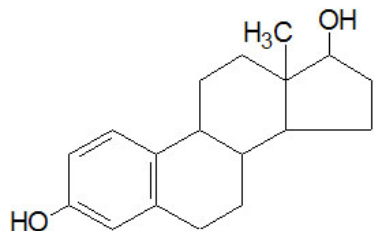


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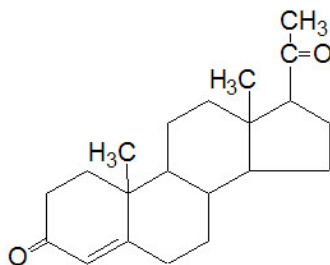
HONORS BIOLOGY – PROBLEM SET

CHAPTER 3: THE MOLECULES OF CELLS

1. How many water molecules are needed to degrade (break down) a protein that contains 250 amino acids? Briefly explain your answer. [2 points]
2. Examine the biochemical structures of estrogen and progesterone. Hypothesize a reason why females with eating disorders have difficulty producing these two sex hormones. HINT: Refer to a diagram on page 41 in your textbook. [2 points]



(estrogen)



(progesterone)

3. Olive oil is considered a “healthy” type of fat because its triglycerides are unsaturated. Butter and lard are considered “unhealthy” because their triglycerides are saturated. What is the difference between the two? Which one is bent and which one is straight? [2 points]
4. Proteins work best when they have a particular 3-dimensional shape that helps support their function. Describe what happens to the proteins in an egg when it is cooked. Now hypothesize why it is so dangerous if a person has a fever of 106°F. Normal body temperature is 98.6°F. [2 points]
5. Which of the following would best describe lactose intolerance:
 - a. an allergy to milk
 - b. a problem with a certain type of sugar in your body
 - c. a problem with a certain type of protein in your body

Explain your answer in a couple of sentences. [2 points]