

## WGU C785 Final Exam (GRADED A) Questions and Answers (100% Verified Answers)

What is the basic structure of an amino acid? What do they look like?

- ✓ amino group (NH<sub>2</sub> or NH<sub>3</sub>), carboxyl group (COO or COOH), alpha carbon (C), and variable group

How do you identify the 3 different types of side chains: non-polar/hydrophobic, polar, and charged?

- ✓ Non-polar/hydrophobic - end with CH or "can't have" water. Polar - end with OH, SH, or NH. Charged - end with a charge

what kinds of bonds do each of the 3 different types of side chains make?

- ✓ ionic, hydrophobic/non-polar, charged

What are the 4 levels of protein structure?

- ✓ Primary - linear structure, Secondary - Folded into helix or pleated sheet caused by hydrogen bonding, tertiary - 3D structure caused by side chain interactions, quaternary - 1+ amino acid chains combine = multiple subunits MUST have 1+ subunit

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What environmental change breaks each type of bond?

- ✓ hydrophobic - temperature change, ionic - salt or decreased pH, hydrogen - temperature, change in pH, disulfide - reducing agents

what type of amino acid side chain leads to protein aggregation?

- ✓ hydrophobic bonds

how do environmental changes affect protein folding?

- ✓ Extreme temp can cause hydrogen bonds to break apart = malformation of protein folding

how do mutations affect protein structure?

- ✓ Can cause structure to change. Protein loses form = loses function. May form a different protein.

What is an electron?

- ✓ Negatively charged atom on outer ring for bonding

What is energy:

- ✓ Power derived fro chemical interaction

what are covalent bonds?

- ✓ chemical bond, atoms share 1+ valence electrons

what is an ionic bond?

- ✓ bond between positive and negative

what is a hydrogen bond?

- ✓ weak bond between positive and negative

with an amino?

- ✓ piece of amino acid, NH<sub>2</sub> or NH<sub>3</sub>

what is a carboxyl?

- ✓ piece of amino acid, COO or COOH

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What is hydrophobic?

- ✓ Doesn't like water, end with CH

what is hydrophilic?

- ✓ Water Lovering, end with OH, NH, or SH

what is disulfide bond?

- ✓ strongest bond between reduction agents, formed between SH's.

what are zwitterions?

- ✓ amino with positive and negative charges = overall charge of zero

what is a polypeptide

- ✓ polymer of amino acids

What is dehydration synthesis?

- ✓ Process of forming peptide bonds

what is hydrolysis?

- ✓ adding water to destroy bonds

what is an alpha helix?

- ✓ twisted secondary structure, formed by hydrogen bonds

what is a beta sheet?

- ✓ folded second structure shape, formed by hydrogen bonds

what is denaturation?

- ✓ loss of shape due to interruption of chemical bonds; occurs via extreme salt, temp, pH

what is aggregation?

- ✓ clumping of inner or outer cellular proteins caused by misfolded proteins leading to diseases such as Alzheimers, ALS, Parkinson's

how do enzymes catalyze reactions?

- ✓ bind with substrates to decrease activation energy required and decrease reaction rate

how do enzymes affect reaction rate and activation energy?

- ✓ decrease activation energy and decrease reaction rate

what are the 4 steps of the enzymatic cycle?

- ✓ enzyme recognizes substrate, substrate attracts the enzyme; enzyme-substrate complex is formed; enzyme-product complex formed; product is released, enzyme recycled