Molecular Biology Through Discovery **Problem Set 5: The Coding Problem**Tables used in problems

**1.** Using a convenient genetic code table, complete the following:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **DNA**  **double helix** |  |  |  |  |  | A |  | G |  |  |  |  | A |  |
|  |  |  |  | T |  |  |  | G |  |  | T |  |  |
| **mRNA**  **transcribed** | 5' |  |  |  | A |  |  |  |  |  | U |  |  |  |
| **Appropriate**  **tRNA anticodon** |  |  |  |  |  |  | U |  |  | G |  |  |  | 5' |
| **Amino acids incor- porated into protein** |  | met | | |  | | |  | | |  | | |  |

**7a.** Make up a genetic code that satisfies Gamow's criteria.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **codon** | **aa** | **codon** | **aa** | **codon** | **aa** | **codon** | **aa** |
| **TTT** |  | **TCT** |  | **TAT** |  | **TGT** |  |
| **TTC** |  | **TCC** |  | **TAC** |  | **TGC** |  |
| **TTA** |  | **TCA** |  | **TAA** |  | **TGA** |  |
| **TTG** |  | **TCG** |  | **TAG** |  | **TGG** |  |
| **CTT** |  | **CCT** |  | **CAT** |  | **CGT** |  |
| **CTC** |  | **CCC** |  | **CAC** |  | **CGC** |  |
| **CTA** |  | **CCA** |  | **CAA** |  | **CGA** |  |
| **CTG** |  | **CCG** |  | **CAG** |  | **CGG** |  |
| **ATT** |  | **ACT** |  | **AAT** |  | **AGT** |  |
| **ATC** |  | **ACC** |  | **AAC** |  | **AGC** |  |
| **ATA** |  | **ACA** |  | **AAA** |  | **AGA** |  |
| **ATG** |  | **ACG** |  | **AAG** |  | **AGG** |  |
| **GTT** |  | **GCT** |  | **GAT** |  | **GGT** |  |
| **GTC** |  | **GCC** |  | **GAC** |  | **GGC** |  |
| **GTA** |  | **GCA** |  | **GAA** |  | **GGA** |  |
| **GTG** |  | **GCG** |  | **GAG** |  | **GGG** |  |