

Question 2.1: Viterbi pseudocode (30 points total)

2.1 Pseudocode for Viterbi algorithm:

```
Viterbi(w1..n)

For t(1...T) // Initialization

    Trellis[1][t] = start_score[t] + emission_score[t][w1]

For i(2..n){

    For t(1...T){

        Trellis[i][t] = 0

        For t'(1...T){

            tmp = trellis[i-1][t'] + transition[t'][t]

            If(tmp>trellis[i][t]){

                trellis[i][t] = tmp

                backpointer_lookup[i][t] = tmp

            }

            trellis[i][t] = emission[t][wi]}

    }

t_max == NULL

vit_max = 0

for t(1..T)

    if(trellis[n][t] > vit_max){t_max = t; vit_max = trellis[n][t]}

return unpack(n,t_max)
```

```
unpack(n..1){  
  
  i=n  
  
  tags = new array[n+1]  
  
  while(i>0){  
  
    tags[i] =t  
  
    t = backpointer[i][t]  
  
    i—  
  
  }  
  
  return tags;  
  
}
```