Spring 2007 Biology 111 Exam #2.5 - Molecular Genetics In-Class Exam

There is no time limit on this test, though I have tried to design one that you should be able to complete within 20 minutes. You are <u>not allowed to use your notes, old tests, any electronic sources (except as directed by this exam), any books, nor are you allowed to discuss the test with anyone</u> until all exams are turned in by class on Monday March 26. **EXAMS ARE DUE AT CLASS TIME ON MONDAY MARCH 26**. You <u>may</u> use a calculator and/or ruler. The **answers to the questions must be typed on a separate sheet of paper** unless the question specifically says to write the answer in the space provided. If you do not write your answers on the appropriate pages, I may not find them unless you have indicated where the answers are. There are 3 pages to this exam, including this cover sheet.

- 3 pts if you do not follow this direction.
Please do not write or type your name on any page other than this cover page. Staple all your pages (INCLUDING THE TEST PAGES) together when finished with the exam.

Name (please print):

Write out the full pledge and sign:

How long did this exam take you to complete (excluding typing)?

2 pts.
1) You are looking at some *Chlamydomonas* cells with the 60X objective using a 20 mm x 20 mm glass coverslip. You dilute the cells 10X with buffer and then make a 50:50 mixture of Lugol's stain and cells. At first you use darkfield illumination, but later switch to phase contrast. In order to calculate your total magnification, what information do you need and what do you do with this information to determine the total magnification?

6 pts.
2) Using the data on the next page, accurately draw the location of each locus on this line:

_____

3 pts.
3) Investigators determined that the HD protein was unlike any other human protein. How do they know this?

4 pts.
4) What is the cellular problem with CF allele ΔF508? Draw a well labeled picture of a homozygous recessive cell as part of your answer.

For question 2:

A pure breeding thin, round, open adult mated with a fat, square, closed adult. All the offspring were fat, round, and open. The F1 generation was bred and the offspring were:

Fat, square, closed	215 individuals
Fat, square, open	123 individuals
Fat, round, open	8 individuals
Fat, round, closed	2 individuals
Thin, round, open	219 individuals
Thin, square, open	2 individuals
Thin, round, closed	125 individuals
Thin, square, closed	6 individuals