Name _____ Date _____ Period _____

ZornScience
zornscience.org

Proteins

Biology

Answer in complete sentences. Show your setup for calculations.

1. Name the level of protein structure described.

Description	Level of structure
The order of amino acids in a chain	
Coils and pleats held by hydrogen bonds	
Four folded chains joined together	

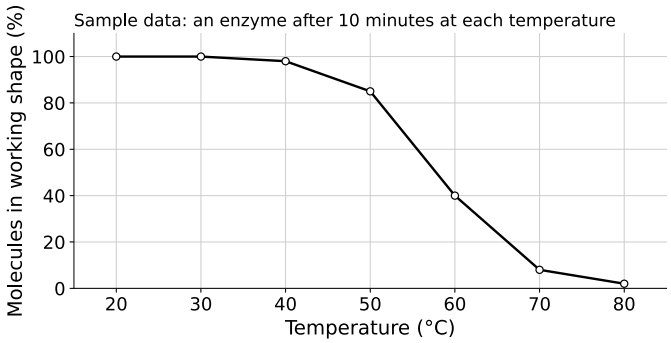
2. A protein is a single chain of 250 amino acids.

(a) How many peptide bonds does it have? Show your setup.

(b) How many molecules of water were released when it formed?

CC BY-NC-SA 4.0 | zornscience.org

3. The graph shows an enzyme heated for 10 minutes (sample data).



(a) What percent of the molecules were still in working shape at 60°C?

(b) Explain why the enzyme stops working at high temperatures.

(c) Did heating change the amino acid sequence? Explain.

4. Proteins are made from 20 different amino acids.

(a) How many different sequences are possible for a chain of 3 amino acids? Show your setup.

(b) In sickle cell disease, one amino acid in hemoglobin is changed. Explain how this can change the function of the protein.

CC BY-NC-SA 4.0 | zornscience.org