Pedigree & Punnetts WS

1. The pedigree below shows the occurrence of Tay-Sachs Disease, which is a recessive disease and is called by a recessive allele, **t**.



- a. Which family members have the disease?
- b. What is Bill and Tina's genotype (they both have the same genotype)?
- c. What is Marcy's genotype?
- d. Draw a Punnett Square between Bill and Marcy

- e. What is the chance of Bill and Marcy having a child with Tay-Sachs Disease?
- f. What is Ashley's genotype?
- 2. The pedigree below shows a pedigree for albinism, a recessive disease. Lisa is an albino.



- a. What is Lisa's genotype?
- b. What is Adam's genotype? _____
- c. What is Kate's genotype?
- d. If Lisa marries a man who is heterozygous for albinism, what is the chance of them having a child with albinism? Draw a Punnett square of Lisa and her husband below:

3. People with cystic fibrosis have a protein that is defective, which causes them to have mucus in their lungs and die from digestive and respiratory failure. It is caused by a recessive allele, **c**.



- a. What is Jordan's genotype?
- b. What is Jordan's mom's genotype?
- c. What is Jordan's dad's genotype?
- d. If Jordan's parents have another child, what is the chance of that child having cystic fibrosis? Draw a Punnett Square below:

4. Hungtington's disease is caused by a dominant allele, H.



- a. What is individual II-4's genotype?
- b. What is individual II-5's genotype?
- c. Draw a Punnett square between these two individuals:

d. What is chance of them having a child with Huntington's disease?

5. Achondroplasia, a disease in which people have an abnormal gene that causes abnormal bone growth. It is caused by a dominant allele, **A**.



- a. What is individual I-2's genotype?
- b. What is individual I-1's genotype?
- c. Complete a Punnett square between individual I-1 and II-2.

- d. What is the chance of them having a child with Achondroplasia?
- 6. Galactosemia is a disease in which people lack an enzyme to break down galactose (a type of sugar). People who have galactosemia have mental disabilities, a enlarged liver and kidney failure. Unfortunately, there is no cure. Galactosemia is caused by a recessive allele, **g**.
 - a. Fill in the pedigree and below each individual, write down their genotype. If a person's second allele can either be G or g, put G__.



7. Albinism is a disease caused by a recessive allele, **a**.



- a. What is individual II-6's genotype?b. What is individual II-7's genotype?
- c. Complete a Punnett square between II-6 and II-7.

d. If the two of them have another child, what is the chance of the child being a carrier for albinism?