WGU C785 Final Exam With All The Correct Answers

What is the basic structure of an amino acid? What do they look like?
Correct answer- amino group (NH2 or NH3), 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?
Correct answer- 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?
Correct answer- ionic, hydrophobic/non-polar, charged

What are the 4 levels of protein structure?
Correct answer- 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

What enviormental change breaks each type of bond?
Correct answer- 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 aggregration?
Correct answer- hydrophobic bonds

how do environmental changes affect protein folding?
Correct answer- Extreme temp can cause hydrogen bonds to break apart = malformation of protein folding

how do mutations affect protein structure?
Correct answer- Can cause structure to change. Protein loses form = loses function. May form a different protein.

What is an electron?
Correct answer- Negatively charged atom on outer ring for bonding

What is energy:
Correct answer- Power derived fro chemical interaction

what are covalent bonds?
Correct answer- chemical bond, atoms share 1+ valence electrons

what is an ionic bond?
Correct answer- bond between positive and negative

what is a hydrogen bond?
Correct answer- weak bond between positive and negative

with an amino?
Correct answer- piece of amino acid, NH2 or NH3

what is a carboyxl?
Correct answer- piece of amino acid, COO or COOH

What is hydrophobic?
Correct answer- Doesn't like water, end with CH

what is hydrophilic?
Correct answer- Water Lovering, end with OH, NH, or SH

what is disulfide bond?
Correct answer- strongest bond between reduction agents, formed between SH's.

what are zwitterions?
Correct answer- amino with positive and negative charges = overall charge of zero

what is a polypeptide
Correct answer- polymer of amino acids

What is dehydration synthesis?
Correct answer- Process of forming peptide bonds

what is hydrolysis?
Correct answer- adding water to destroy bonds

what is an alpha helix?
Correct answer- twisted secondary structure, formed by hydrogen bonds

what is a beta sheet?
Correct answer- folded second structure shape, formed by hydrogen bonds

what is denaturation?
Correct answer- loss of shape duet o interruption of chemical bonds; occurs via extreme salt, temp, pH

what is aggregation?
Correct answer- 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?
Correct answer- bind with substrates to decrease activation energy required and decrease reaction rate

how do enzymes affect reaction rate and activation energy?
Correct answer- decrease activation energy and decrease reaction rate

what are the 4 steps of the enzymatic cycle?
Correct answer- enzyme recognizes substrate, substrate attracts the enzyme; enzyme-substrate complex is formed; enzyme-product complex formed; product is released, enzyme recycled

how do environmental changes affect enzymes?
Correct answer- High heat, pH change, high salt concentration, and reducing agents can cause an enzyme to lose its form/lose function

what is a competitive inhibitor?
Correct answer- Mimics substrate and takes its place on the active binding site

what is a noncompetitive inhibitor?
Correct answer- Binds to allosteric site causing active site to change shape = preventing substrate from binding with enzyme

what molecules increase/build up or decrease given a specific inhibitor? A -> (enzyme 1) -> B -> (enzyme 2) -> C -> (enzyme 3) -> D. Pretend Enzyme 2 is inhibited.
Correct answer- Inhibitor would cause a build up for product B, decrease product C. Enzyme 3 and product D would not be created.

what is substrate?
Correct answer- the substance on which an enzyme acts

what is a product?
Correct answer- result of a reaction

what is an intermediate?
Correct answer- products produced in an enzyme pathway before final product

what is an active site?
Correct answer- location where substrate binds with enzyme

what is enzyme specificity?