

**COT 4810: Topics in Computer Science**  
**Schedule for presentations**  
**Spring 2003**

Homework 3- Due 2/21/03

1. Given that the encoding of P is 1, Q is 2, and AND is 3, what is the Godel number of P AND Q?
2. Name three methods of programming a DNA computer.
3. What is stated of position/momentum pairs by the Heisenberg Uncertainty Principle?
4. Find the minimum Hamming distance between the following 3 words: 01110, 11000, 01011
5. One mask that actually calculates the x-derivative is

-1	0	1
-2	0	2
-1	0	1

Convolving this on a grid of 5x3

0	1	3	2	3
0	1	2	0	1
0	1	2	2	3

will produce what final output?

A:

0	1	3	2	3
0	9	0	-1	1
0	1	2	2	3