Assignment - 3

Q1) Water jug problem

Soln →

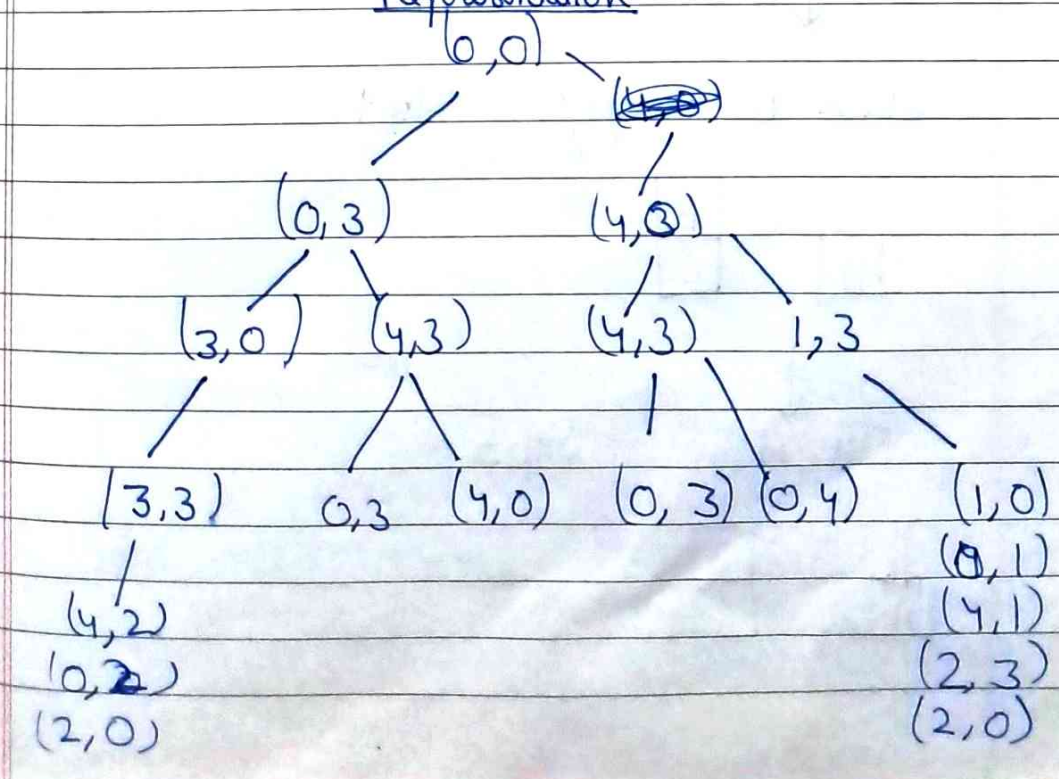
Initial State Both jugs are empty (0,0)
- Amount of Water in 4 Gallon Jug
- Amount of Water in 3 Gallon Jug

Goal State → Exactly 2 Gallons of water in the 4 Gallon Jug
(2, y) where y can be any value (0,3)

Constraint

Jugs have fix capacity
Unlimited Supply of Water in 4 Gallon Jug
2, y where y can be any value
No Measuring marking on (0 to 3) Jugs.

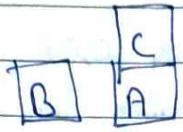
Representation



Q2. Block Word Problem :-

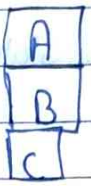
Soln

Initial State



Step 1

Goal State

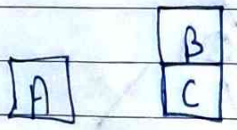


Lift C

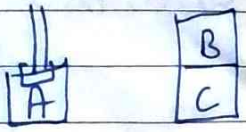
Put C block on ground — Step 2

Lift B — Step 3

Stack B on top of C — Step 4



Lift A — Step 5



Stack A on top of B Step 6

Goal State Step 7

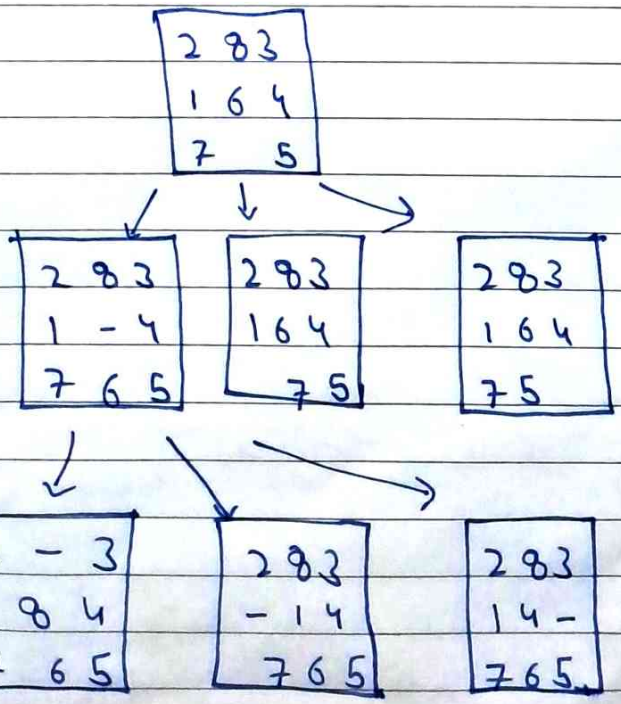
Q3 Solve Using Iterative deepning

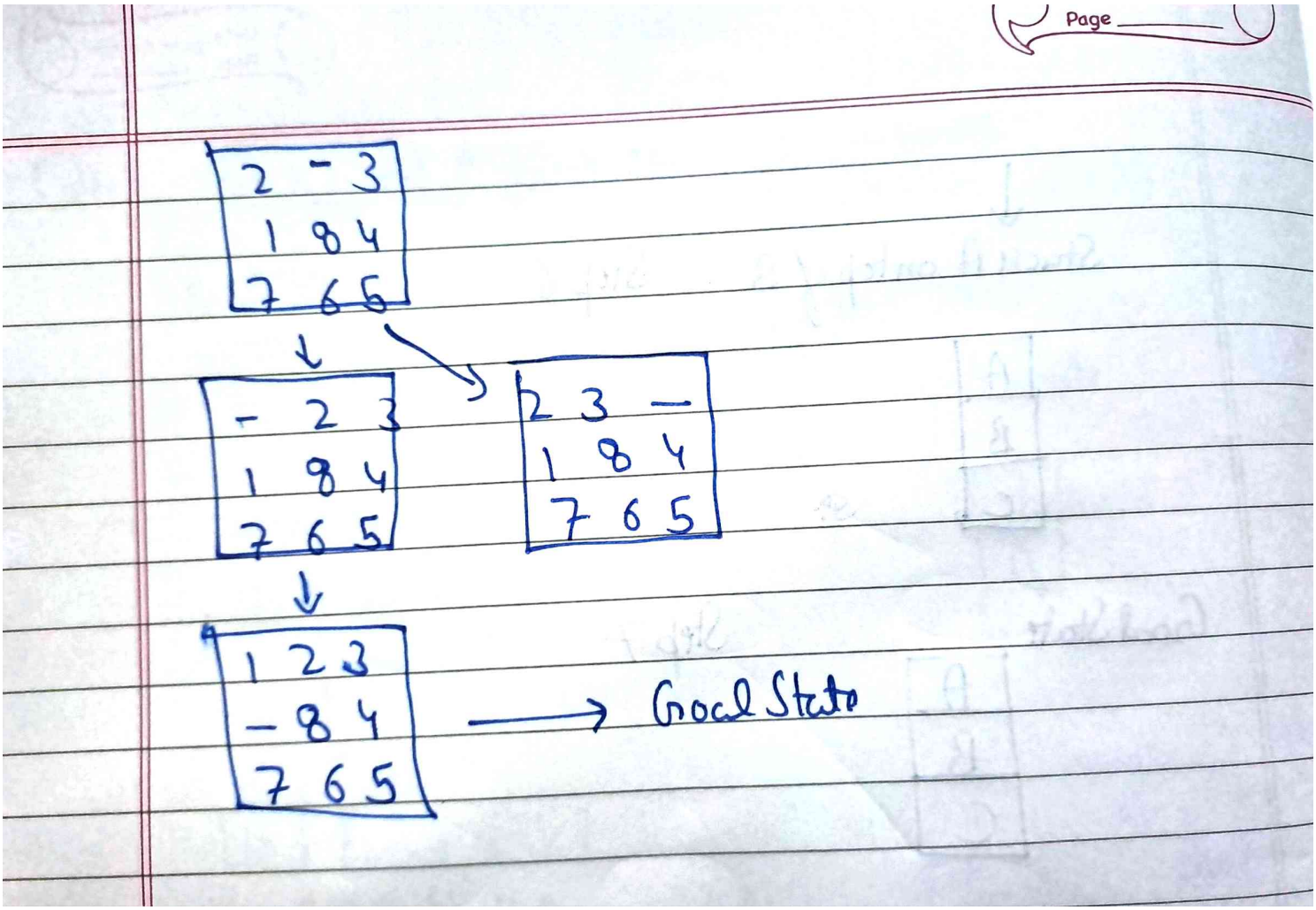
2	8	3
1	6	4
7		5

Initial State

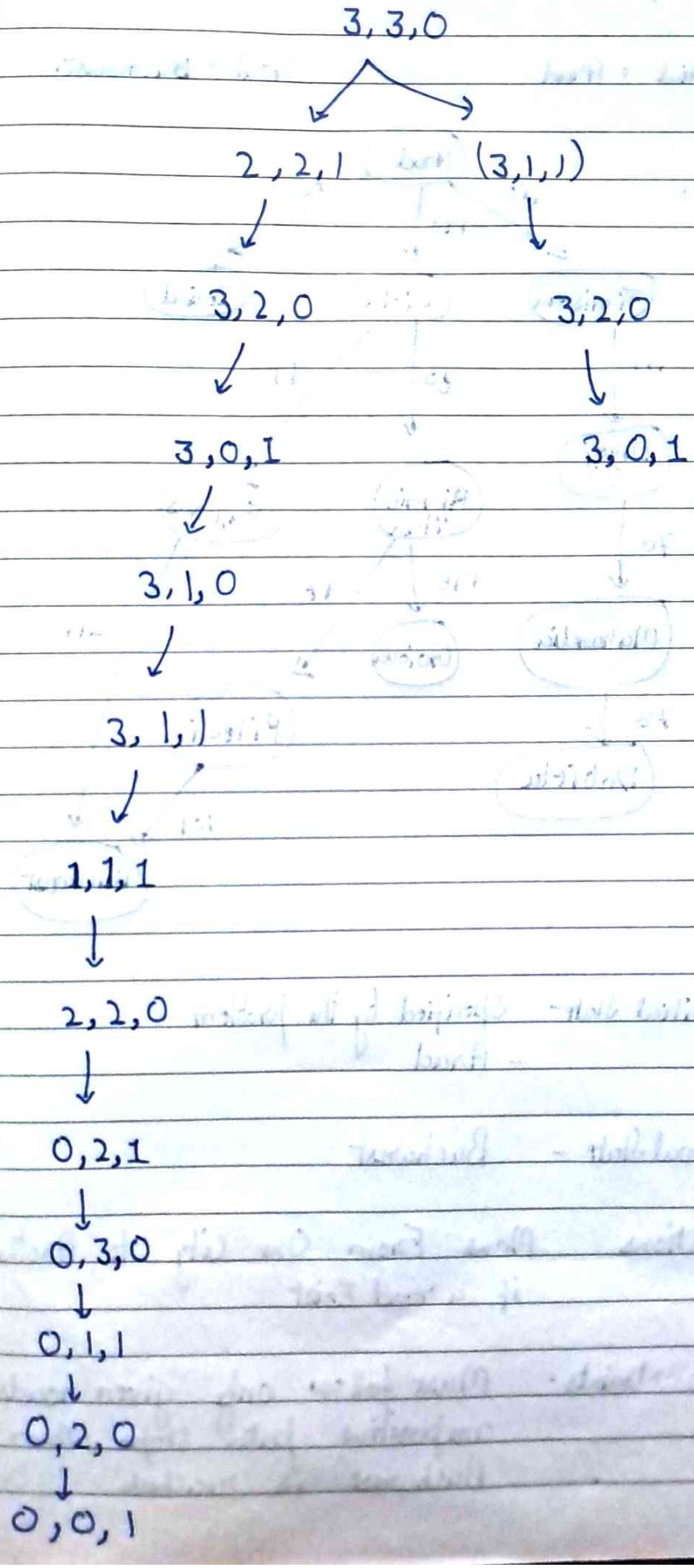
1	2	3
8	7	4
7	6	4

Goal State.



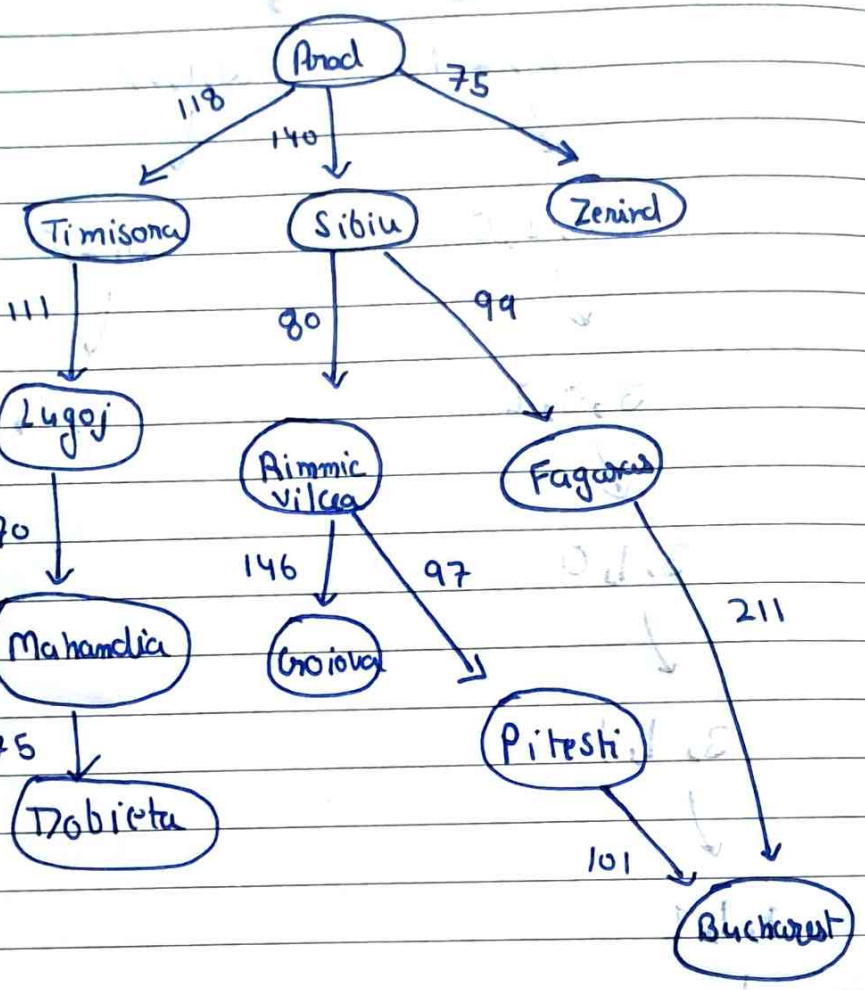

Page
2 - 3
1 8 4
7 6 5
- 2 3
1 8 4
7 6 5
2 3 -
1 8 4
7 6 5
1 2 3
- 8 4
7 6 5
Goal State

Q4 Using BFS solve Missionaries and Cannibals



Q5 The Map of Romania is given Start from Arad and Goal State is Bucharest.

Initial = Arad Goal = Bucharest.



Initial State- Specified by the problem
- Arad

Goal State - Bucharest

Actions Move From One City to Another if a road Exist

Constraints- Must follow only given roads cost are positive path stops when Bucharest is reached

Shortest Path :

Arad → Sibiu → Rimicu → Pitesti

↓

Bucharest