**Problem set 4:**

1. What will be the number of amino acids after translation of the following mRNA (hypothetical)?

5’UAA GGA AGC GCU AUG GGG GCG GGC CCU GUG CCC UAA

(Ribosome binding site is highlighted in yellow, Start codon in green, and Stop codon in red)

**Number of amino acids after translation = 7 (Met-Gly-Ala-Gly-Pro-Val-Pro)**

2. RNA required for protein synthesis is:

a. mRNA b. rRNA c. tRNA **d. all of these**

3. Which of the following RNA molecules serves as an adaptor molecule during protein synthesis?

a. rRNA b. mRNA **C. tRNA** d. mRNA and tRNA

4. The rate of protein synthesis in prokaryote is limited by the rate of mRNA synthesis. If mRNA synthesis occurs at the rate of 51 nucleotides/sec, then the rate of protein synthesis occurs at:

a. 12 amino acids/sec **b. 17 amino acids/sec**

c. 25 amino acids/sec d. 50 amino acids/sec

5. During protein synthesis, peptide bond formation is catalyzed by **\_\_peptidyl transferase\_\_**

6. During protein synthesis, tRNA recognizes correct**\_\_codon\_\_** of mRNA through its **\_\_anticodon\_\_**

7. State TRUE or FALSE for the following statements:

a. Tetracycline is an antibiotic that inhibits protein synthesis in bacteria **TRUE**

b. Tetracycline is an antibiotic that inhibits both mRNA and protein synthesis in bacteria **FALSE**

8. How many chiral centers are there in the amino acids alanine and glycine? **One and Zero respectively**

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