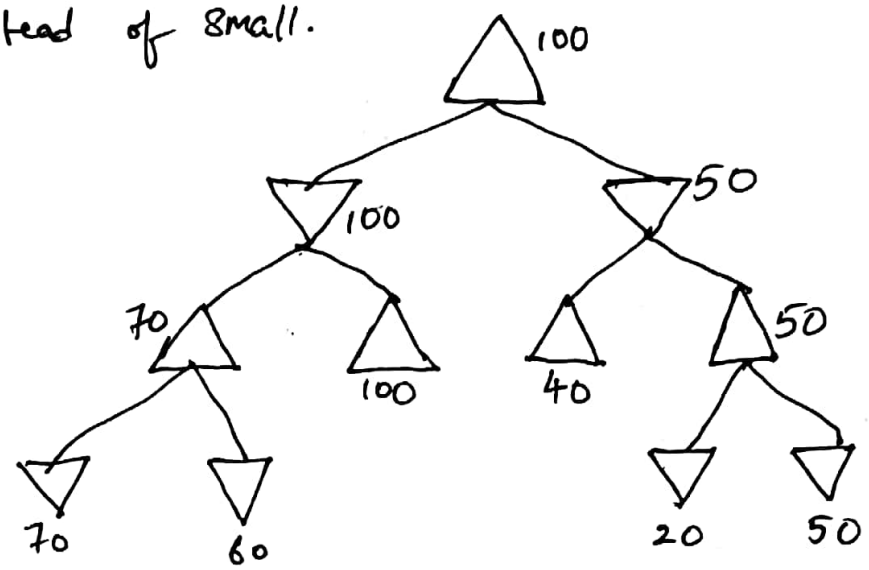
(b)



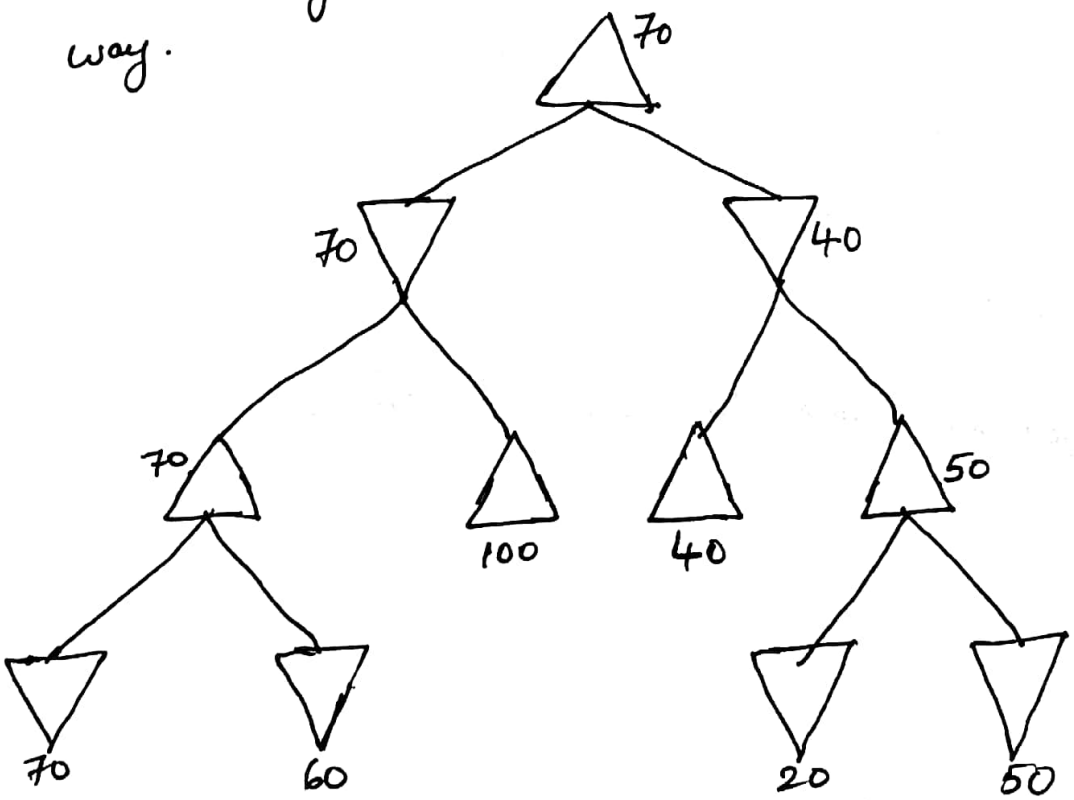
Since, we know that maximum utility is 10, we can ignore any branches of Max after getting a utility of 10 on a branch.

Problem 3

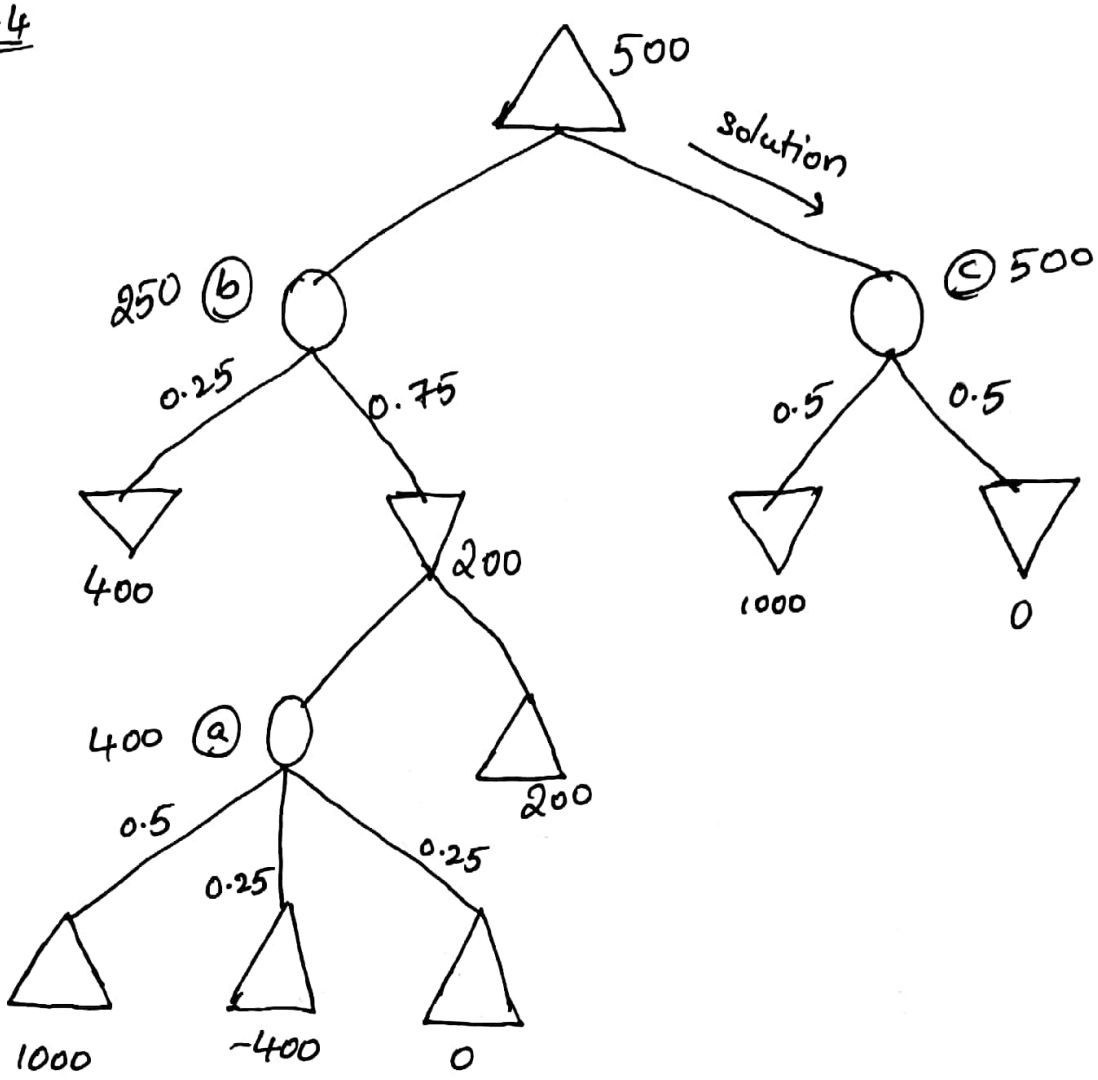
(i) The Best possible outcome of playing the full game for the max player is when the opponent doesn't know the game (or) he makes a wrong move and chooses large number instead of small.



(ii) The worst possible outcome is when the opponent knows how to play the game and makes the right moves all the way.



Problem-4



At node (a) → $(0.5)(1000) + (0.25)(-400) + (0.25)(0)$

$= 500 - 100 + 0 = 400$

At node (b) → $(0.25)(400) + (0.75)(200)$

$= 100 + 150 = 250$

At node (c) → $(0.5)(1000) + (0.5)(0)$

$= 500$

The algorithm choose the path with node (c).

Problem 5

To maximize our score at every move, we can select maximum value returned by DeepGreen.

So replace Minvalue(state) returns value with function:

function MINvalue(state) return value.

if TerminalTest(state)
  then return UTILITY(state)
s ← DeepGreenMove(state)
return MaxValues(s)