



5. List 3 examples of noncovalent bonds covered in class.

a.

b.

c.

6. \_\_\_\_\_ can guide the folding of newly synthesized polypeptide chains, also known as \_\_\_\_\_.

a. Draw a diagram of a protein being folded.

7. List and define the four stages (structures) of a protein.

a.

b.

c.

d.

8. Disulfide bonds at \_\_\_\_\_ help to stabilize a favored protein confirmation.

9. What is a prion? This is present in animals as Bovine spongiform encephalopathy or Scrapie, what is a human disease caused by prions?

Moving onto protein regulation.

1. Binding of proteins to other molecules is \_\_\_\_\_ selective. Match the following terms regarding binding of proteins.
- a. Enzyme
  - b. Ligand
  - c. Active site
  - d. Binding site
  - e. Specificity
  - f. Substrate

\_\_\_ the selective affinity of one molecule for another that permits the two to bind or react, even in the presence of a vast excess of unrelated molecular species.

\_\_\_ a molecule on which enzymes act.

\_\_\_ a general term for a molecule that binds to a specific site on a protein.

\_\_\_ a protein that catalyzes a specific chemical reaction.

\_\_\_ a region on the surface of an enzyme that binds to a substrate molecule and catalyzes its chemical transformation.

\_\_\_ a region on the surface of a protein, typically a pocket, that interacts with another molecule, a \_\_\_\_\_, through the formation of multiple noncovalent bonds.

2. In comparison to covalent or ionic bonding, noncovalent bonds are relatively \_\_\_\_\_.
3. Enzymes are proteins that speed up chemical reactions by \_\_\_\_\_ the activation energy.
  - a. Increasing
  - b. Providing
  - c. Lowering
  - d. Raising
4. What are the functions of an enzyme?
5. When an enzyme changes a substrate into its product form, the substrate will go through a \_\_\_\_\_.
  - a. This stage is more/less stable than that of the final product.
6. What is the difference between catabolic and anabolic reactions?
7. Define each of the enzymes listed below:

- a. Protease
- b. Polymerase
- c. Ligase
- d. Nuclease
- e. Synthase
- f. Isomerase
- g. Lipase
- h. Kinase
- i. Phosphatase

8. What is protein post-translational modification (PTM)? What are some examples of common modifications?

9. What is feedback inhibition?

- a. What is the difference between positive and negative regulation?

10. \_\_\_\_\_: Describes a protein that can exist in multiple conformations depending on the binding of a molecule at a site other than the catalytic site; changes from one conformation to another can alter the activity or ligand affinity for the protein.

a. What are some examples of interactions regarding this protein?

11. What is the difference between ATP and GTP protein regulation?