CS5100 MidTerm

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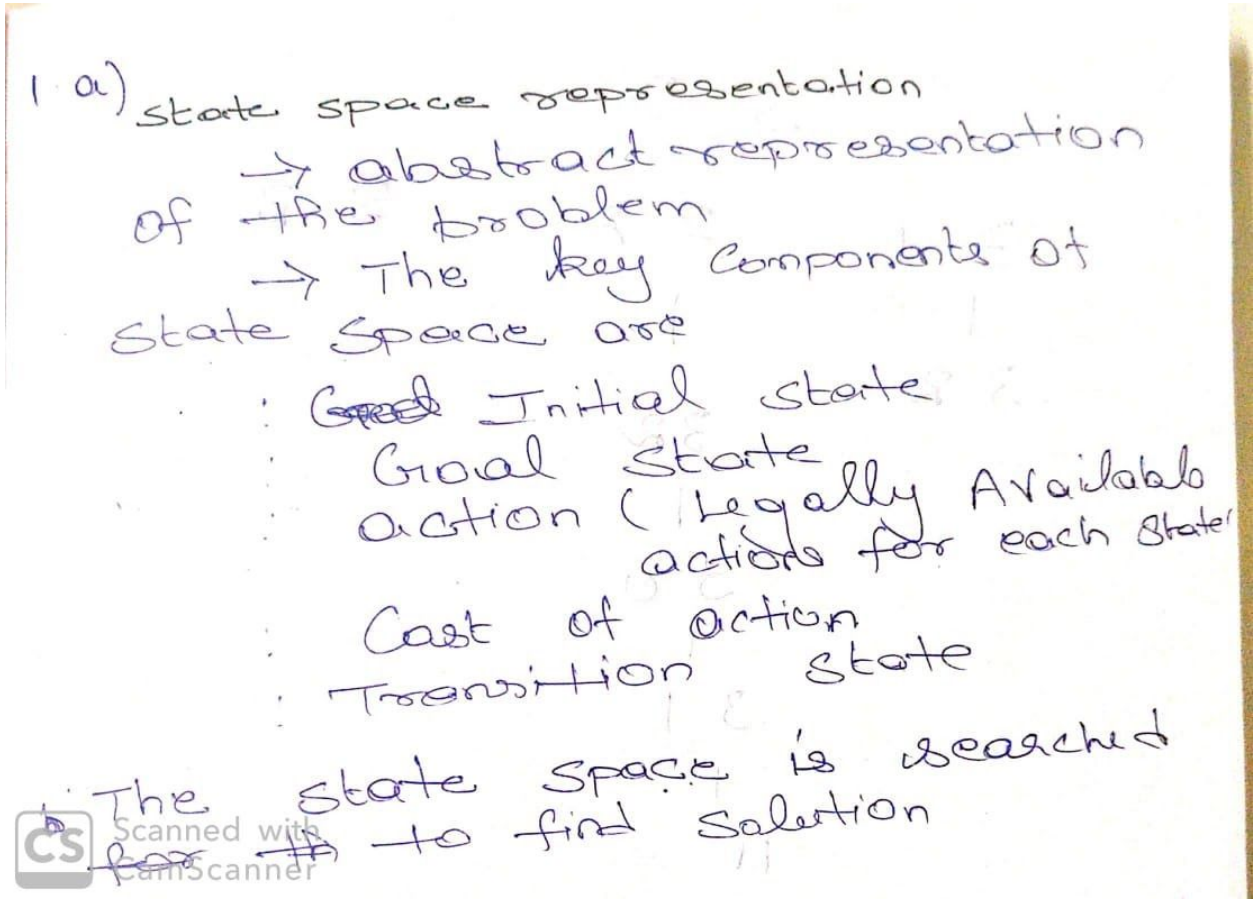
1. .
   a. .

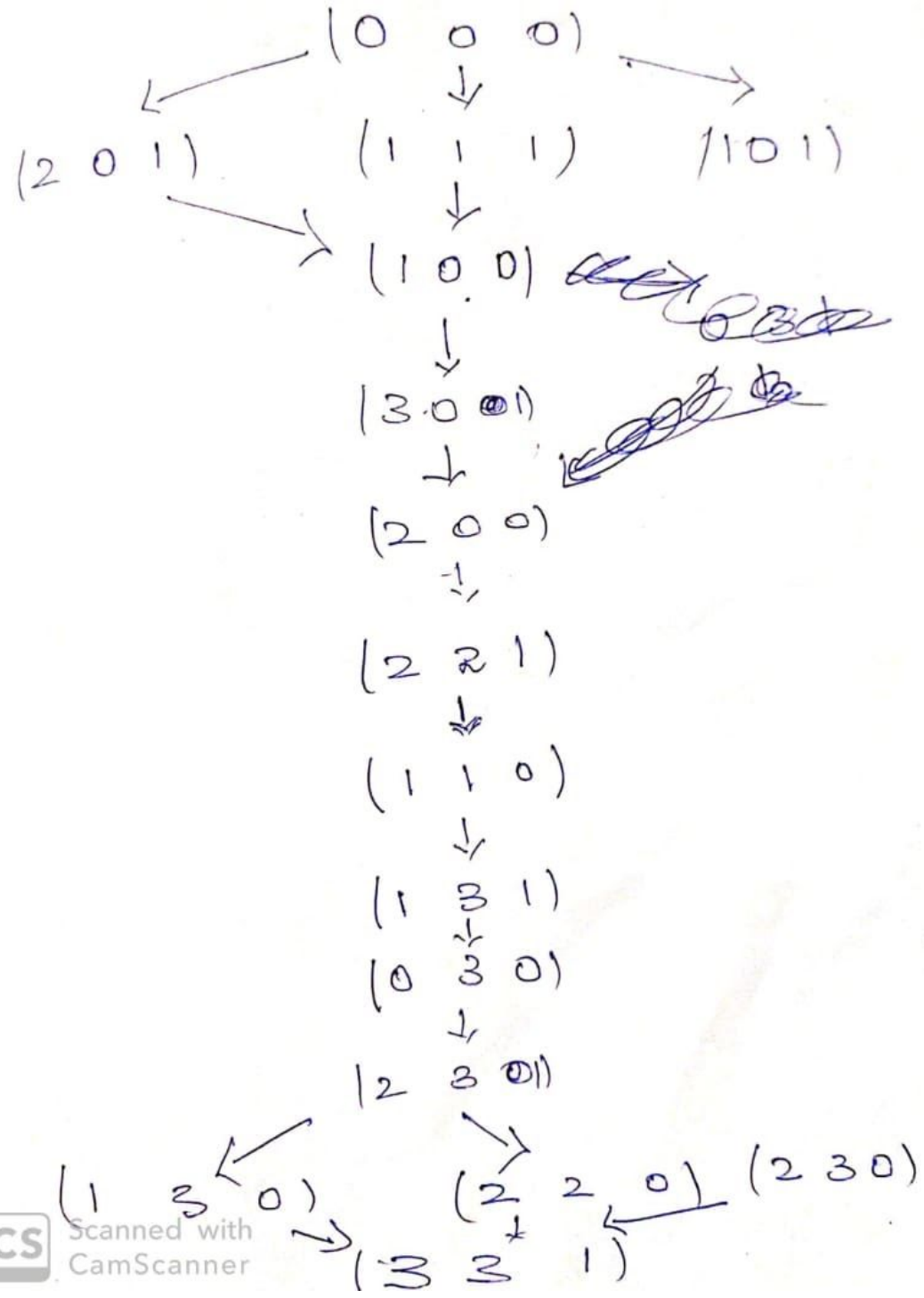


b. .

1. b) 3 missionaries, 3 Cannibals, 1 boat

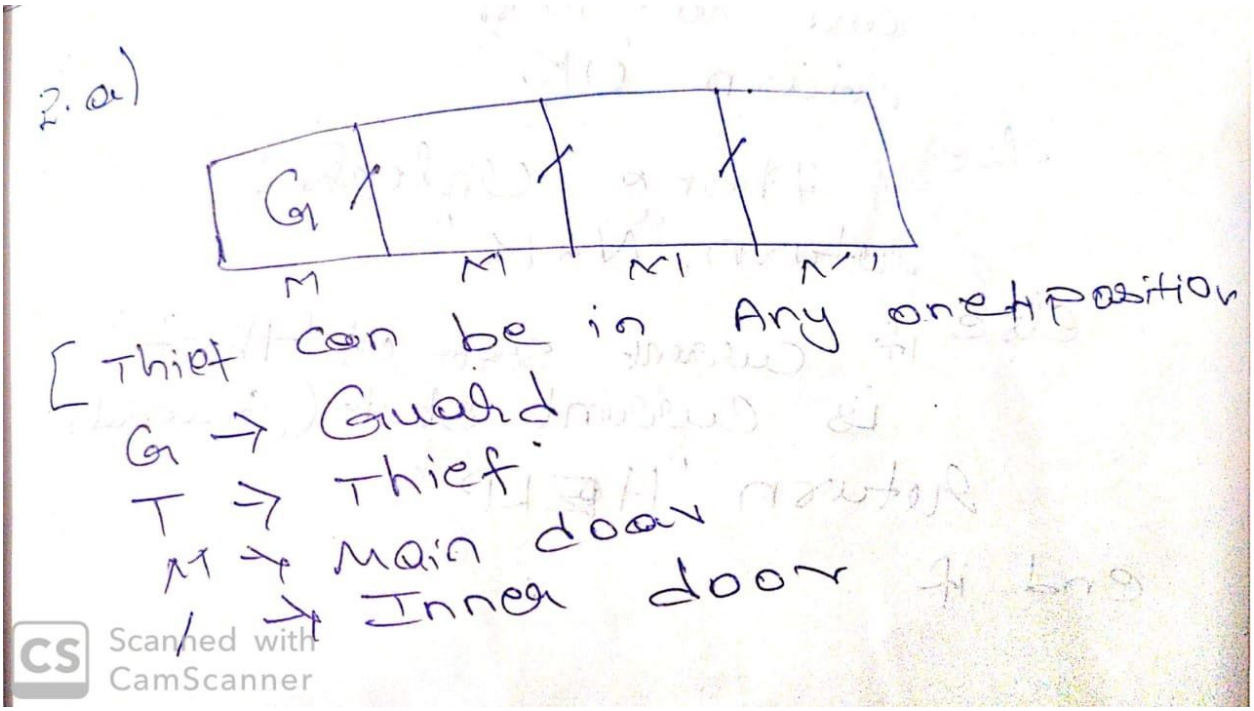
Initial state [0, 0, 0] (C M B)

Goal state [3, 3, 1]

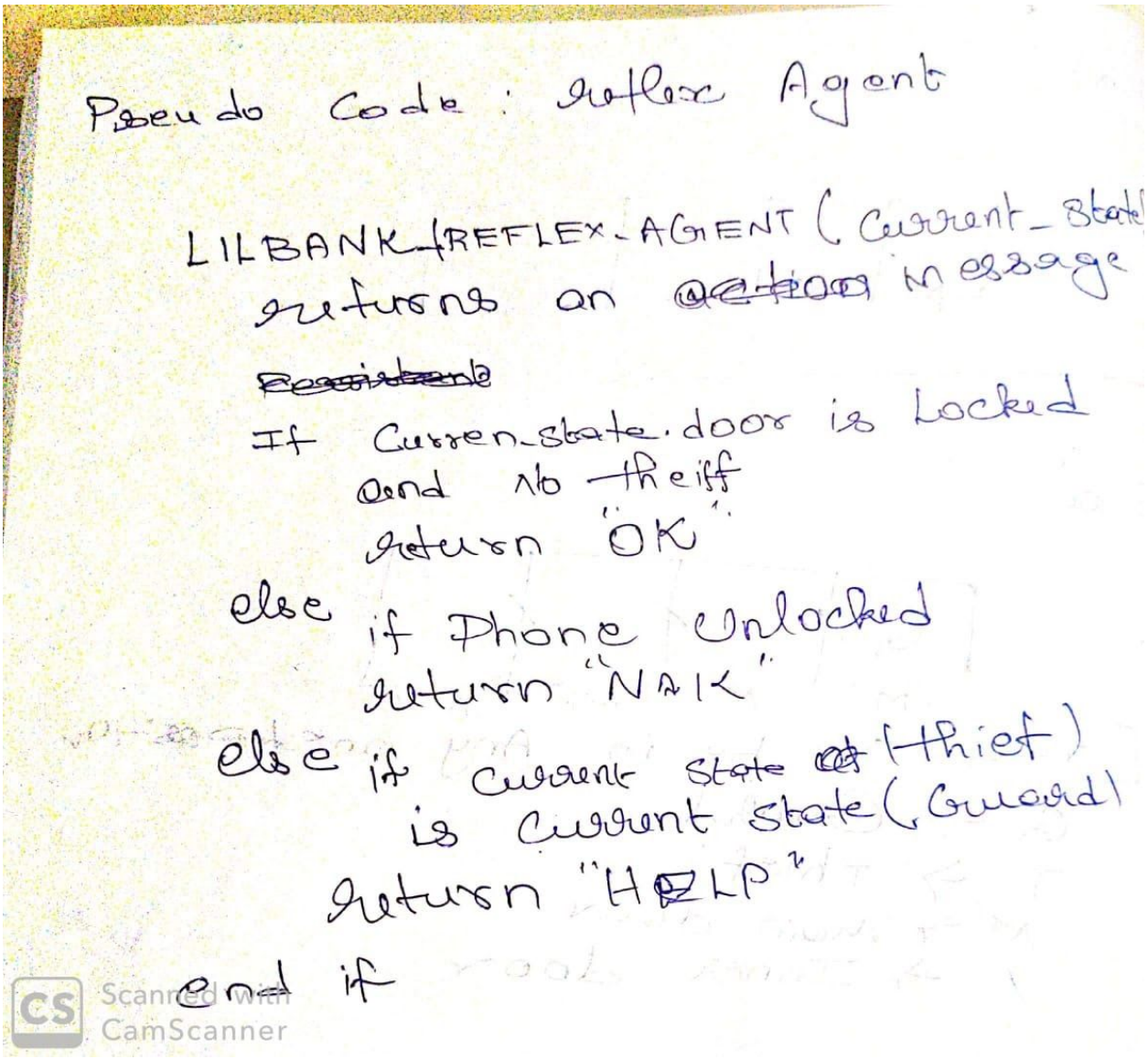


2. .

a. .


2. a)
G
M
M
M1
M-1
[Thief can be in Any one position
G → Guard
T → Thief
M → Main door
→ Inner door
CS
Scanned with CamScanner

b. .



Pseudo Code : Reflex Agent

LILBANK_REFLEX_AGENT (Current_State
returns an ~~action~~ message

~~Recursive~~

If Curren_State.door is Locked
and No theiff
return "OK"
else if Phone Unlocked
return "NAK"
else if current State (thief)
is Current State (Guard)
return "HELP"
end if

Pseudo Code : Model Based Agent

```
LILBANK_MODELBASED_AGENT(State)
returns a message

Visited : keeps track of
          Visited nodes
          and the Guard
          which decides to
          visit next

if State(Thief) is
        State(Guard)
    return "Help"
end if
else
    if state(Guard) is not
       State(Thief) and
       Door unlocked
       Visited ← State
       return "OK"
    else if phone unlocked
       enter 'NAK"
```

3. .

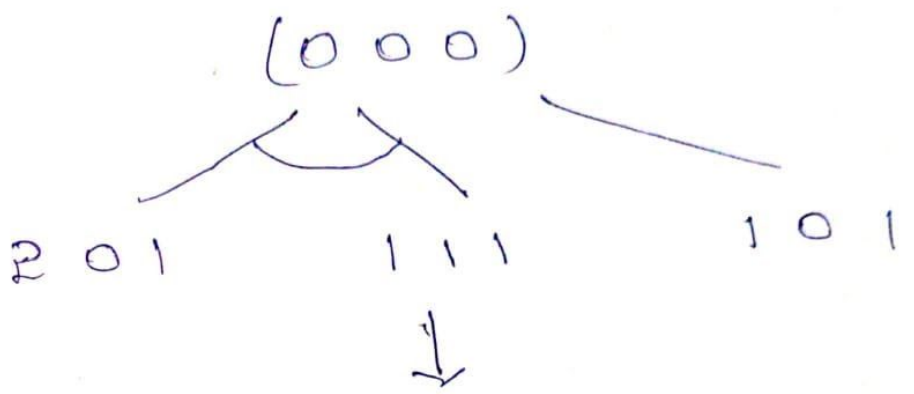
3) AND OR search tree is

It is a search used for finding solutions to non deterministic problem

It performs OR operation to allow agent to choose its own action

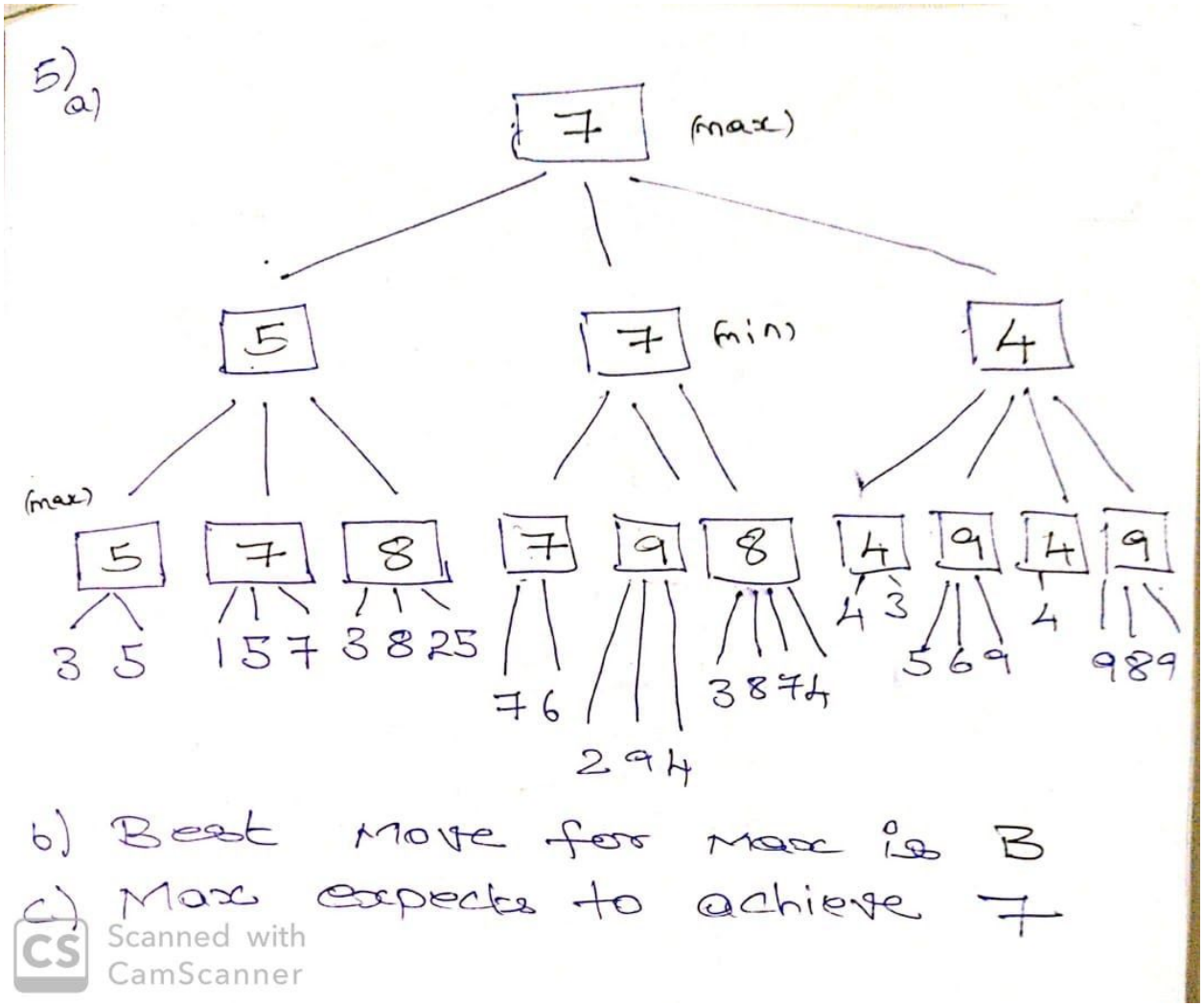
AND Part of search is used for environments possible choise of action for an action

AND OR For Cannibal Missionary

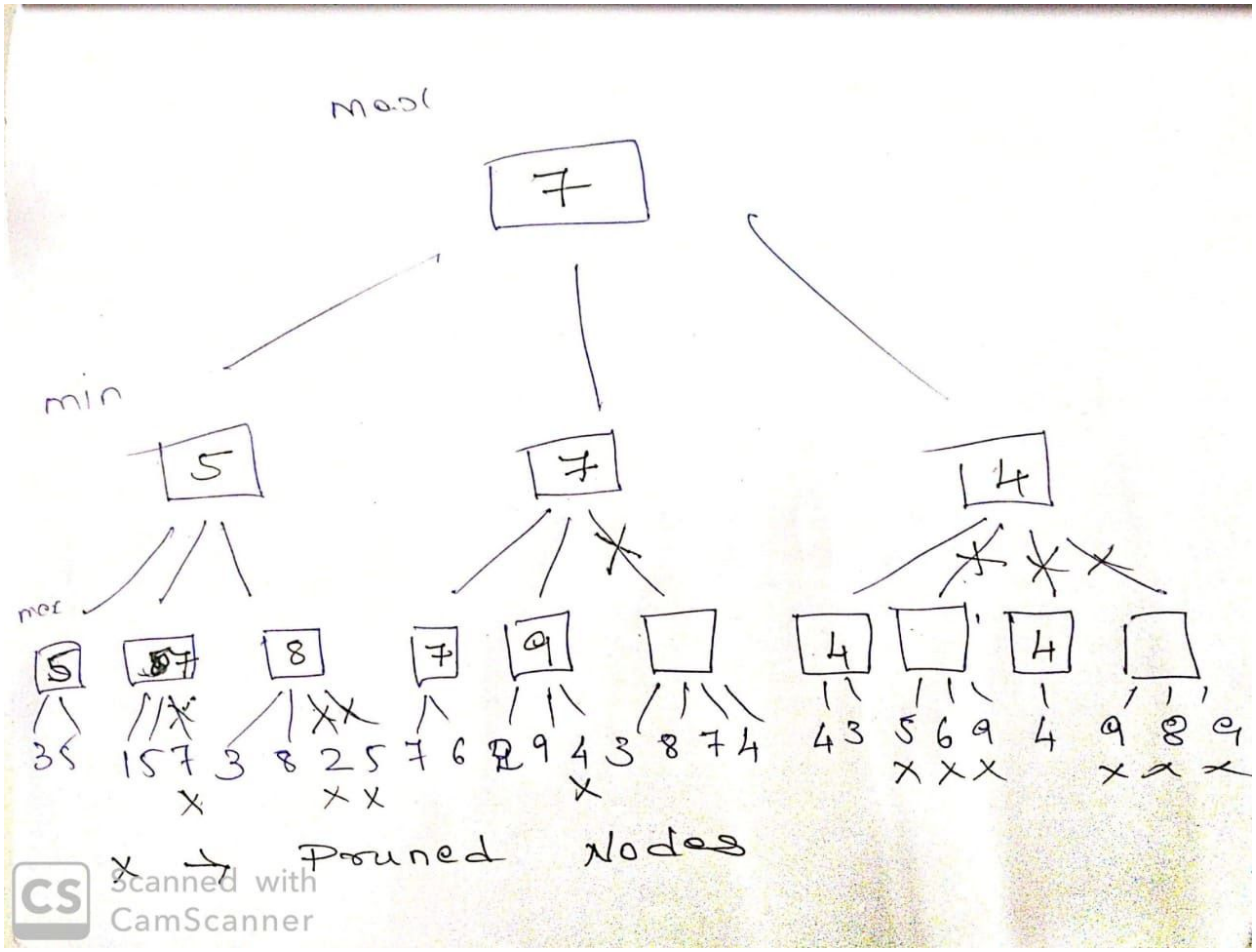


In the above part both 201 & 111 leads to 100 → OR is useful here but the out come for executing 100 → 301 [If 100 then 301] ↳ use of AND part of tree.

4. .



5. .


max
7
min
5
7
4
max
5
7
8
7
9
4
4
35
157
3
825
76
943
874
43
569
4
9
8
9
X
XX
X
XX
X
XXX
X
X
X
X → Pruned Nodes
Scanned with CamScanner

6. .

7)

(a) "Every Butterfly likes some flower"

ANS: D

(b) "All butterflies are Insects"

ANS: B

(c) "For every flower, there is a butterfly that likes that flower"

ANS: C

(d) "Every Butterfly likes every flower"

ANS: A

(e) "There is some butterfly in Irvine that is pret"

ANS: B