Hirschberg

Hint: Many test values are taken from project Algorithms
for Bioninformatics of Alexander Mattheis or the lectures.

Test 1 (used Needleman-Waterman-Implementation for calculation and only non-terminal-cases computed)

Input

Sequence A: AATCG
Sequence B: AACG

Deletion: 2
Insertion: 2
Match: -1
Mismatch: 1

Output

1. $Trace(A_1, A_2, T_3, C_4, G_5 | A_1, A_2, C_3, G_4)$:

		A	A	C	G
	0	2	4	6	8
A	2	-1	1	3	5
A	4	1	-2	0	2
T	6	3	0	-1	1
C	8	5	2	-1	0
G	10	7	4	1	-2

		G	C	A	A
	0	2	4	6	8
G	2	-1	1	3	5
C	4	1	-2	0	2
T	6	3	0	-1	1
A	8	5	2	-1	-2
A	10	7	4	1	-2

	0	1	j=2	3	4
i=3	6	3	0	-1	1
	1	-1	0	3	6
∑	7	2	0	2	7

		A	A	C	G
A					
A					
T					
C					
G					

1.1. $Trace(A_1, A_2|A_1, A_2)$:

		A	A
	0	2	4
A	2	-1	1
A	4	1	-2

		A	A
	0	2	4
A	2	-1	1
A	4	1	-2

	0	j=1	2
i=1	2	-1	1
	1	-1	2
∑	3	-2	3

		A	A
A			
A			

1.2. $Trace(C_4, G_5|A_2, C_3, G_4)$:

		A	C	G
	0	2	4	6
C	2	1	1	3
G	4	3	2	0

		G	C	A
	0	2	4	6
G	2	-1	1	3
C	4	1	-2	0

	0	2	j=3	4
i=4	2	1	1	3
	3	1	-1	2
∑	5	2	0	5

so:

		A	A	C	G
A					
A					
T					
C					
G					