

Name _____ Period _____ Date _____

Coding for Amino Acids and Proteins

- 1** Find the first base, C, in the left column.
- 2** Find the second base, A, in the top row. Find the box where these two intersect.
- 3** Find the third base, U, in the right column. CAU codes for histidine, abbreviated as His.

| | | Second base | | | | | |
|------------|----------------------|-------------------------|----------------------------|----------------------|--------------------|---|--|
| | | U | C | A | G | | |
| First base | U | UUU phenylalanine (Phe) | UCU serine (Ser) | UAU tyrosine (Tyr) | UGU cysteine (Cys) | U | |
| | UUC | UCC | UAC | UGC | A | | |
| | UUA leucine (Leu) | UCA | UAA STOP | UGA STOP | G | | |
| | UUG | UCG | UAG STOP | UGG tryptophan (Trp) | C | | |
| C | CUU leucine (Leu) | CCU proline (Pro) | CAU histidine (His) | CGU arginine (Arg) | U | | |
| | CUC | CCC | CAC | CGC | E | | |
| | CUA | CCA | CAA glutamine (Gln) | CGA | G | | |
| | CUG | CCG | CAG | CGG | C | | |
| A | AUU isoleucine (Ile) | ACU threonine (Thr) | AAU asparagine (Asn) | AGU serine (Ser) | U | | |
| | AUC | ACC | AAC | AGC | A | | |
| | AUA methionine (Met) | ACA | AAA lysine (Lys) | AGA arginine (Arg) | G | | |
| | AUG | ACG | AAG | AGG | C | | |
| G | GUU valine (Val) | GCU alanine (Ala) | GAU aspartic acid (Asp) | GGU glycine (Gly) | U | | |
| | GUC | GCC | GAC | GGC | A | | |
| | GUA | GCA | GAA glutamic acid (Glu) | GGA | G | | |
| | GUG | GCG | GAG | GGG | C | | |

Part I – Coding Amino Acids (5 points)

Use the chart above in order to decode each codon provided. Write the name of the amino acid AND its abbreviation on the line provided.

- | | |
|--------------|---------------|
| 1. AUG _____ | 6. GAC _____ |
| 2. CUU _____ | 7. CGA _____ |
| 3. CCC _____ | 8. AGU _____ |
| 4. UAC _____ | 9. UUG _____ |
| 5. GAA _____ | 10. ACC _____ |

Part II – Coding Proteins (5 points)

Use the chart above in order to decode each protein provided. Using their abbreviations, write out the chain of amino acids in the order provided.

1. AUG-GCU-AGC-CAC-UAA _____
2. AUG-CUC-UUA-GUC-UGA _____
3. AUG-AGC-UUU-CUC-UAG _____
4. AUG-UCA-GAG-AAG-UAA _____
5. AUG-AUA-CCA-GGG-UGA _____

Part III – Coding DNA (5 points)

Use the chart above in order to decode the strand of DNA provided.

TAC-GGC-TCT-CAA-ACA-CTA-GAC-AAA-CGC-ATT

1. What is the complimentary strand of mRNA that would be made from the strand of DNA provided?
2. Write the abbreviations for the amino acids that would be created from this strand of DNA.