AICE Biology Guided Reading: Chapter 16, Part 2 Genetics and Inherited Change

***Directions:*** *Please answer all questions on a separate sheet of paper. You may handwrite (NEATLY) in blue or black ink or type your answers. Complete these questions at your own pace by Monday, October 30, 2017. This assignment is worth* ***40 points****, and individual point values are located in parentheses after each question.*

1. As you read, answer SAQ’s 16.4-16.22 on a separate sheet of paper. (14 points)

2. Define the following bold-faced terms (located throughout the chapter) on a separate sheet of paper using the three-column note format (one column for the term, one column for the definition, and one column for a picture, diagram, or visual to help remember the term):
(12 points)

Genotype

Phenotype

Inheritance

Domant

Recessive

Codominant

Multiple alleles

Sex chromosomes

Autosomes

Sex-linked gene

Independent assortment

Degrees of freedom

Mutation

Gene mutation

Chromosome mutation

Ionizing vs UV radiation

Base substitution

Base addition

Base deletion

Frame shift

Silent mutation

Gene technology

Restriction enzyme

Genetic Engineering

3. Explain the concept of genetic dominance in terms of recessive and dominant traits. (1 point)

4. What is a test cross and what can it tell us? Draw an example of a generic test cross here, clearly indicating the difference between dominant and recessive genes. (2 points)

5. What is a dihybrid cross and when is it used? Draw an example of a generic dihybrid cross and outline how phenotypes might change as a result of slightly different genotypes. (2 points)

6. Outline how to carry out a chi-squared test. What is the formula and how do you know what to plug into this formula? (2 points)

7. Why are mutations significant? Are mutations always detrimental? (2 point)

8. What is the lac operon and what function does it serve in prokaryotes? (2 points)

9. Select three types of transcription factor. For each, describe how they work and how the regulate gene expression. (3 points)