Unit 4 Study Guide – Advanced
TEST on Friday, December 15, 2017

***Your notebook is the BEST review for the test.**

***Don't forget to look back through or reread pg 98-101, pg 112-133, and pg 142-155 in your text book.**

<u>DNA & Protein Synthesis</u>

1. Which scientists helped develop the model of DNA's structure?

2. Draw and describe the shape and label the parts of a DNA molecule.

3. How do the nitrogen bases pair up in both DNA and RNA. What makes them different?

4. How are mRNA and tRNA different? (Jobs they do, their location, etc)

5. Describe the steps and important roles played in protein synthesis: DNA replication, mRNA, ribosomes, tRNA, amino acids, proteins.

<u>Mitosis & Meiosis</u>

6. What are the steps taking place during meiosis or when gametes are produced?

7. How are haploid and diploid numbers of chromosomes different?

8. Differentiate between the processes of mitosis and meiosis in cells.

<u>Genetics & Heredity</u>

9. Who was Gregor Mendel? Describe his experiments with pea plants.

10. How are traits and characteristics different?

10. What are the differences between dominant and recessive genes? Heterozygous and homozygous traits?

11. How do the following terms relate? Alleles, genes, DNA, chromosomes, the nucleus and a cell.

12. What is selective breeding?

13. A horse and a donkey can breed and produce a mule. Why can't mules breed?

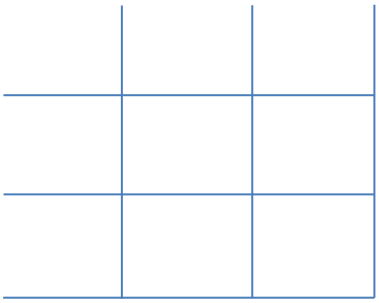
15. In petunias, red flowers are dominant over white flowers. Create a Punnett Square to cross a homozygous dominant plant and a heterozygous plant.

Red allele = _____ Parent genotypes _____ x_____

White allele = _____ Parent phenotypes _____x_____

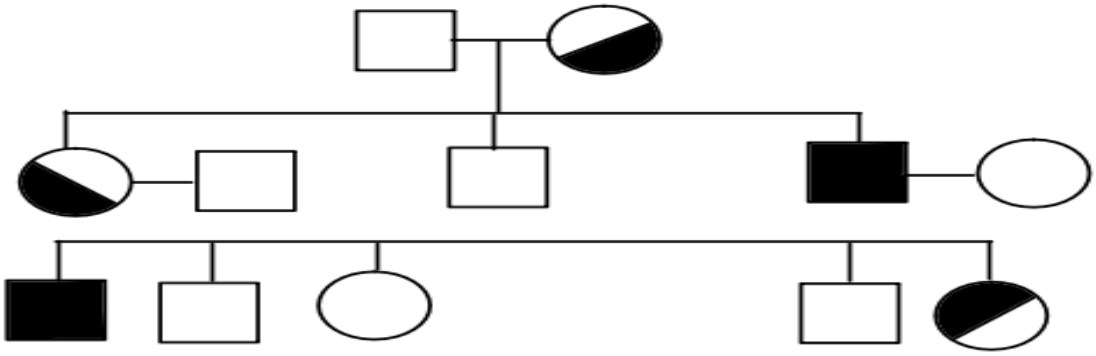
% Red = _____ % hetero = _____ % homo rec = _____

% White = _____ % homo dom = _____



16. How is incomplete dominance expressed? How this is seen in offspring?

17. Use the pedigree to answer this question: Is this disorder sex linked? Explain..



18. How are sex-linked traits passed from one generation to another?

19. How are the gender and blood type of offspring determined?

20. What is the difference between genetic engineering and selective breeding?