Physiology 115 **Name** A+ Student
Spring 2015

QUIZ #1

For the multiple choice questions, there is *one* and *only one* best answer. Use the back of the sheet if you need.

1. Which of these are **true** as being described as limits on the size of cells?
   a. The ability of the cell to maintain adequate concentrations of reactants and enzymes so that biochemical reactions can occur
   b. Nutrients and waste substance being able to diffuse so that the cell is not stressed by toxic conditions
   c. As the surface area of a cell decreases it is better able to have much larger volumes
   d. Both (a) and (b)
   e. All of the above

2. The H atoms of H_2O molecules chemically interact with O atoms of other H_2O molecules by
   a. covalent bonding
   b. hydrophobic interactions
   c. hydrogen bonding
   d. substrate binding
   e. van der Waals forces

3. The amino acid has four submolecular parts (moieties). Which two of the four are involved in forming the peptide bond, that will be necessary in forming the polypeptide chain?
   a. the side chain (R group) and the carboxylic acid (–COOH) group
   b. the alpha carbon (α-C) atom and the carboxylic acid (–COOH) group
   c. the fructose and the galactose monosaccharide
   d. the carboxylic acid (–COOH) group and the amino ($–NH_2$) group
   e. the integral part and the peripheral part

4. Answer EITHER (a) OR (b) to get this correct
   (a) Briefly describe any THREE of the FOUR levels of protein structure
   Primary structure: the amino acid sequence
   Secondary structure: formation of alpha helices and beta sheets
   Tertiary structure: the folding of the polypeptide with secondary structure into a functional form if only a one-polypeptide protein
   Quaternary structure: the association of multiple polypeptides, either identical or different, into a complete functional protein, if the protein has two or more subunits

   (b) Draw a reaction energy diagram for an endothermic reaction: label the axes, show the position of reactants, products, and name and label the activation energy & energy of reaction to show this type of reaction

is an endothermic reaction, so products energy level must be higher than reactants energy level