

**Problem 2. (40 points)**

In a certain city, 1,469 individuals have the CC form of the enzyme phosphoglucose isomerase (PGI), an enzyme critical in the second step of glycolysis. Another 138 have the Cc form of PGI, and another 5 individuals have the cc form of the enzyme. All forms of the enzyme are fully functional.

**Question:** Is this population in Hardy-Weinberg Equilibrium? Use Pearson 's Chi-square test at 5% significance level to test if the deviation from HW equilibrium significant?

Frequency of C= \_\_\_\_\_

Frequency of c= \_\_\_\_\_

Observed	CC	Cc	cc
Expected			
(O-E) <sup>2</sup> /E			

Total chi = \_\_\_\_\_

Degrees of freedom (df)=k-m-1 \_\_\_\_\_

k=number of classes, m=number of independent allele frequencies