Biology 1 Name:

***Mutation Practice***  Date:

Hour:

**Types of mutations:** *deletion insertion*

*substitution inversion*

*translocation*  *duplication*

**Highlight the change (mutation) in each of the following strands and identify the mutation**

Original strand: TACCCGATACTAAAATGAGAGCGCATT

Mutated stand: TACCCGATACTAAATGAGAGCGCATT

1. What type of mutation has occurred in the above version of the DNA strand? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Is it a frame-shift? \_\_\_\_

Original strand: TACCCGATACTAAAATGAGAGCGCATT

Mutated stand: TACCCGATACTAAAATGAGAGGGCATT

1. What type of mutation has occurred in the above version of the DNA strand? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Is it a frame-shift? \_\_\_\_

Original strand: TACCCGATACTAAAATGAGAGCGCATT

Mutated stand: TACCCGATAAATCAATGAGAGCGCATT

1. What type of mutation has occurred in the above version of the DNA strand? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Is it a frame-shift? \_\_\_\_

Original strand: TACCCGATACTAAAATGAGAGCGCATT

Mutated stand: TACGAGCGCCCGATACTAAAATGAATT

1. What type of mutation has occurred in the above version of the DNA strand? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Is it a frame-shift? \_\_\_\_

Original strand: TACCCGATACTAAAATGAGAGCGCATT

Mutated stand: TACCCGATACTAAAATTGAGAGCGCATT

1. What type of mutation has occurred in the above version of the DNA strand? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Is it a frame-shift? \_\_\_\_

Original strand: TACCCGATACTAAAATGAGAGCGCATT

Mutated stand: TACCCGATACTACTACTAAAATGAGAGCGCATT

1. What type of mutation has occurred in the above version of the DNA strand? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Is it a frame-shift? \_\_\_\_

Biology 1

***Transcription & Translation Practice***

Original DNA Strand: **TACCCGATACTAAAATGAGAGCGCATT**

Original mRNA Strand: **AUGGGCUAUGAUUUUACUCUCGCGUAA**

Original amino acid Methionine, Glycine, Tyrosine, Aspartic Acid, Phenylalanine,

sequence: Threonine, Leucine, Alanine, STOP

T**ranscribe the mutated DNA into a molecule of mRNA, then translate the mRNA into a sequence of amino acids.**

TACCCGATACTAAATGAGAGCGCATT

1. mRNA strand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

amino acid

sequence: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

TACCCGATACTAAAATGAGAGGGCATT

1. mRNA strand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

amino acid

sequence: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

TACCCGATAAATCAATGAGAGCGCATT

1. mRNA strand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

amino acid

sequence: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

TACGAGCGCCCGATACTAAAATGAATT

1. mRNA strand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

amino acid

sequence: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

TACCCGATACTAAAATTGAGAGCGCATT

1. mRNA strand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

amino acid

sequence: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

TACCCGATACTACTACTAAAATGAGAGCGCATT

1. mRNA strand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

amino acid

sequence: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. CONCLUSION: How does a mutation affect a protein?