

Assignment:-1 (CA)

Date : _____

Name:- Sainath Nagrai Patil

Class :- BE-IT

Roll No:- 48

Subject :- JS Lab


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

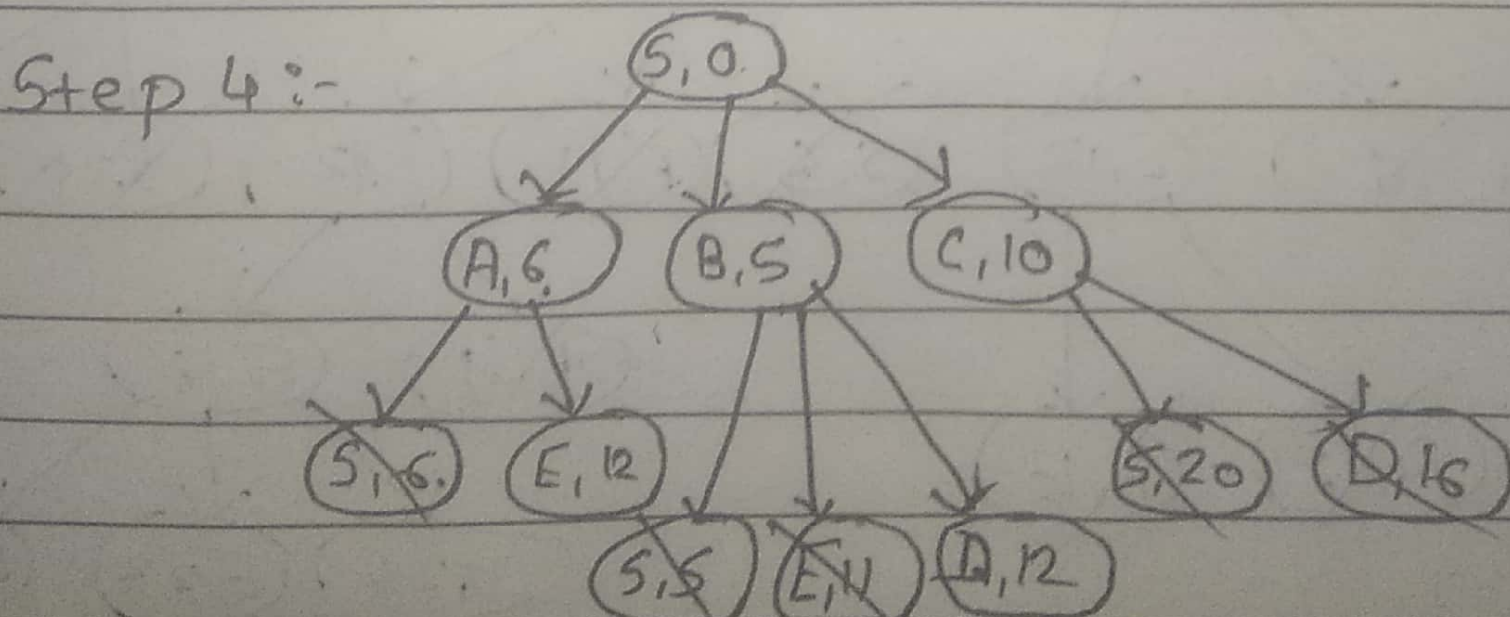
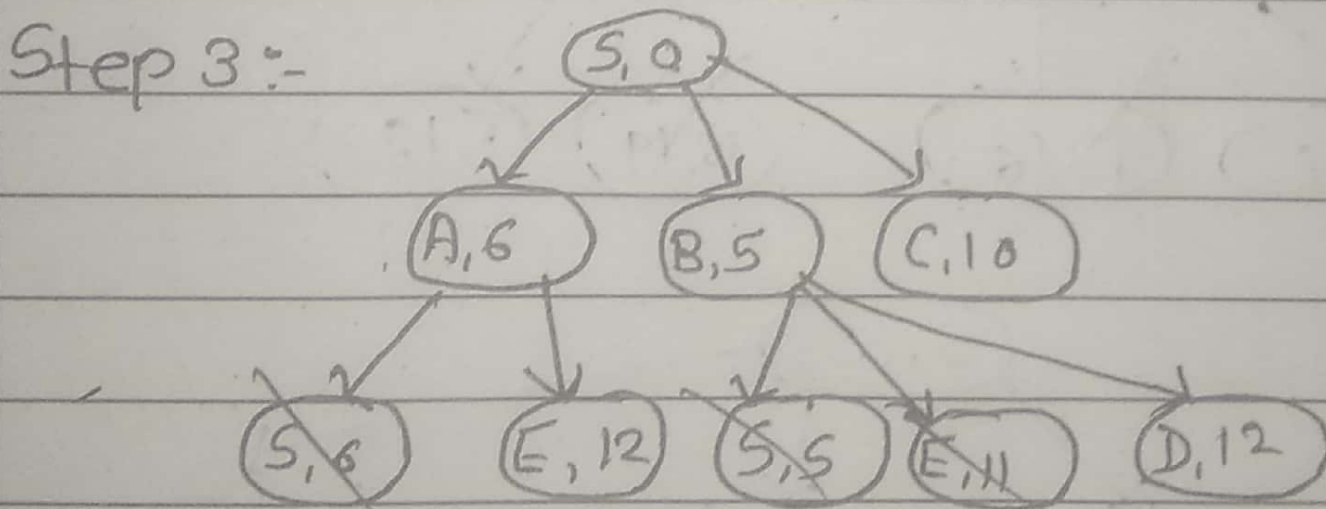
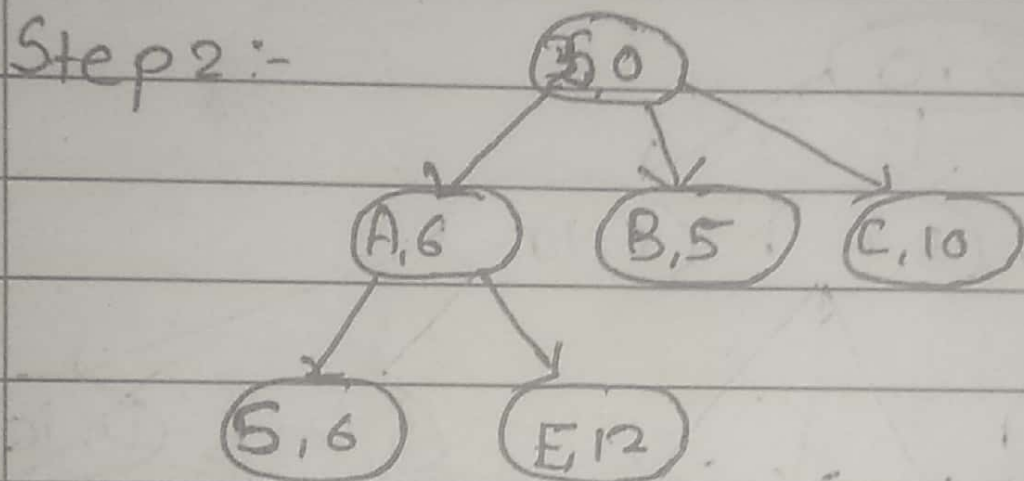
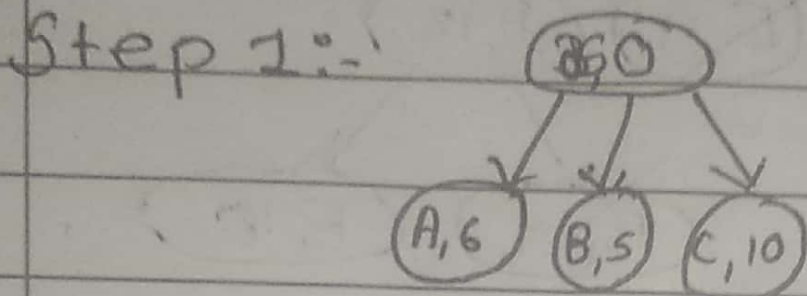
Assignment - 1CA)

Date : _____

Q. 1)

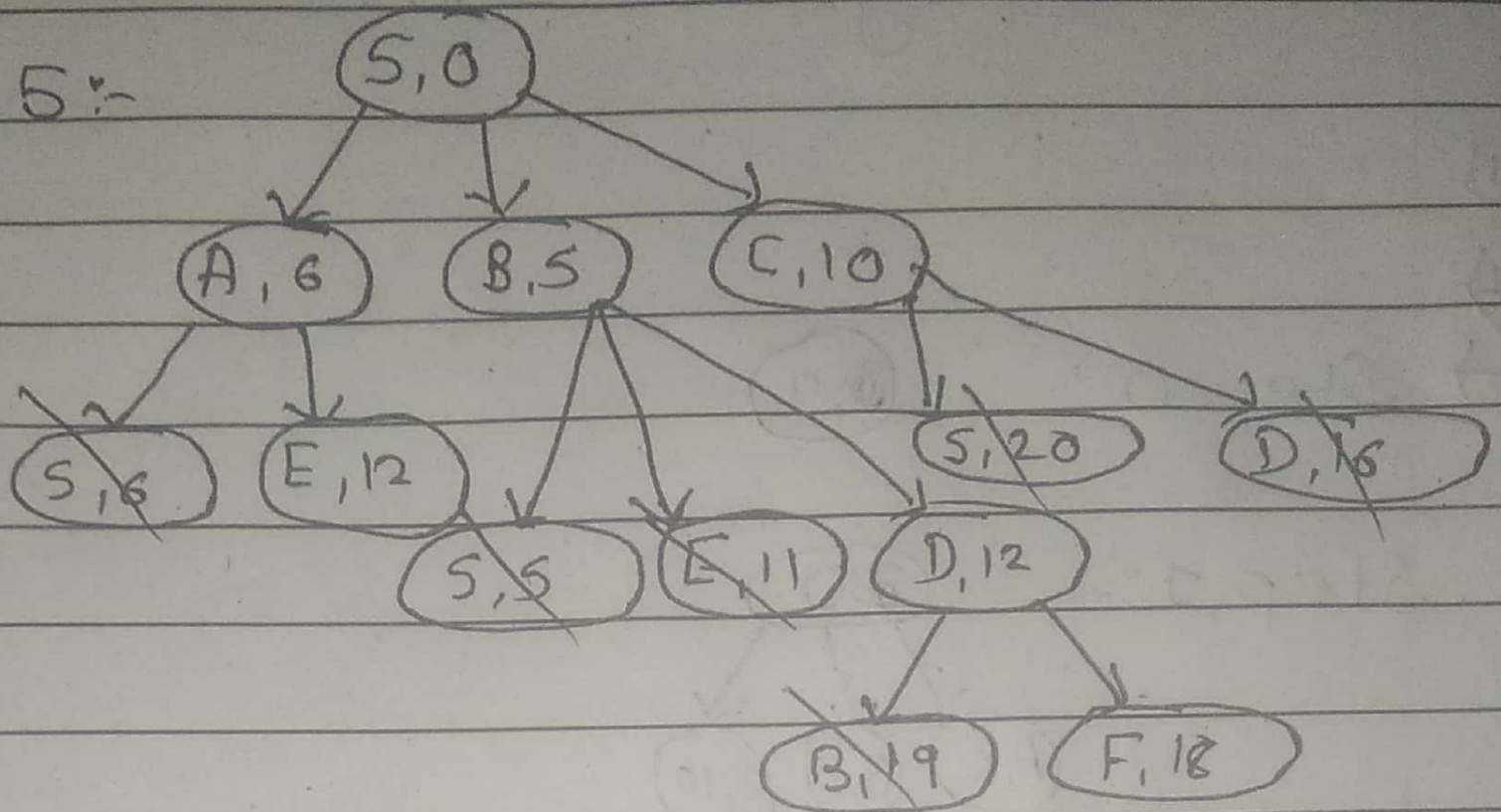
1.1)

→ Step 0 :- 

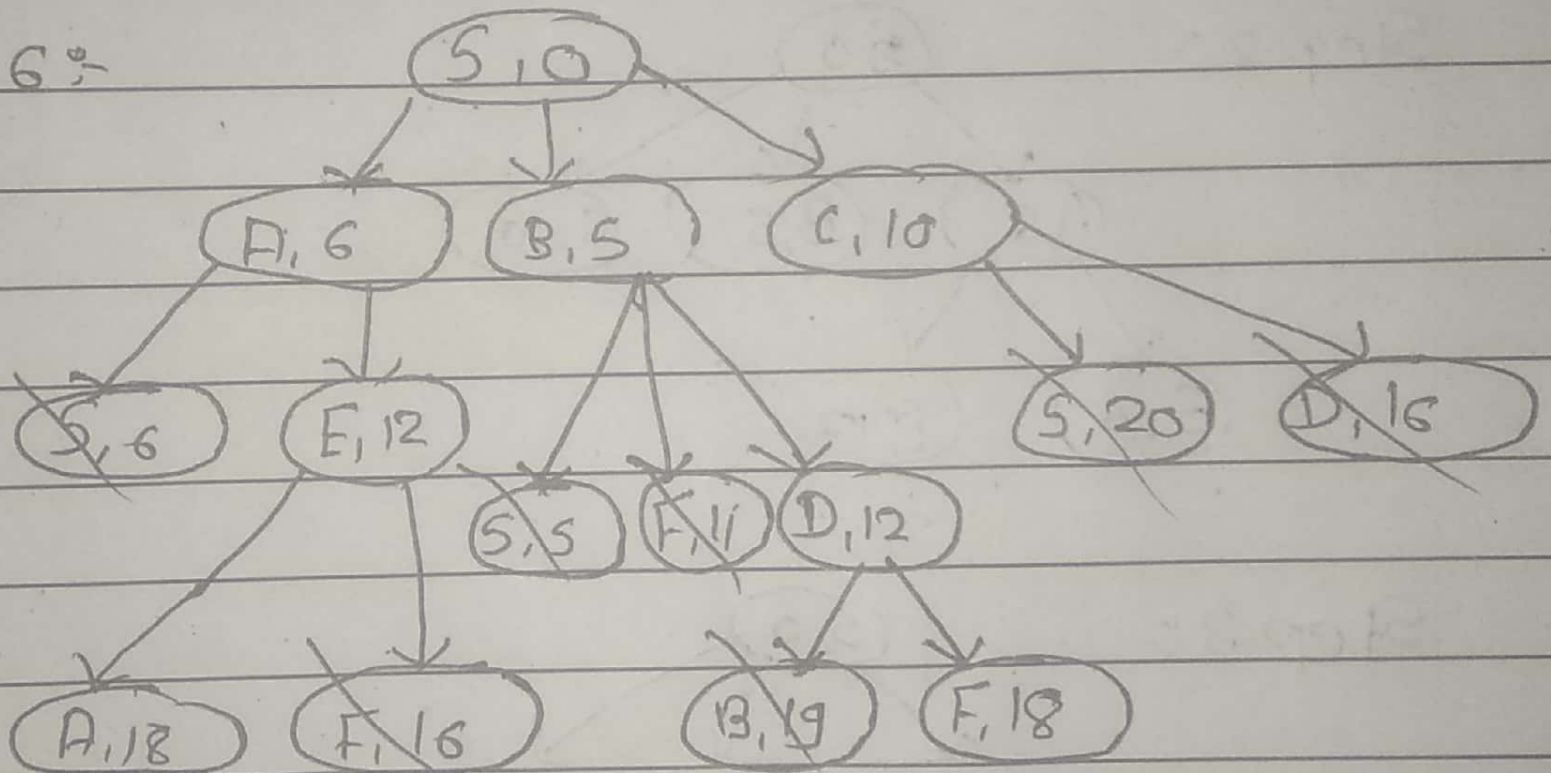


Date : _____

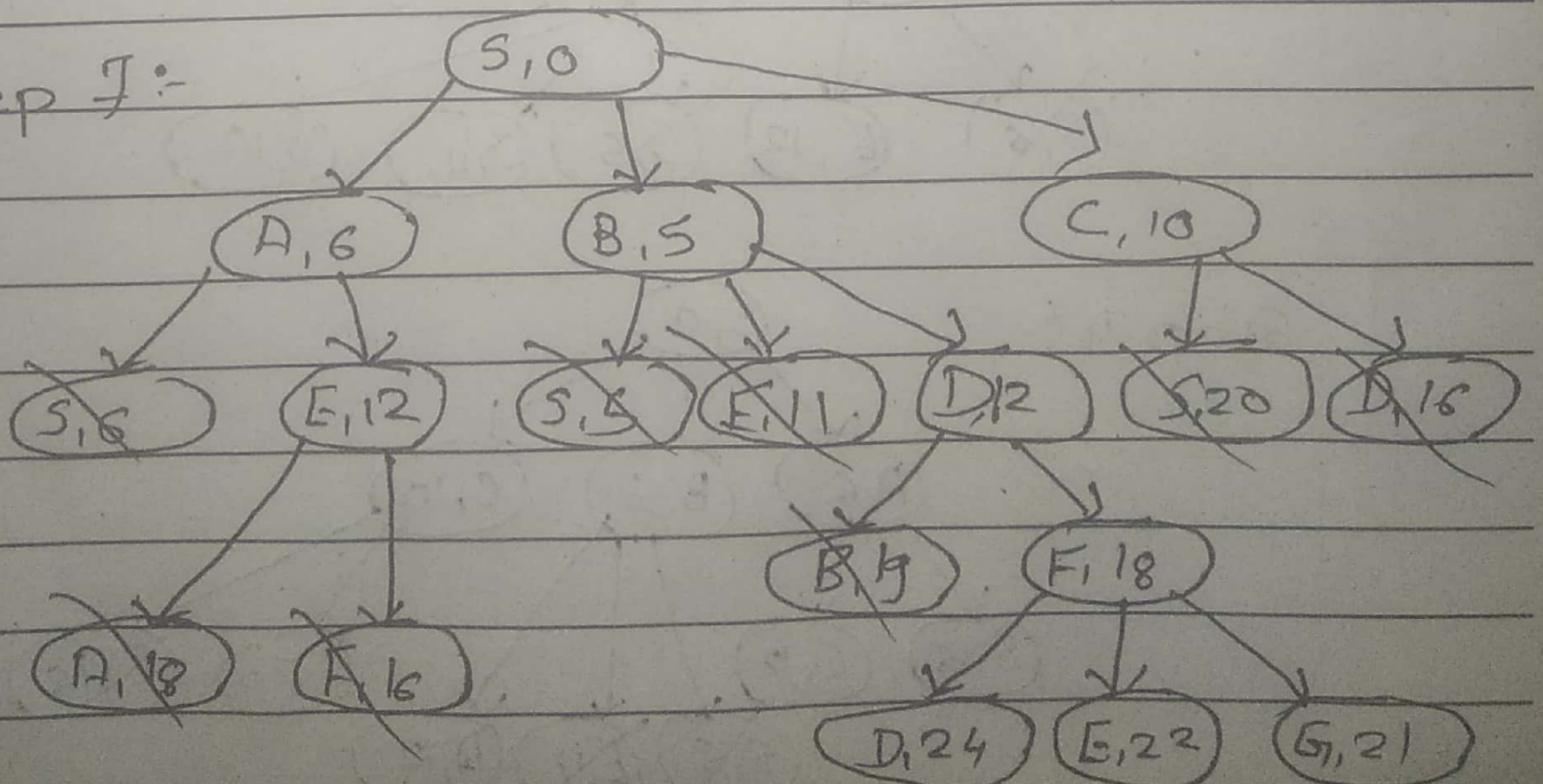
Step 5:-



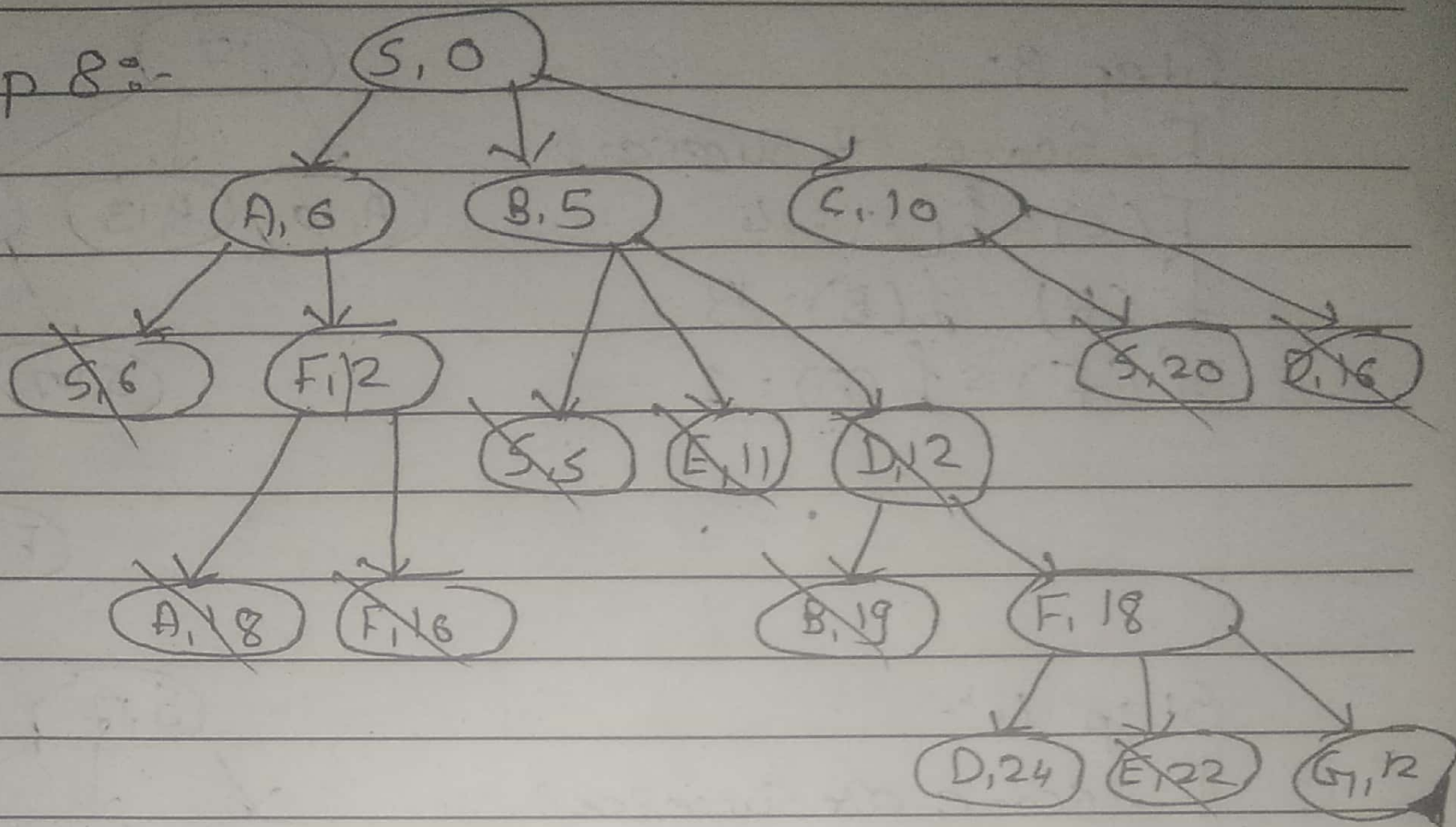
Step 6:-



Step 7:-



Step 8:-



1.4)

→ Initializat :- Compute f-score for S & put it in the openlist.

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

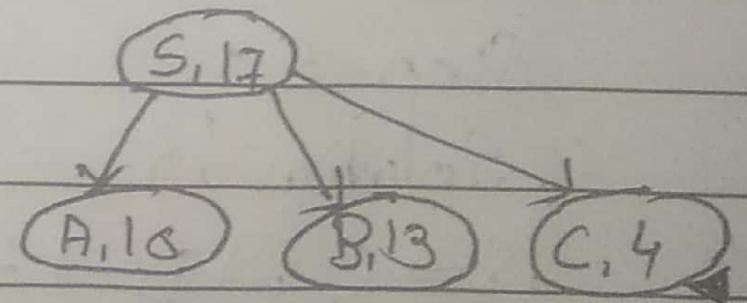
Step 1:-

F - score of Success

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

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

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

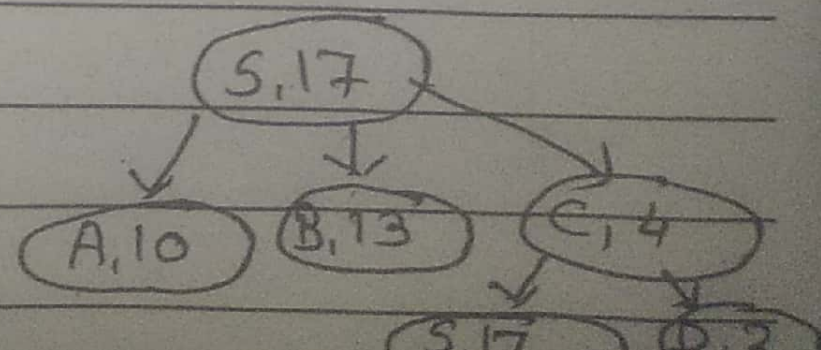


Step 2:-

f = score of Successes

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

$$f(C) = h(C) = 2$$



Date :

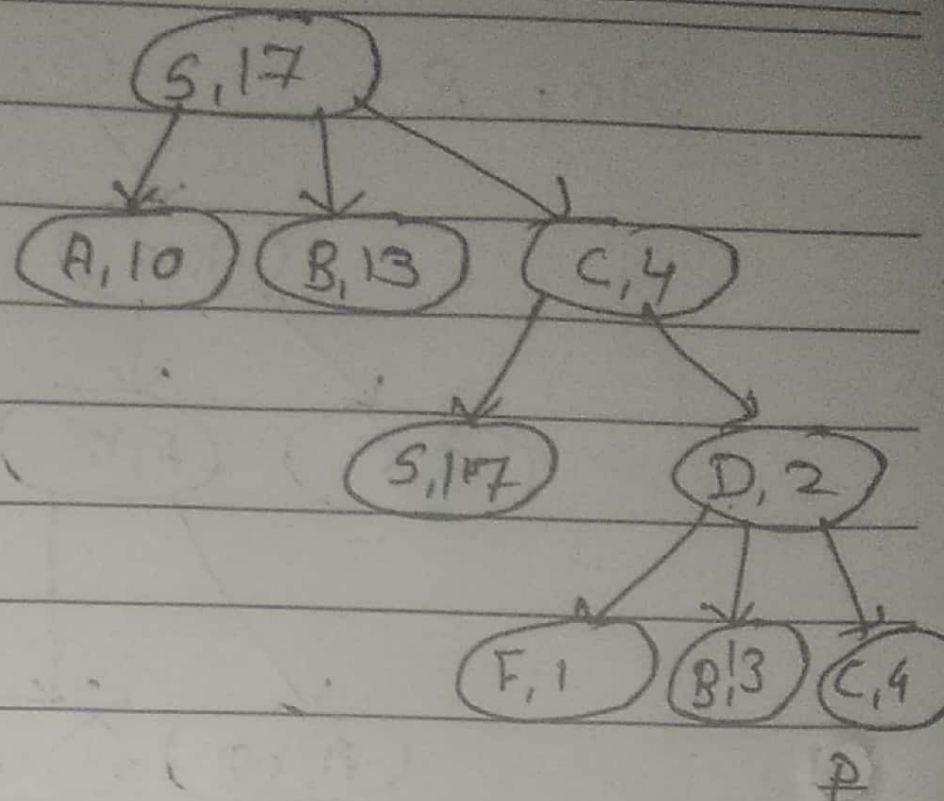
Step 3:-

F-Score of Successes

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

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

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



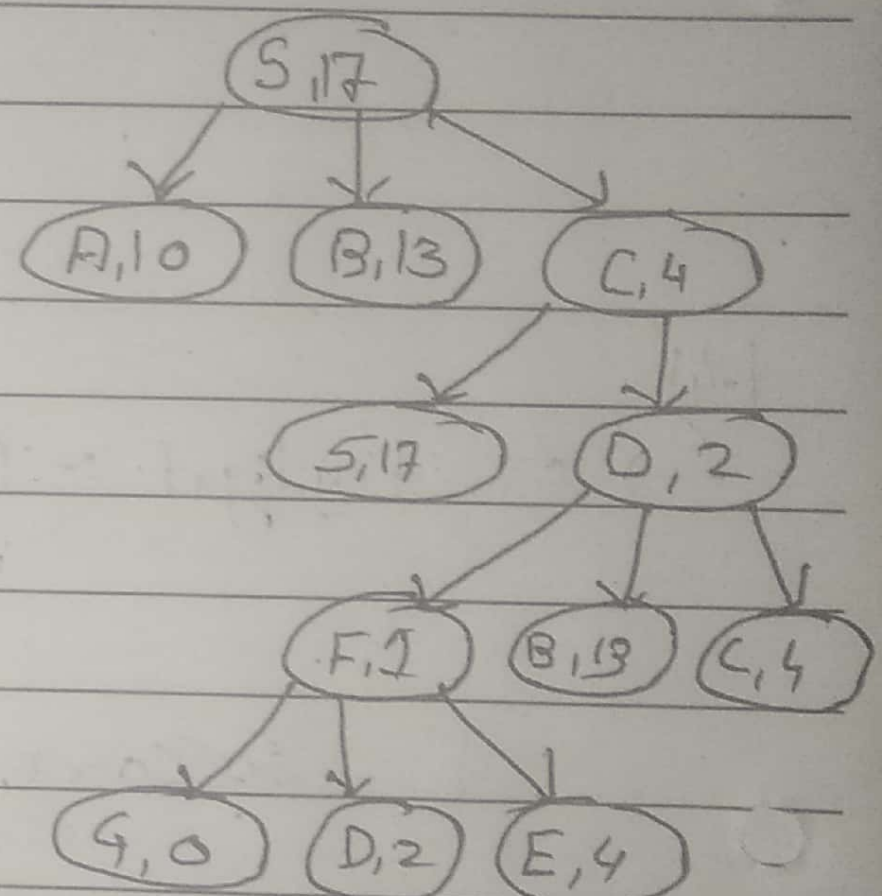
Step 4:-

F-Score of Successes

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

$$f(F) = h(F) = 4$$

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

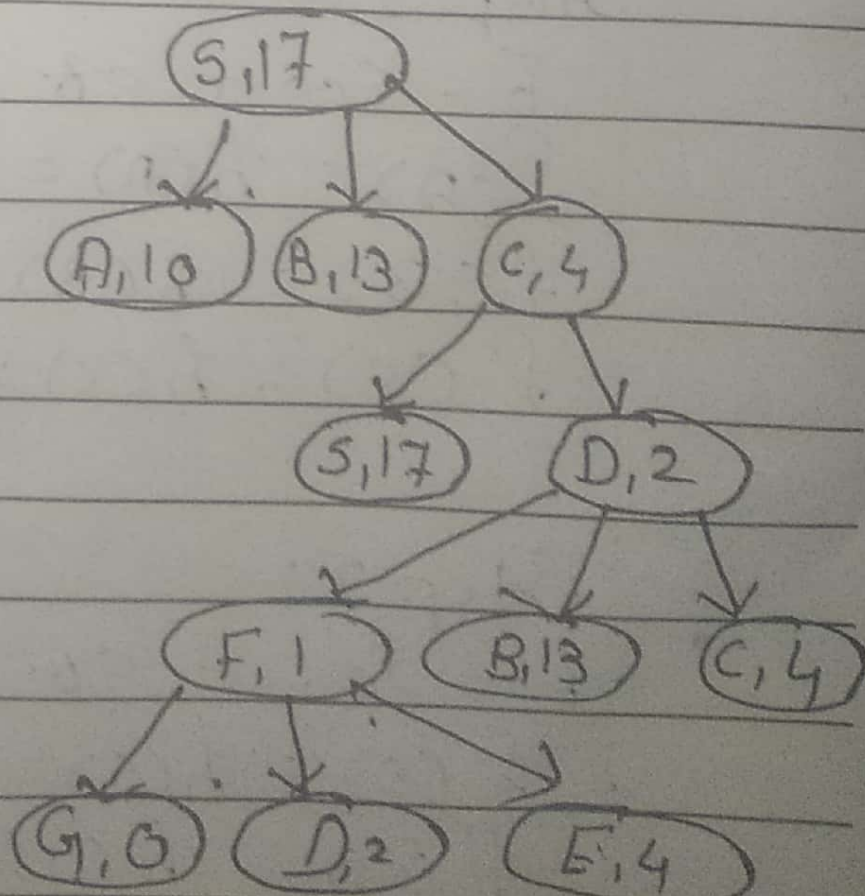


Step 5:-

Solution is:-

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

$$\text{Solution cost} = 10 + 6 + 6 + 3 = 25$$



Q.2)

a)

→ The lowest path with $g(n)$ can is the way to search the goal Configured in least Steps

In our Case, we can search the final Configured 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:-

$\{ \{8, 7, 6\}, \{2, 1, 5\}, \{-, 3, 4\} \} \rightarrow \{ \{8, 7, 6\}, \{2, 1, 5\}, \{3, -, 4\} \}$
 $\{ \{8, 7, 6\}, \{2, 1, 5\}, \{3, 4, -\} \} \rightarrow \{ \{8, 7, 6\}, \{2, 1, -\}, \{3, 4, 5\} \}$
 $\{ \{8, 7, -\}, \{2, 1, 5\}, \{3, 4, 5\} \} \rightarrow \{ \{8, -, 7\}, \{2, 1, 6\}, \{3, 4, 5\} \}$
 $\{ \{8, 7\}, \{2, 1, 6\}, \{3, 4, 5\} \}$

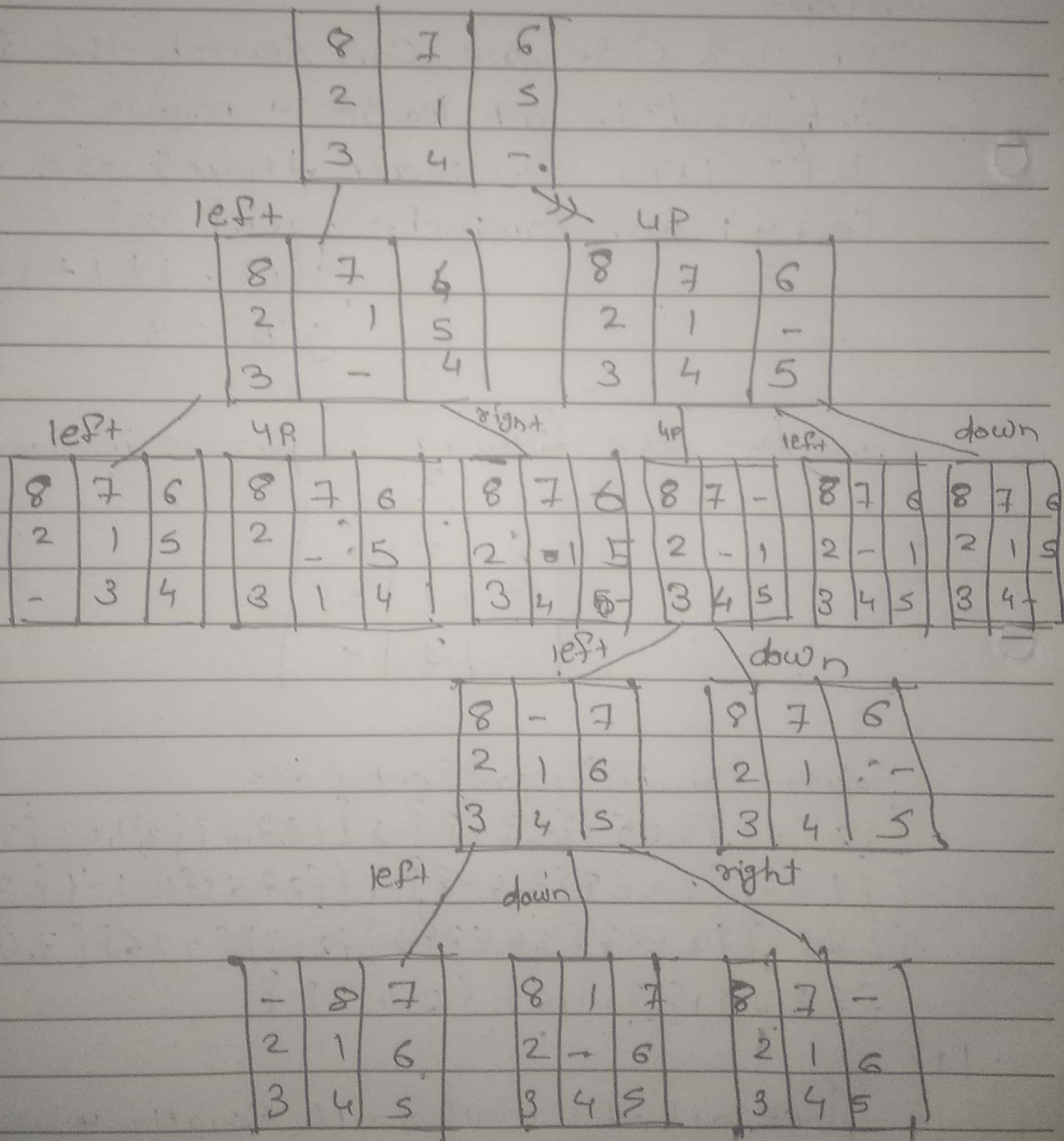
Since all the moves are equally costly the would be

$$g(n) = 6$$

S. po

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

→



e)

For $i = 1$, $n = \text{initial state}$

$h_1(\text{initial}) = \text{misplaced bikes Count except}$

$$h_1(\text{initial}) = 4$$

$n = \text{goal state}$

$$h_1(\text{goal}) = 0$$

For $i = 2$, $n = \text{initial state}$

$h_2(\text{initial}) = \text{Currently Explaced bikes Count except space}$

$$h_2(\text{initial}) = 4$$

for $n = \text{goal state}$

$$h_2(\text{goal}) = 8$$

For $i = 3$, $n = \text{initial state}$

$h_3(\text{initial}) = \text{Sum of Manhattan dist + Current \& Current of all bikes except space}$

$$h_3(\text{initial}) = 0 + 0 + 0 + 0 + 1 + 1 + 1 + 1 = 4$$

for $n = \text{goal state}$

$$h_3(\text{goal}) = 0$$