**Q3**

**Input:** a sequence (sentence), parameters q(s|u,v) and Tag Dictionary (we are given that the set of y’s that correspond to each x is at most K (constant))

**Initialization**: Set ;

. ; =S for (S is all tags)

**Algorithm:**

For k=1,…,n

For

Answer[n-1], Answer[n] =

For k =n-2 : 1

Answer[k] = bp(k+2,answer[k+1], answer[k+2])

**Return**: Answer

The computation complexity is similar to the original Viterbi Algo. The difference is in the inner loops, under the given information about the T(x) size limit, we get that each inner loop is at most K, and also the max operator over at most K elements. Hence we get .

