Assignment:-1 (A)

Date :

Name :- Saurabh Shivaji More

Class :- BE-IT

Roll No:- 37

Subject :- IS LAB

D.O.P	D.O.A.	Remark	Sign

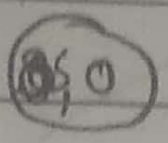
Assignment - 1(A)

Date :

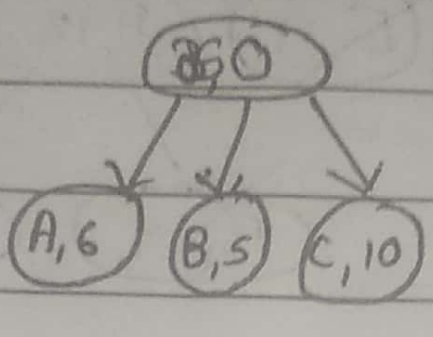
Q. 1)

1.1)

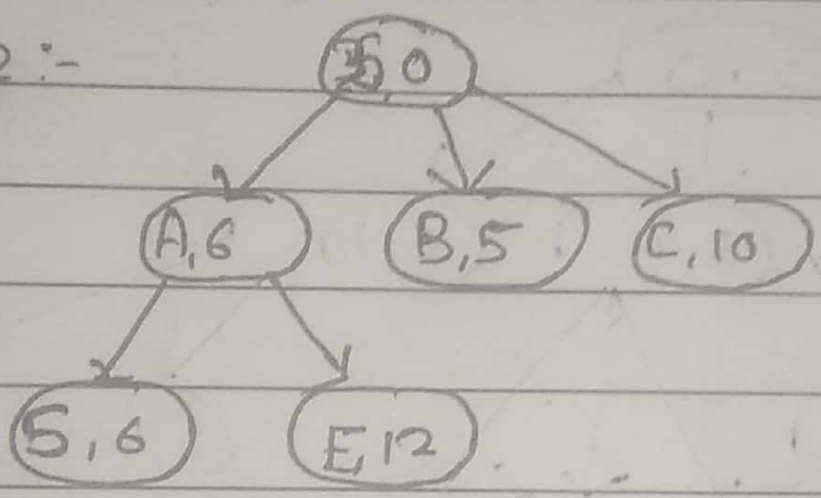
→ Step 0 :-



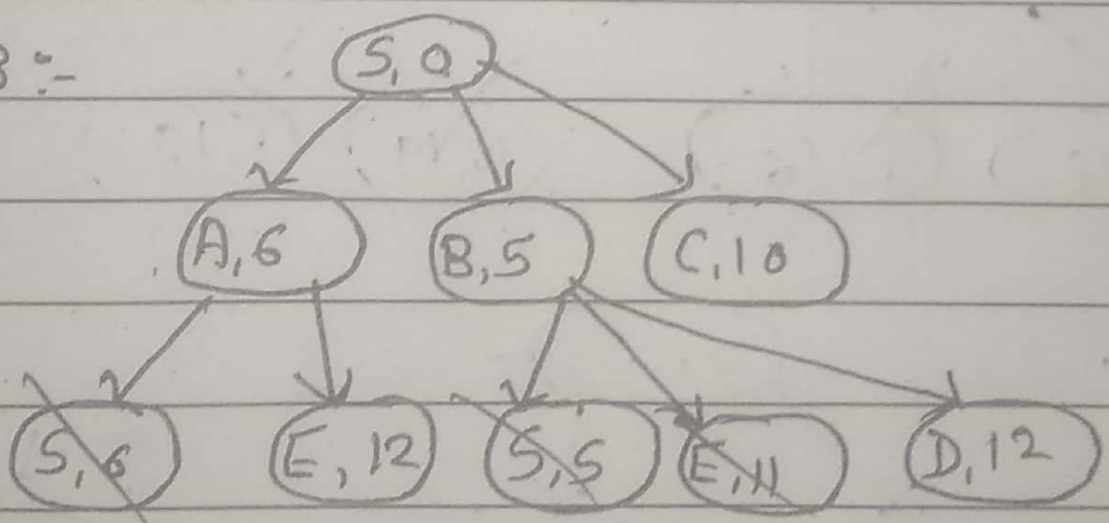
Step 1 :-



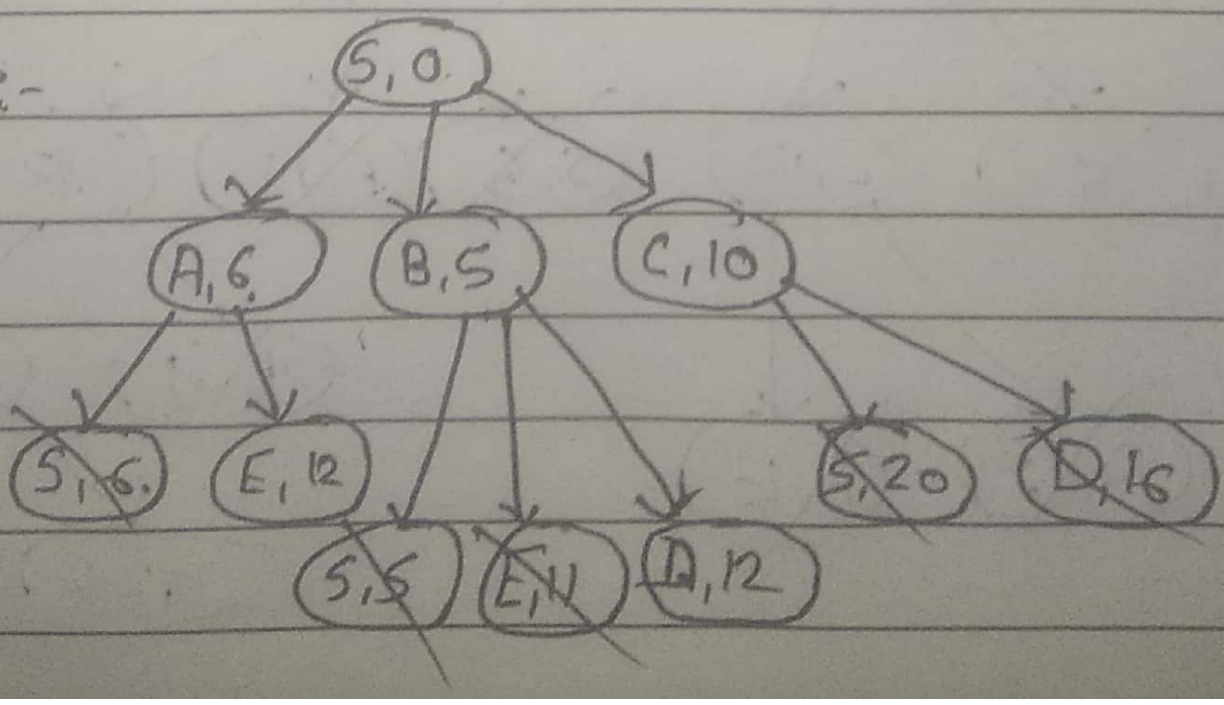
Step 2 :-



Step 3 :-

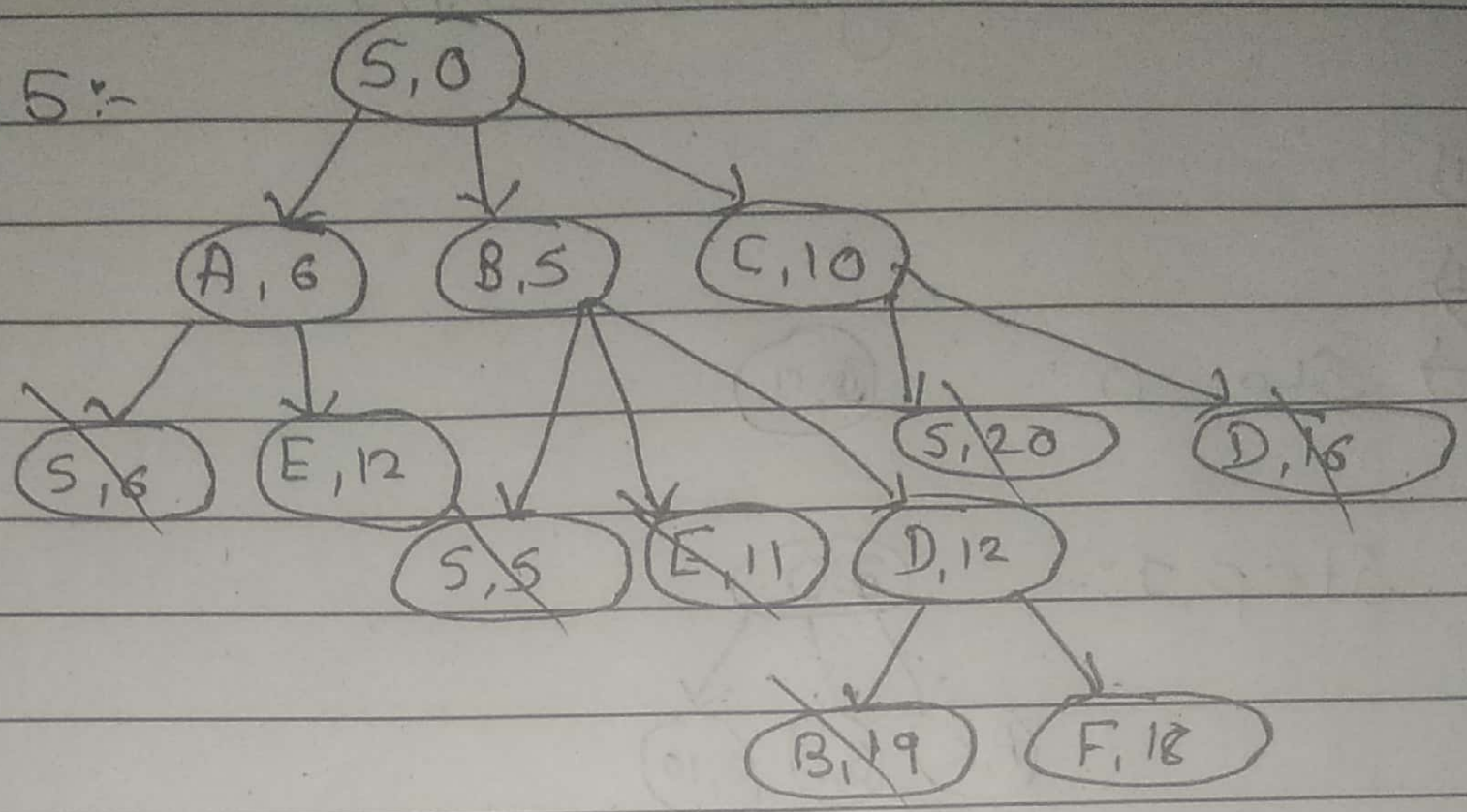


Step 4 :-

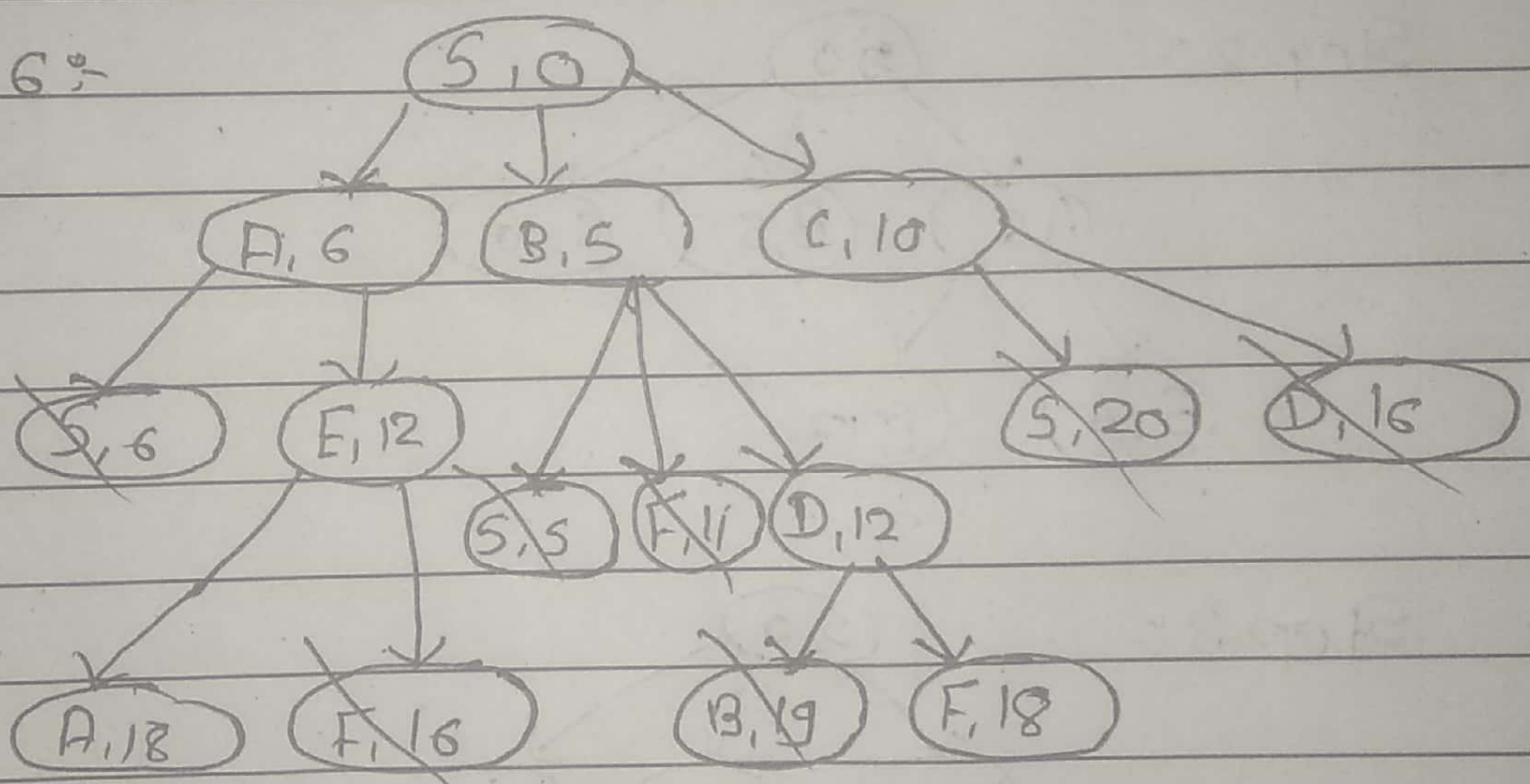


Date :

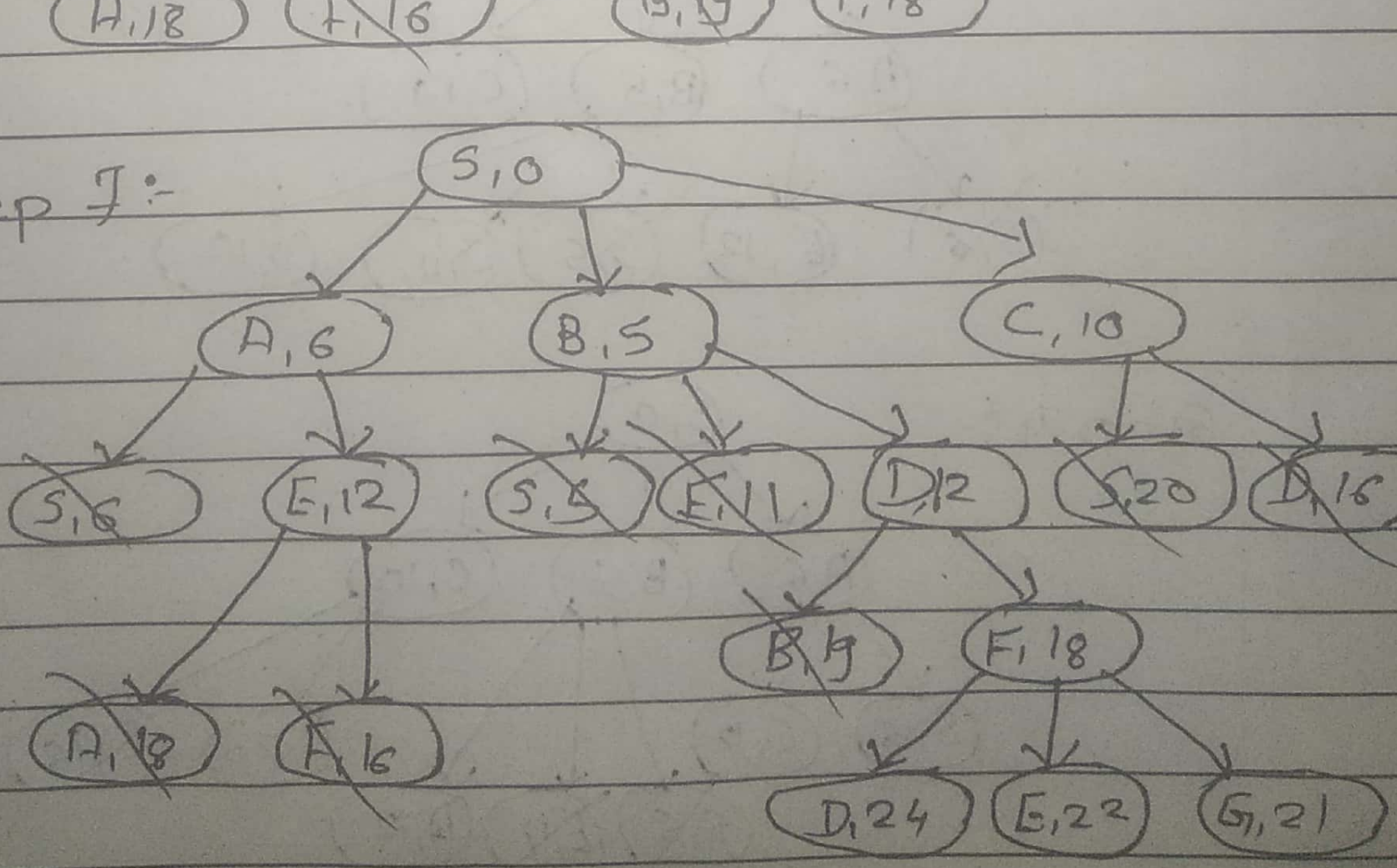
Step 5 :-



Step 6 :-

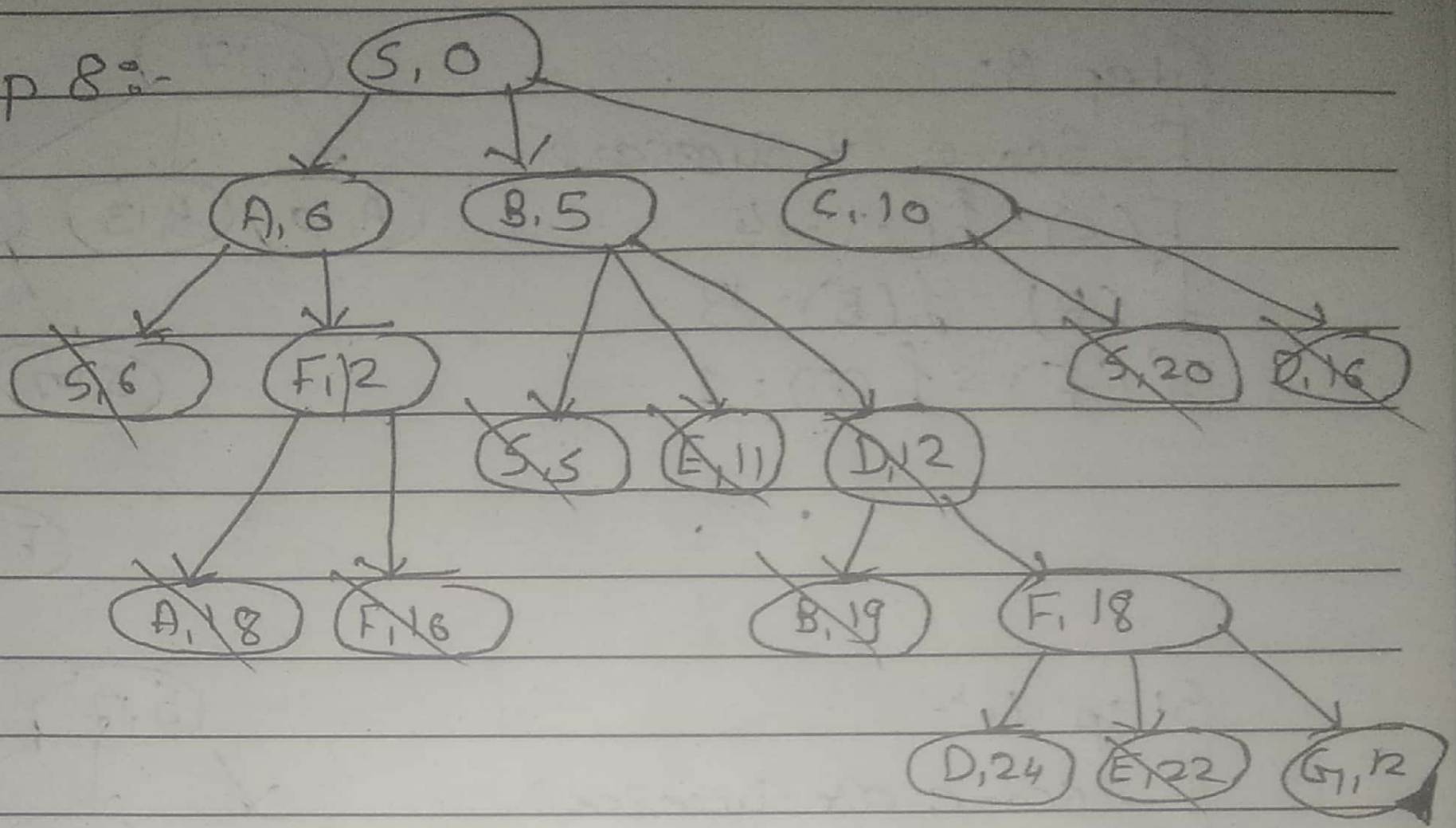


Step 7 :-



Date :

Step 8:-



1.4)

→ Initialigat :- Compute f-score for s & put it in the oper list.

F - Score s : $f(s) = h(s) = 17$ (S, 17)

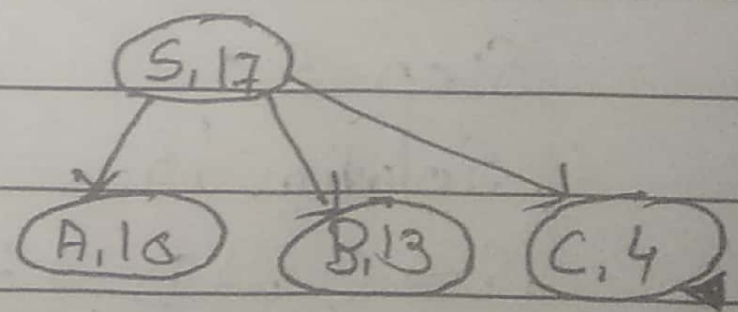
Step 1 :-

F - Score of Success

$f(A) = h(A) = 10$

$f(B) = h(B) = 13$

$f(C) = h(C) = 4$

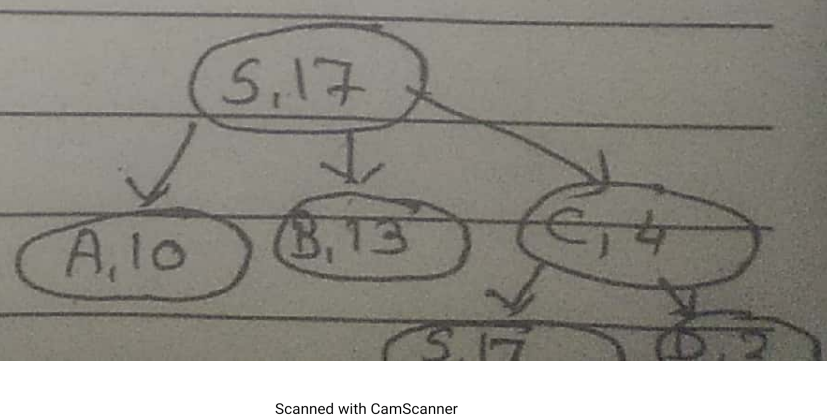


Step 2 :-

f = Score of Successels

$f(S) = h(S) = 17$

$f(D) = h(D) = 2$



Date :

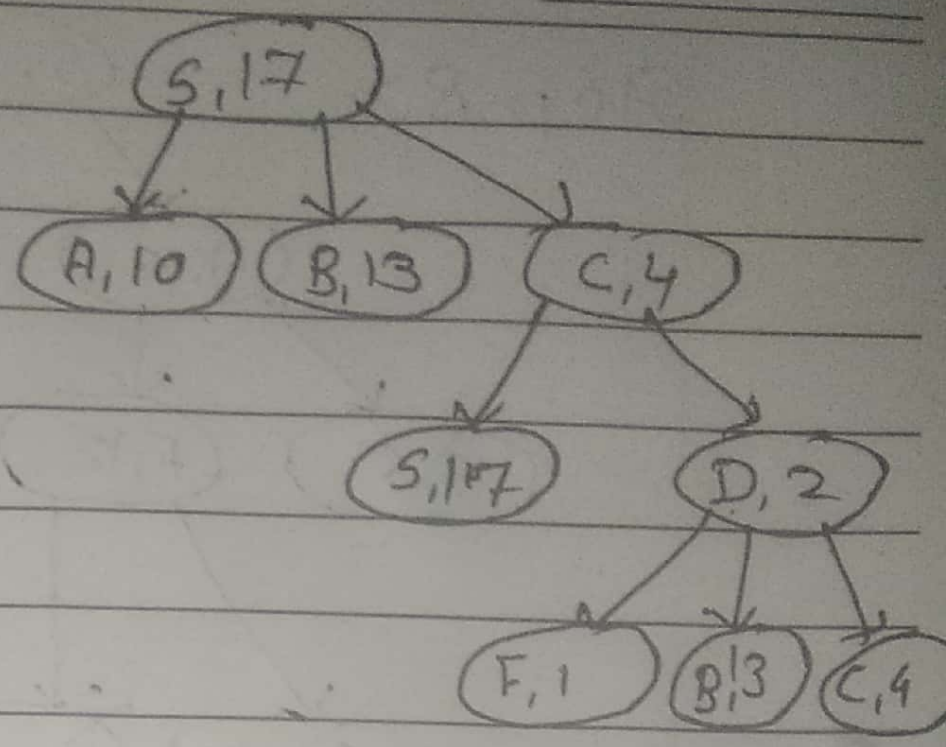
Step 3 :-

F - Score of Sucesses

$F(c) = h(c) = 4$

$f(B) = h(B) = 13$

$f(F) = h(F) = 1$



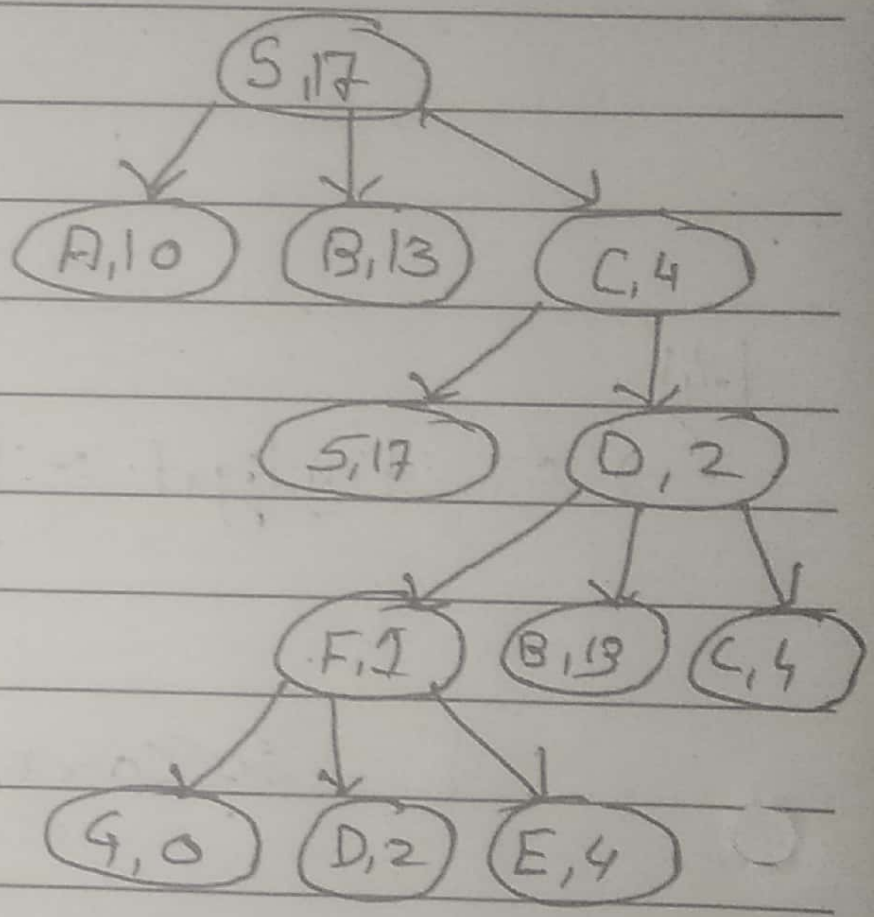
Step 4 :-

F - Score of Sucesses

$f(D) = h(D) = 2$

$f(E) = h(E) = 4$

$f(G) = h(G) = 0$



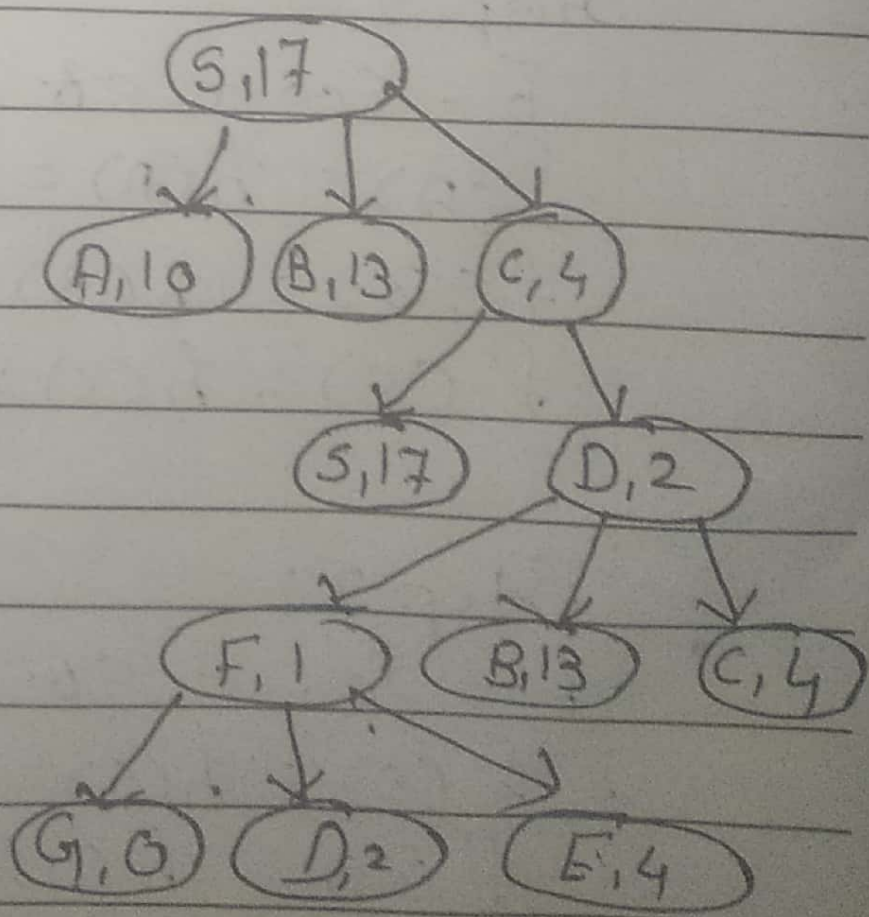
Step 5 :-

Solution is :-

$S \rightarrow C \rightarrow D \rightarrow F \rightarrow G$ with

Solution wgt = 10 + 6 + 6 + 3

= 25



Q.2)

a)

→ The lowest path cost g(n) can is the cost to search the goal configural in least steps

In our case, we can search the final configuredⁿ in at least 4 moves: up, up, LEFT, LEFT. Since all moves are equally costly, we compute g(n) as

$g(n) = 1+1+1+1$

$g(n) = 4$

Consider the following 8- puzzle instance :-

8	7	6
2	1	5
–	3	4

Solution can be represented as :-

{{8,7,6},{2,1,5}{-,3,4}} → {{8,7,6}{2,1,5}, {3,-,4}} →
{{8,7,6}{2,1,5}{3,4,-}} → {{8,7,6}{2,1,-}{3,4,5}} →
{{8,7,-}{2,1,5}{3,4,5}} → {{8,-,7}{2,1,6}{3,4,5}} →
{{-,8,7},{2,1,6},{3,4,5}}

Since all the moves all equally to costly the would be

$g(n) = 6$

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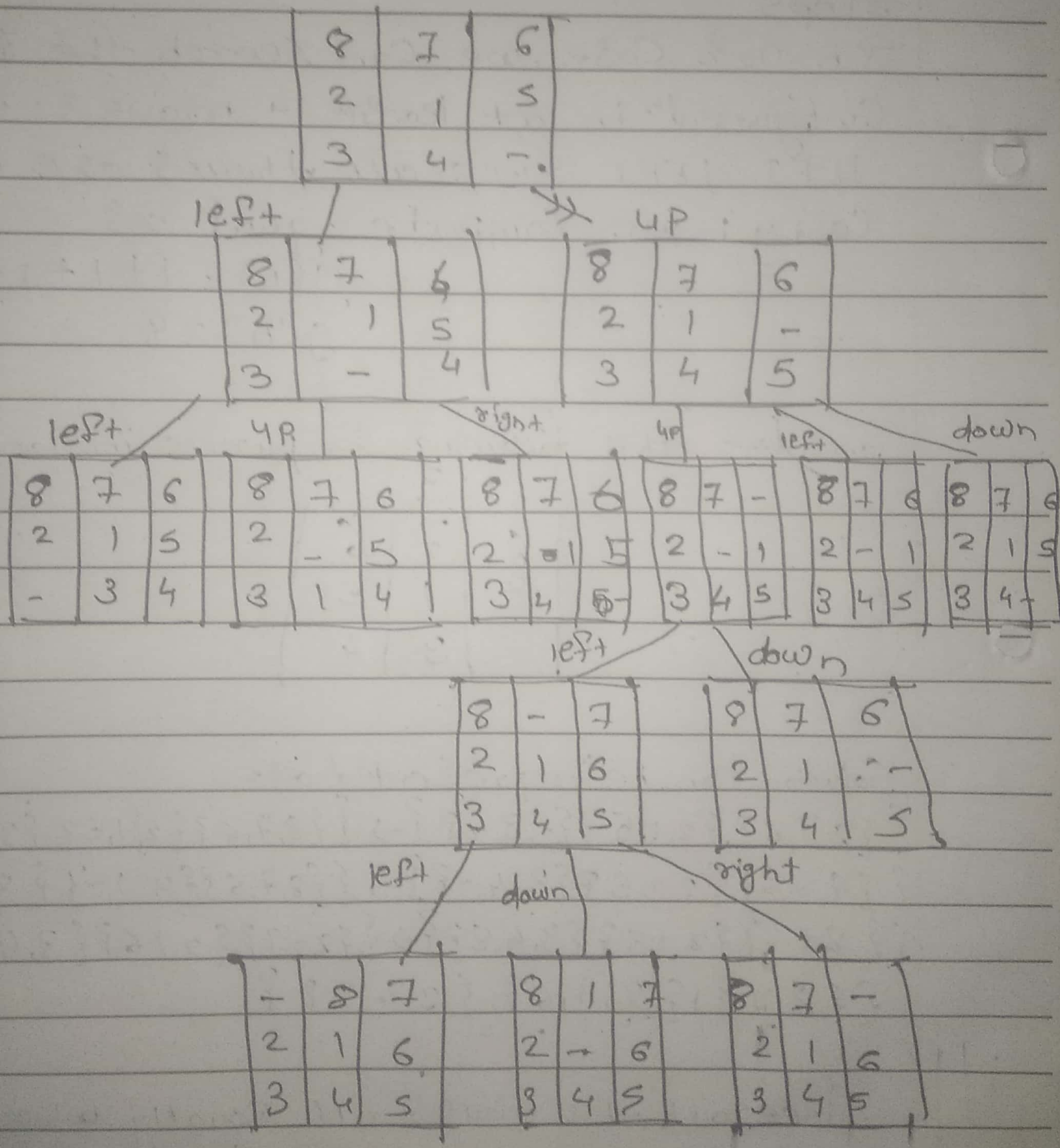
C) Draw exhaustiv state space tree of depth limited to 4 for instance of 8 puzzle problem in the question

→



e)

→ For i = 1, n = initial State

h_1 (initial) = misplaced likes Count expect

h_1 (initial) = 4

n = goal State

h_1 (goal) = 0

For i = 2, n = initial State

h_2 (initial) = Currently Exploced bikes Count except Space

h_2 (initial) = 4

for n = goal State

h_2 (goal) = 8

for i = 3, n = initial State

h_3 (initial) = Sum of manhatian dist Current & Correct of all likes except Space

h_3 (initial) = 0 + 0 + 0 + 0 + 1 + 1 + 1 + 1

= 4

for n = goal State

h_3 (goal) = 0