1. The cloverleaf model represents the structure of:
   A. mRNA
   B. tRNA
   C. rRNA
   D. DNA (B)

Explanation : tRNA has a cloverleaf-like secondary structure and acts as an adapter molecule during translation.

2. The actual structure of tRNA resembles:
   A. Inverted U shape
   B. Inverted L shape
   C. Circular shape
   D. Straight chain (B)

Explanation : In its actual three-dimensional structure, tRNA is a compact molecule that looks like an inverted L.

3. The adapter molecule involved in translation is:
   A. mRNA
   B. rRNA
   C. tRNA
   D. DNA (C)

Explanation : tRNA acts as an adapter molecule by reading mRNA codons and carrying specific amino acids.

4. The anticodon loop of tRNA is responsible for:
   A. Binding ATP
   B. Carrying DNA information
   C. Matching complementary codon on mRNA
   D. Forming peptide bonds (C)

Explanation : The anticodon of tRNA pairs with the complementary codon present on mRNA.

5. The process of formation of a polypeptide chain by polymerization of amino acids is called:
   A. Replication B. Transcription
   C. Translation D. Mutation (C)

Explanation : Translation is the process where amino acids are joined to form a polypeptide chain.

6. Amino acids are linked together by:
   A. Hydrogen bonds
   B. Peptide bonds
   C. Glycosidic bonds
   D. Phosphodiester bonds (B)

Explanation : During translation, amino acids are joined through peptide bond formation.

7. The enzyme involved in charging of tRNA is:
   A. DNA polymerase
   B. Aminoacyl-tRNA synthetase
   C. RNA polymerase
   D. Peptidase (B)

Explanation : Aminoacyl-tRNA synthetase activates amino acids and attaches them to specific tRNA molecules.

8. Ribosomes are known as:
   A. Energy-producing organelles
   B. Cellular factories for protein synthesis
   C. DNA replication units
   D. Storage organelles (B)

Explanation : Ribosomes are the sites where protein synthesis occurs.

9. Translation begins when the ribosome binds to the:
   A. Stop codon
   B. Promoter region
   C. Start codon (AUG) of mRNA
   D. Anticodon of tRNA (C)

Explanation : The small ribosomal subunit binds to mRNA at the start codon AUG to initiate translation.

10. Untranslated regions (UTRs) are present at:
    A. Only 5′ end of mRNA
    B. Only 3′ end of mRNA
    C. Both 5′ and 3′ ends of mRNA
    D. Middle of mRNA only (C)

Explanation : UTRs are non-translated sequences present before the start codon and after the stop codon.