17/12/24 Week 10-

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Implement Alpha Beta Pruning

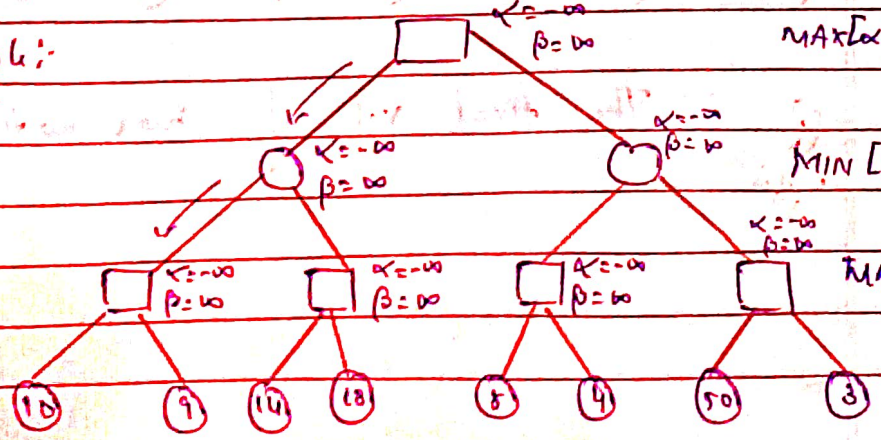
Algorithm:

```
function ALPHA-BETA-SEARCH (state) returns an action
    v ← MAX-VALUE (state, -∞, +∞)
    return the action in ACTIONS (state) with value v.

function MAX-VALUE (state, α, β) returns a utility value
    if TERMINAL-TEST (state) then return UTILITY (state)
    v ← -∞
    for each a in ACTIONS (state) do
        v ← MAX (v, MIN-VALUE (RESULT (s, a), α, β))
        if v ≥ β then return v
        α ← MAX (α, v)
    return v

function MIN-VALUE (state, α, β) returns a utility value
    if TERMINAL-TEST (state) then return UTILITY (state)
    v ← ∞
    for each a in ACTIONS (state) do
        v ← MIN (v, MAX-VALUE (RESULT (s, a), α, β))
        if v ≤ α then return v
        β ← MIN (β, v)
    return v
```

Example:-



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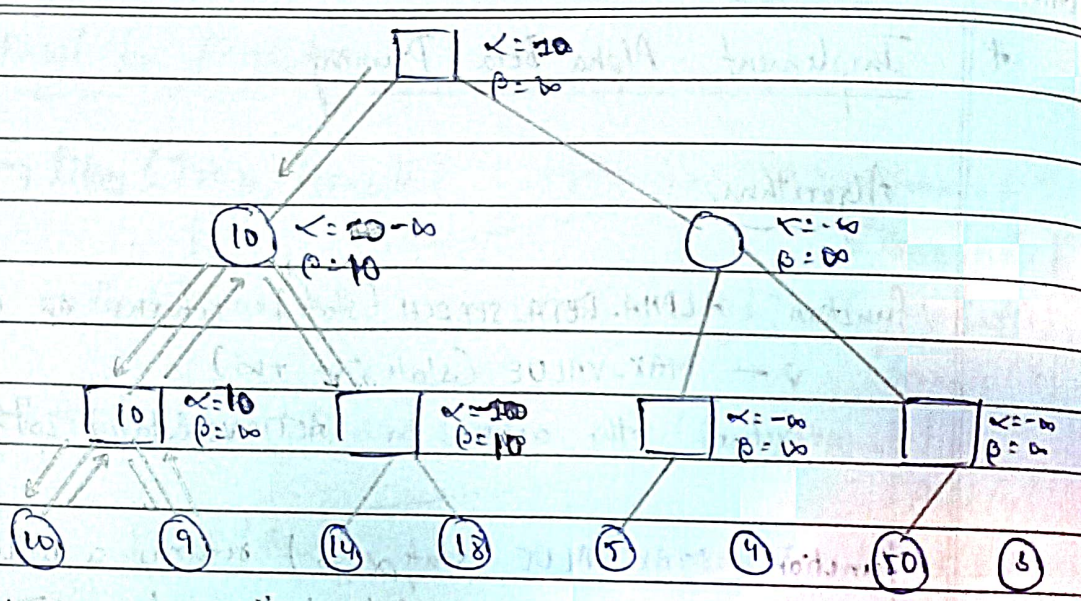

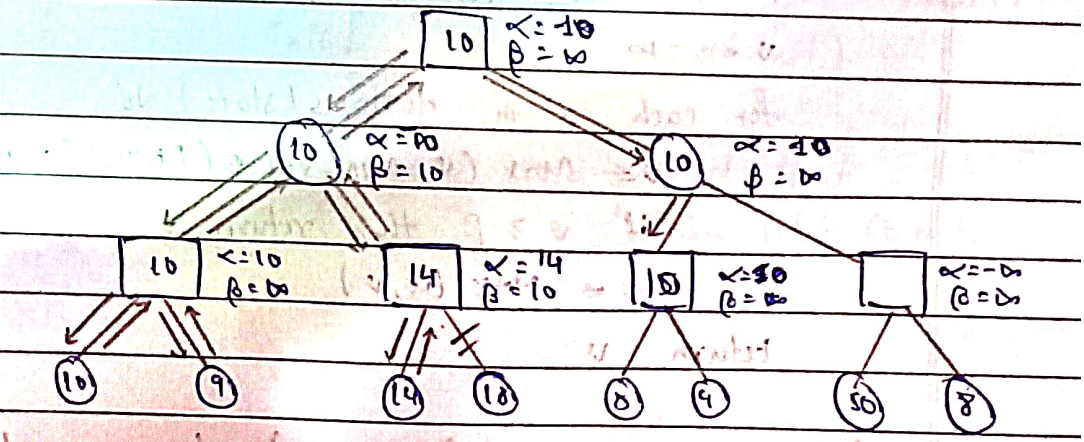

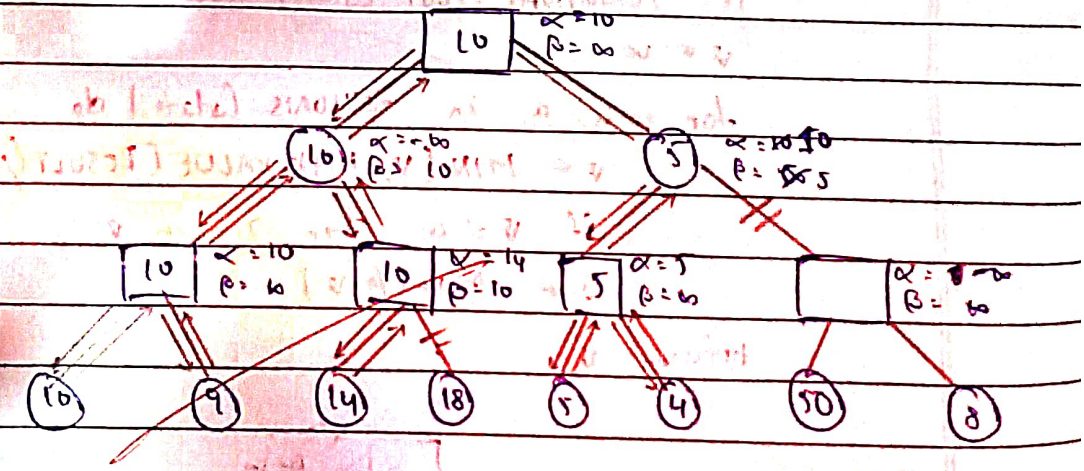

The final value of max node = 10//