**Birzeit University**

**Department of Biology and Biochemistry**

**Biology111**

**Worksheet: Genetics**

**Name and ID: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Instructor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Answer the following questions according to the information given below:

Two true breeding parents were crossed (A tall plant X short plant; tallness is dominant)

1. What is the expected phenotypes for F1 generation? \_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is the expected genotypes for F1 generation? \_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What is the expected F2 generation outcomes? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. If you cross two heterozygous plants, what will be the percentage of heterozygous offspring? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. If 98 out of 200 individuals in a population express recessive phenotype, what percent of population are heterozygotes?
6. The ability to taste PTC is due to a single dominate allele "T". You sampled 300 individuals in a biology class, and determined that 250 could detect the bitter taste of PTC and 50 could not.
7. What is the predicted frequency of the recessive allele (t)?
8. What is the predicted frequency of dominant allele (T)?
9. In a population of 10,000 people, how many would be heterozygous (assuming Hardy-Weinberg equilibrium)? Homozygous dominant? Homozygous recessive? Calculate all of the potential frequencies. (TT/Tt/tt)