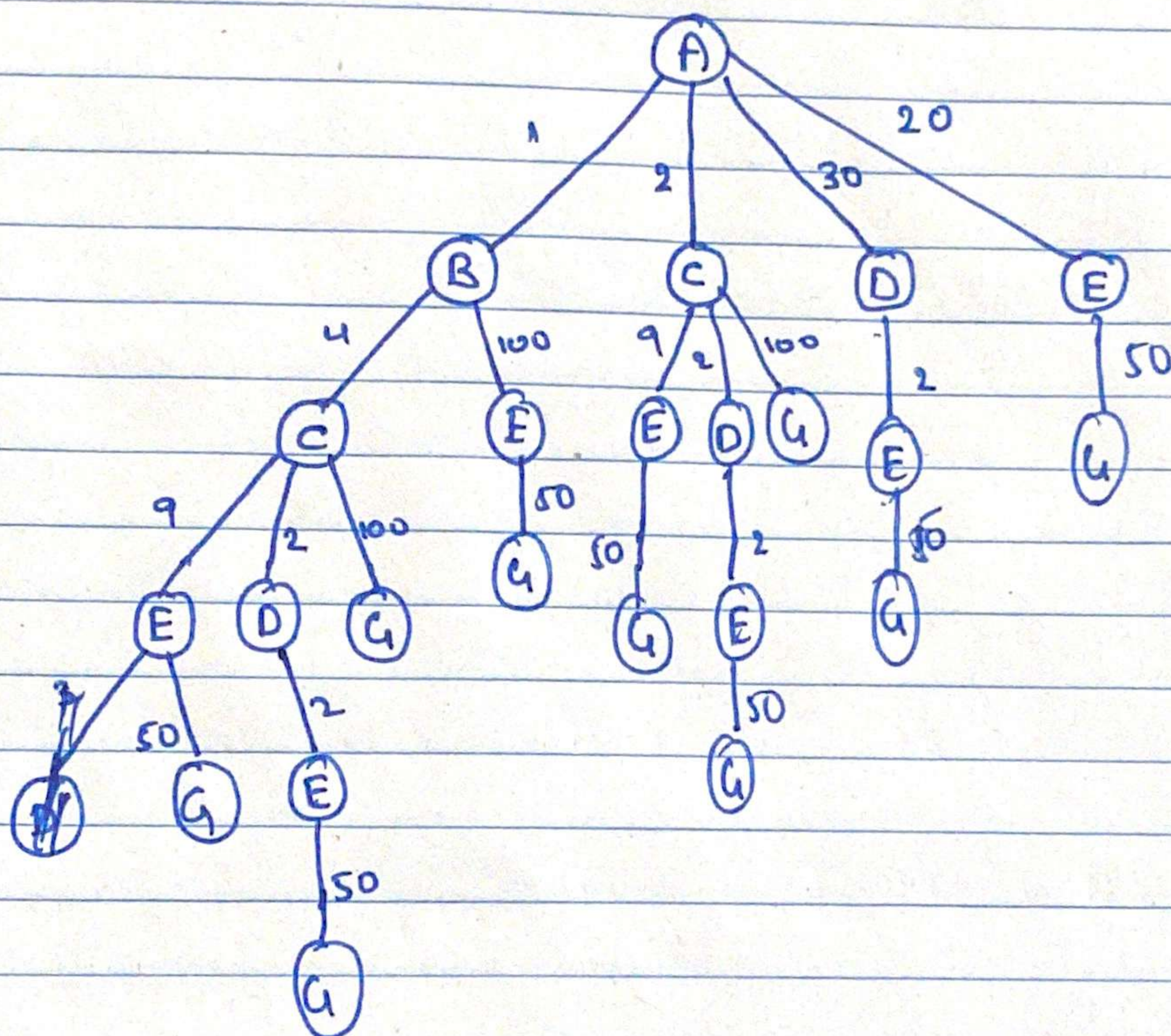


1)

(a) DFS



$$A \rightarrow B \rightarrow C \rightarrow E \rightarrow G = 64$$

$$A \rightarrow B \rightarrow C \rightarrow D \rightarrow E \rightarrow G = 59$$

$$A \rightarrow B \rightarrow C \rightarrow G = 105$$

$$A \rightarrow B \rightarrow E \rightarrow G = 151$$

$$A \rightarrow C \rightarrow E \rightarrow G = 61$$

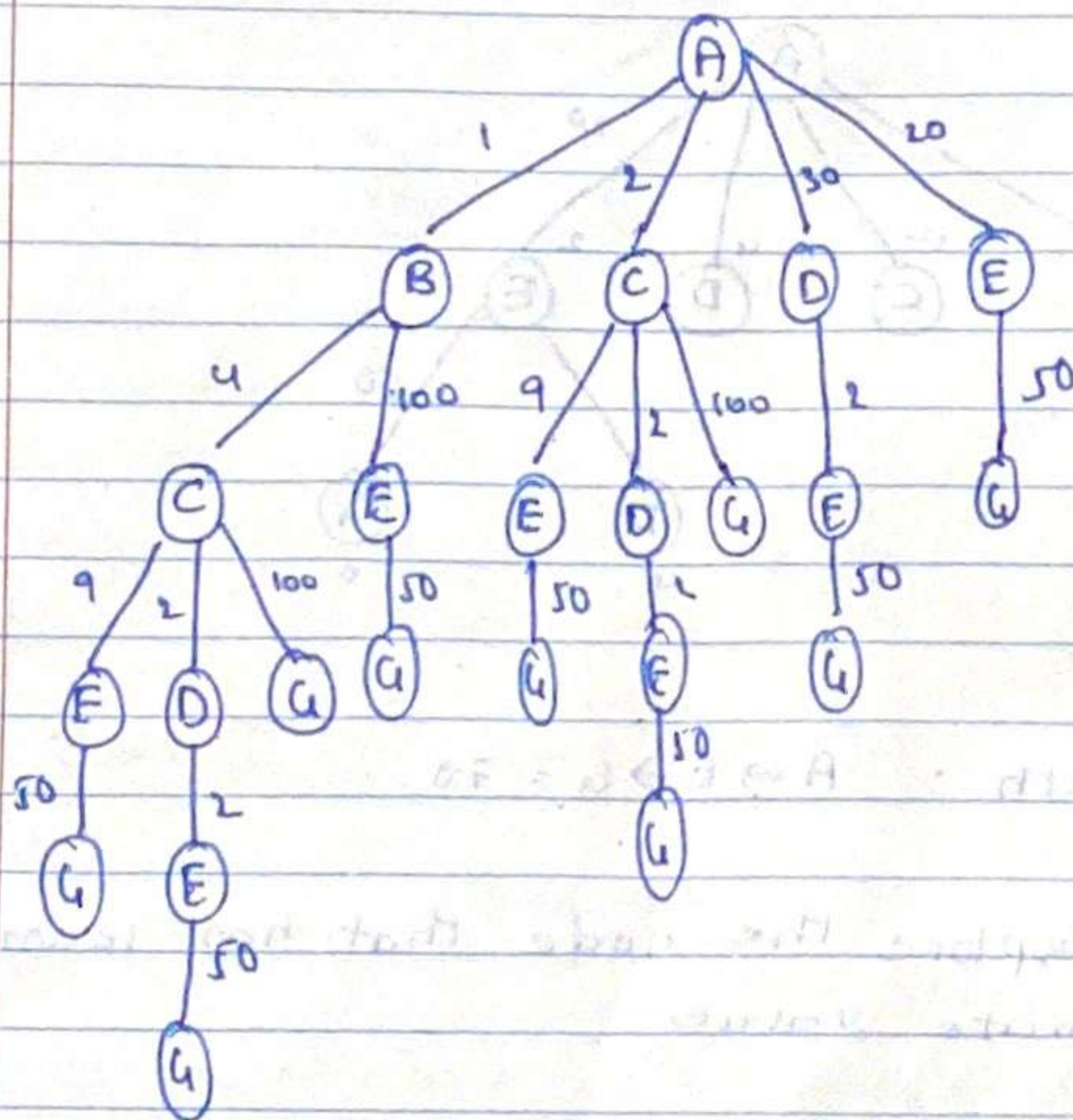
$$A \rightarrow C \rightarrow D \rightarrow E \rightarrow G = 56$$

$$A \rightarrow C \rightarrow G = 102$$

$$A \rightarrow D \rightarrow E \rightarrow G = 82$$

$$A \rightarrow E \rightarrow G = 70$$

(b) BFS



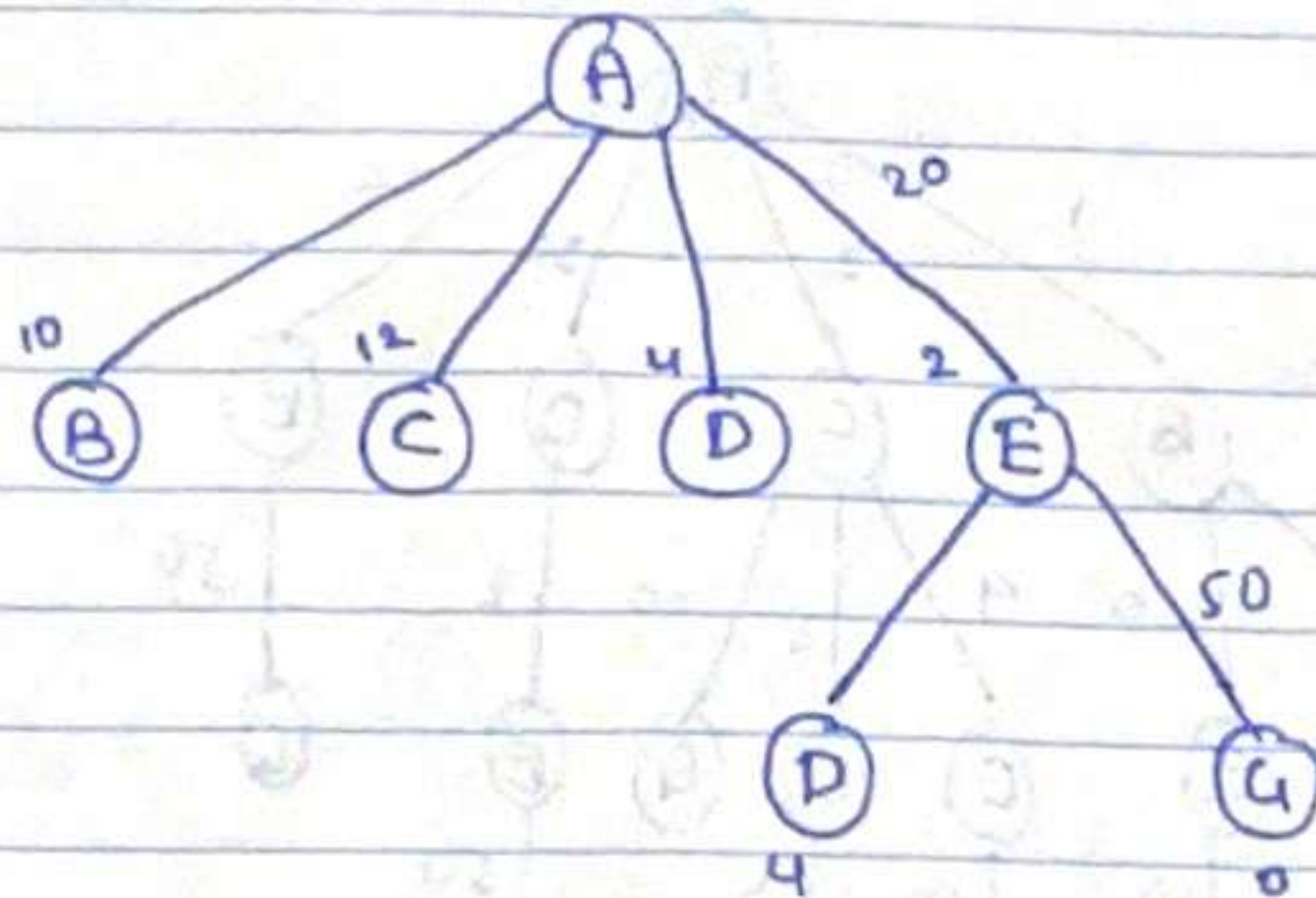
→ To traverse the graph as soon as possible to root

→ It will go by level-by-level

→ not a efficient one

→ $A \rightarrow E \rightarrow G = 50$

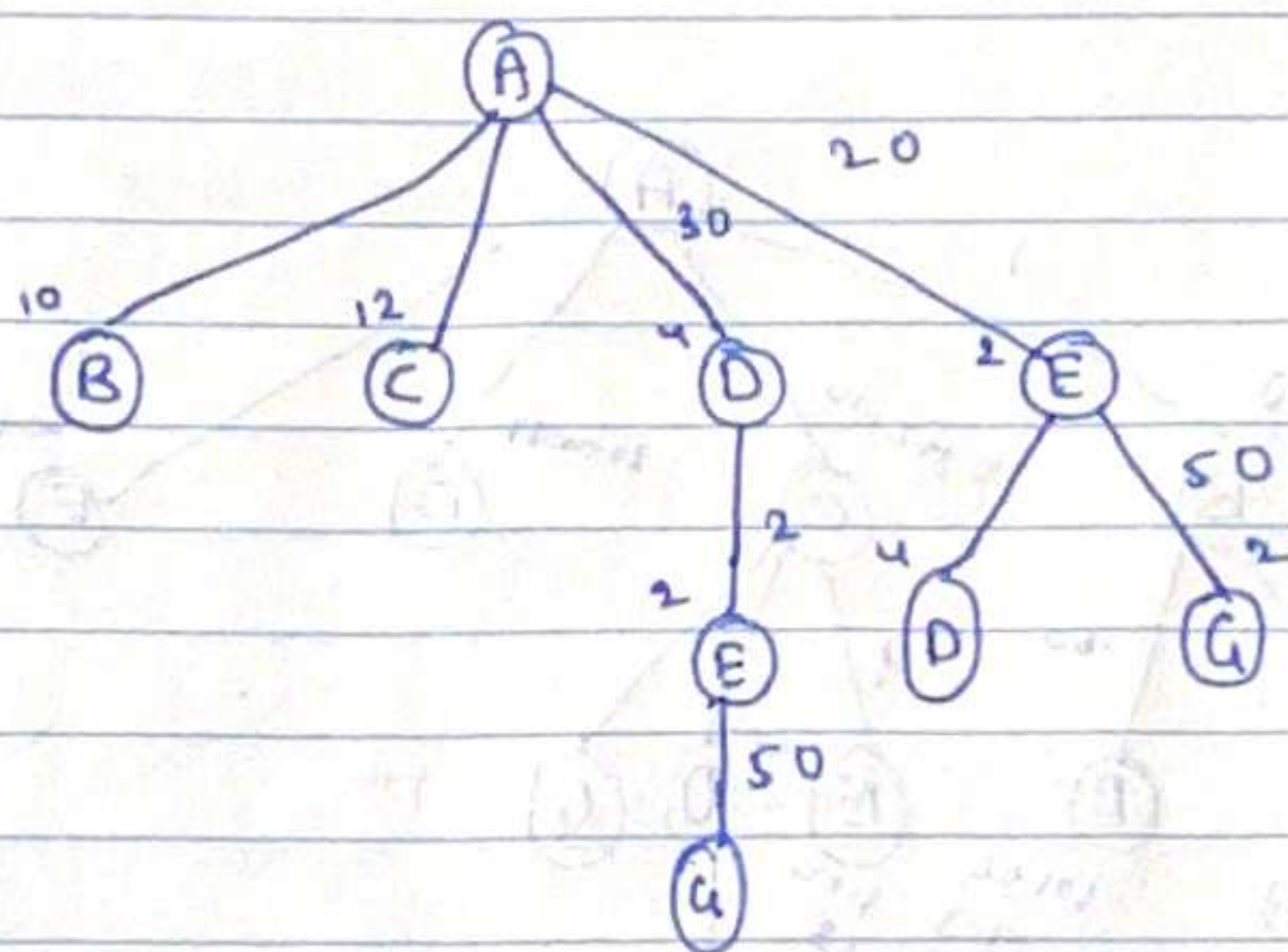
(c) Hill Climbing



Shortest Path : $A \rightarrow E \rightarrow G = 70$

It will explore the node that has least underestimate value

(d) Beam Search with $k=2$



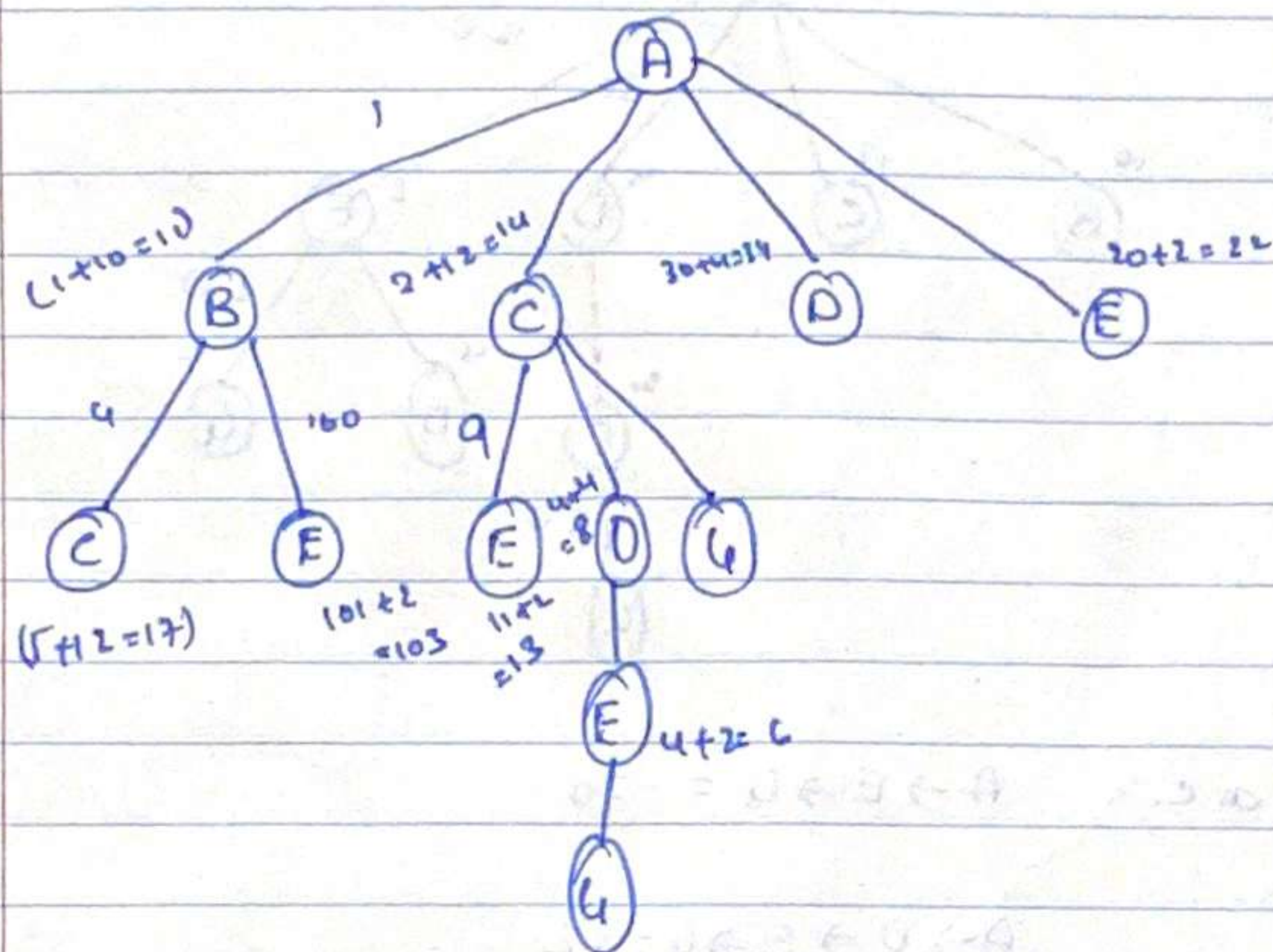
Paths are $A \rightarrow E \rightarrow G = 70$

$A \rightarrow D \rightarrow E \rightarrow G = 82$

As given $k=2$ we should explore two nodes with least underestimate value.

(e) Branch and Bound

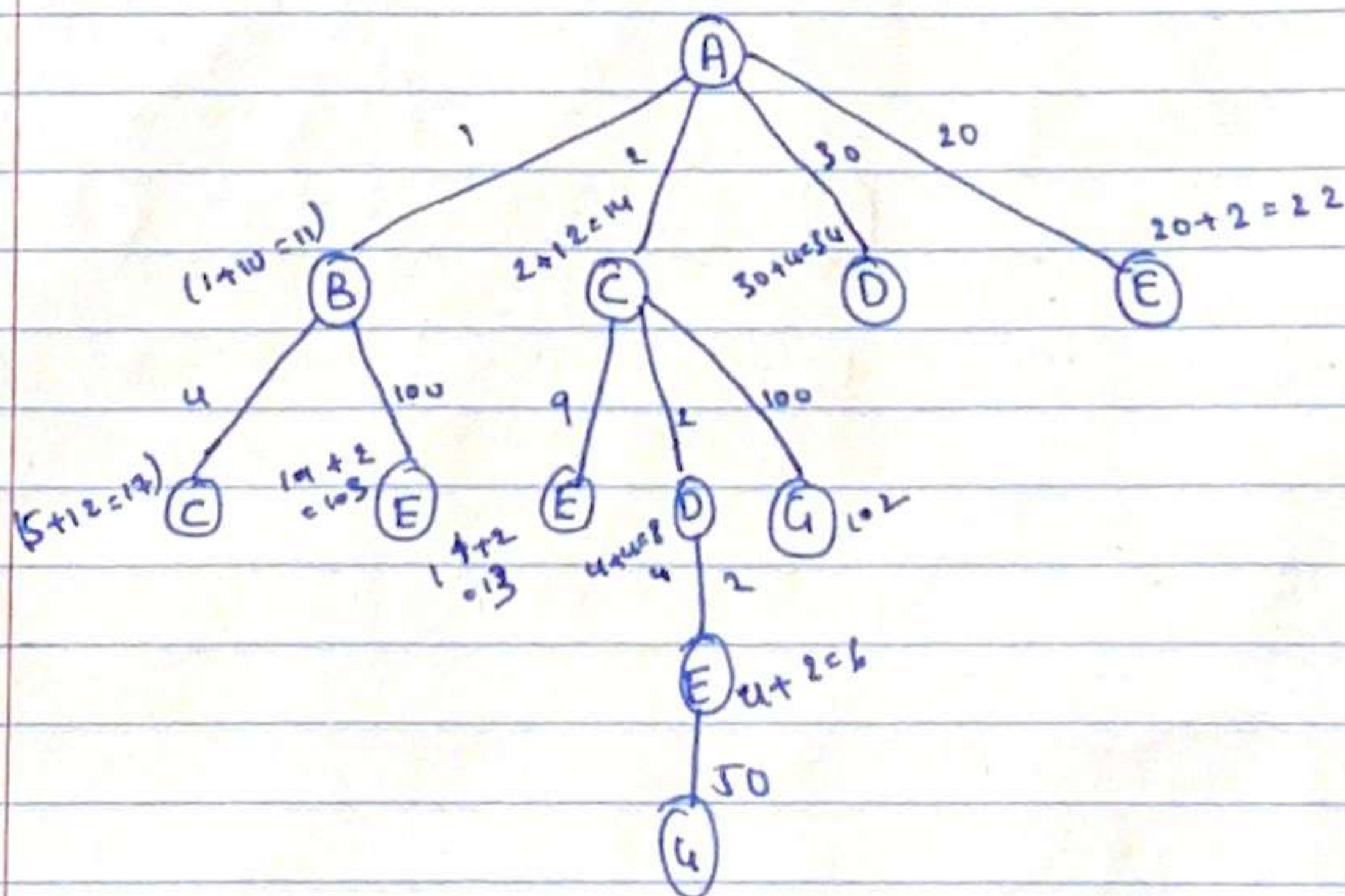
with estimated



$A \rightarrow C \rightarrow D \rightarrow E \rightarrow G = 56$

(P) A*

$f(n) = g(n) + h(n) \rightarrow$ Estimation cost
from n to Goal node
 \downarrow
Actual cost
from start node
to n



$A \rightarrow C \rightarrow D \rightarrow E \rightarrow G = 56$

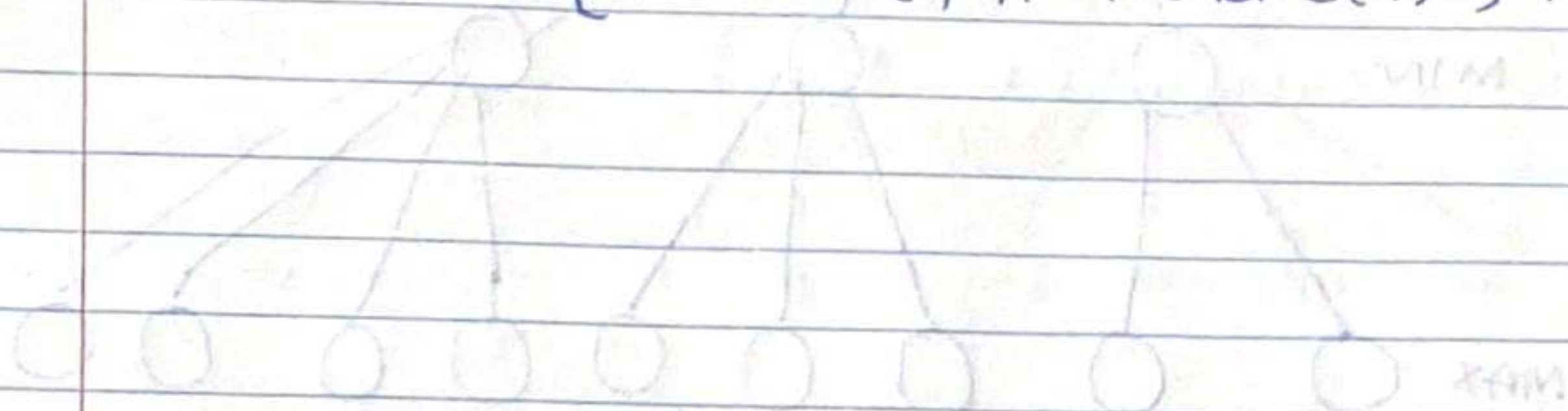
(h) Breadth first search - traverse the graph as soon as possible to leaf node.

2)

$$\forall x, [\text{Bud}(x) \wedge (\text{Bud}(x, \text{exercise}) \Rightarrow \text{monk}(x))]$$

$$\forall x, [\text{monk}(x) \wedge \text{Bud}(x) \Rightarrow \text{mediate}(x)]$$

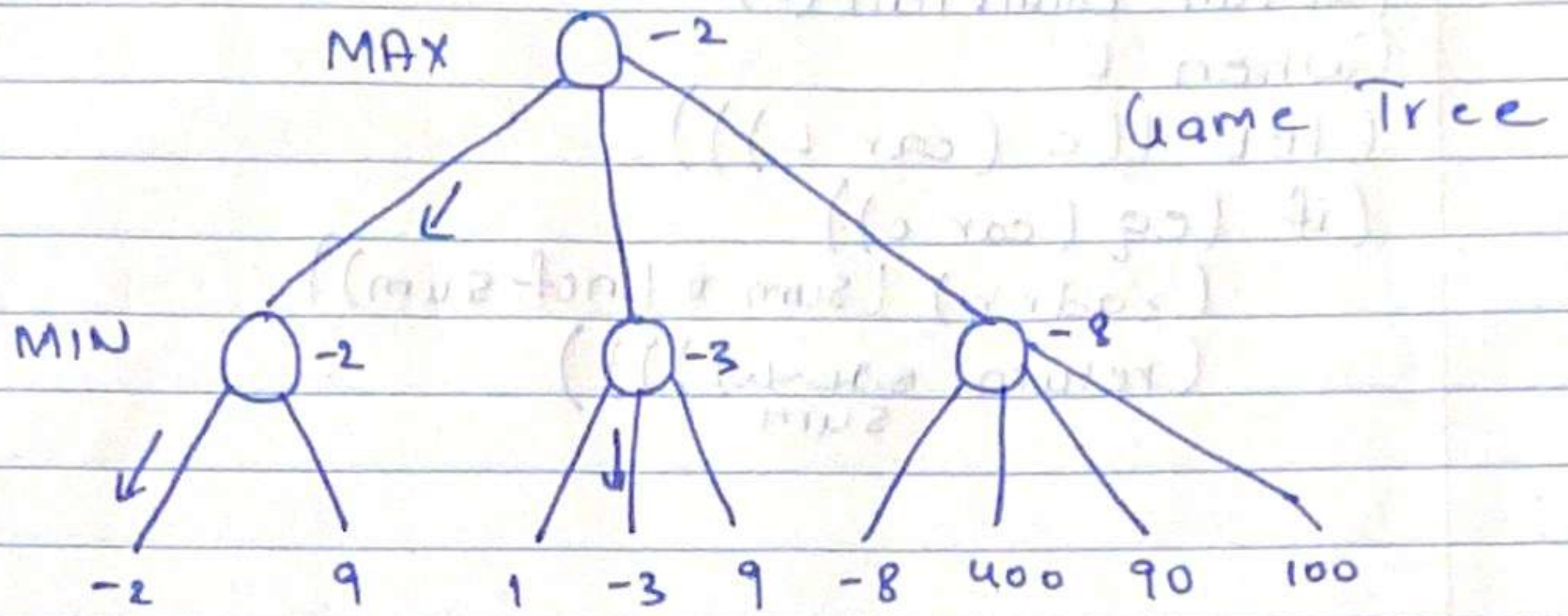
$$\forall x \text{ people}(x) [\text{exercise}(x) \wedge \text{mediate}(x) \Rightarrow \text{longer}(x)]$$



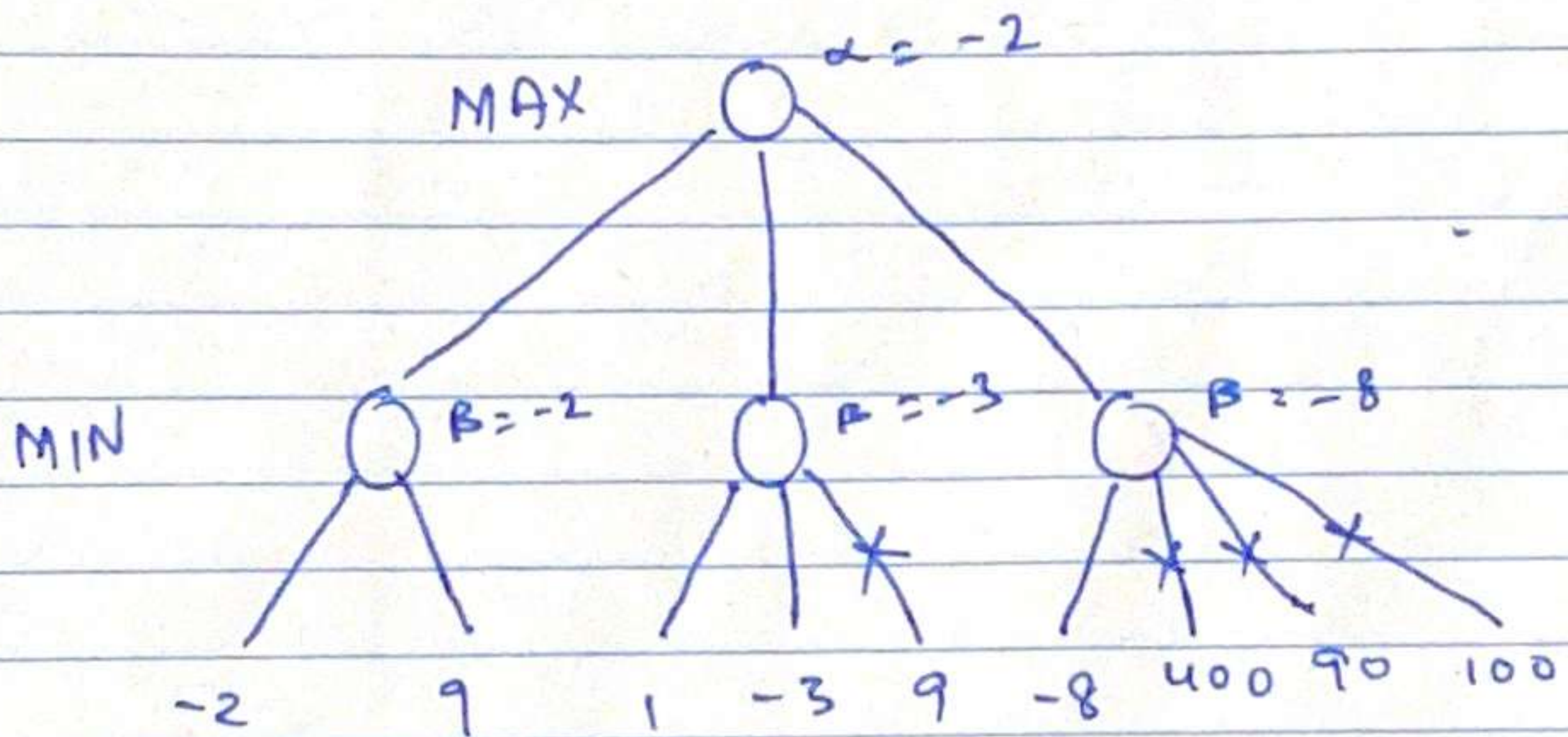
OP 000 3 - P 2 - 1 - P 5 -

3

(a)



(b)



4)

```
(defun countTail (L)
  (when L
    (let ((c (car L)))
      (if (eq (car c))
          (cadr c) (sum o (incf sum)))
        (return car sum))))
```

