

KEY

Name: _____
Bioinformatics Quiz #1
02/02/2009

1)

What does BLAST stand for? [10 points]

2) Basic Local Alignment Search Tool

Use the appropriate dynamic programming algorithm to LOCALLY align the sequences below. Use +2 for a match, -2 for a mismatch, and -1 for a gap. Show ALL optimal alignments. [40 points]

		A	C	G	G	T	T	G
		0	0	0	0	0	0	0
A		0	2	1	0	0	0	0
C		0	1	4	3	2	1	0
G		0	0	3	6	5	4	3
T		0	0	2	5	4	7	6
T		0	0	1	4	3	6	9
G		0	0	0	3	6	5	8
		0	0	0	3	6	5	8

~~ACGGTTG~~

ACGGTTG
ACG-TTTG

AC-GTTG
ACGGTTG

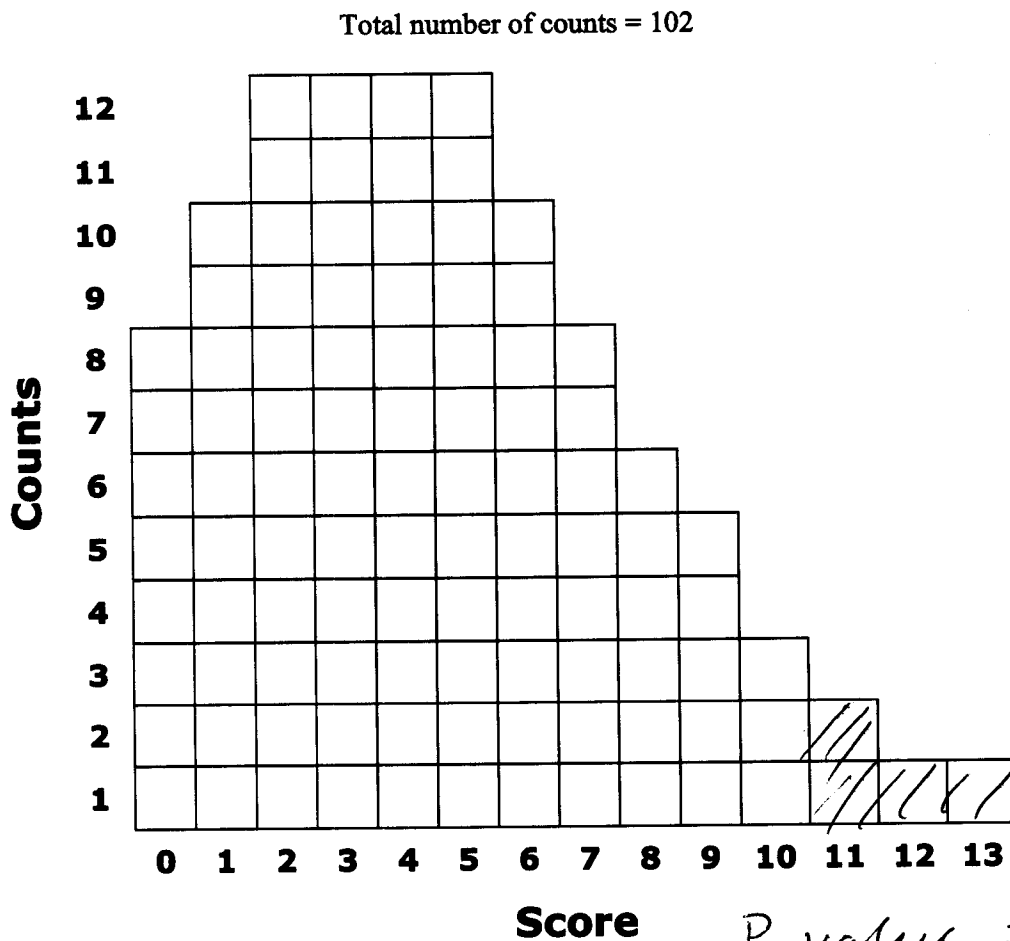
What is the name of the algorithm? [10 points]

Smith-Waterman

What is the score of the/all optimal alignment(s)? [10 points]

11

Calculate the p-value for the observed score using the score distribution below:
[30 points]



$$P\text{-value} = P(X \geq 11) \\ = 0.039$$

$$\frac{4}{102} = \frac{2}{51} = 0.039$$

$$P\text{-value} < 0.039$$