

Session #32: Homework Problems

Problem #1

Explain the chemistry behind giving a "permanent" to a head of hair.

Problem #2

What is the major force responsible for the formation of an α -helix in protein secondary structure?

Problem #3

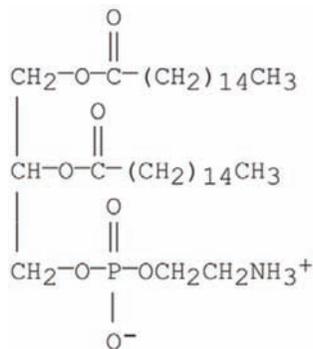
In a globular protein, would the side chain of aspartic acid most probably be oriented toward the interior of the protein or outward toward the aqueous surroundings? Explain.

Problem #4

Provide a sketch of a lipid bilayer. Label the polar and nonpolar regions.

Problem #5

Which of the following terms best describes the compound below?



- A) a phospholipid
- B) a phosphoglyceride
- C) a cephalin
- D) a molecule which contains a polar head group
- E) all of the above

Problem #6

Besides a possible difference in base structure, what is the major structural difference between ribo- and deoxyribonucleosides?

Problem #7

Show that you understand how the structural components of DNA are bonded together by drawing a linear segment that contains 3 base residues.

Problem #8

Define a nucleic acid.

Problem #9

Describe the primary structure of DNA.

Problem #10

Which of the following statements is not true about the structure of DNA as Proposed by Watson and Crick?

- A) The number of adenines in DNA is equal to the number of thymines.
- B) The number of cytosines is equal to the number of guanines.
- C) DNA consists of two strands of nucleic acids with the sugar-phosphate backbone on the inside and the bases on the outside.
- D) The chains in DNA are held together by hydrogen bonding.
- E) Adenine always pairs with thymine and guanine always pairs with cytosine.

Problem #11

Show the hydrogen bonding which occurs when guanine and cytosine form a base pair.

Problem #12

Show the hydrogen bonding which occurs when adenine and thymine form a base pair.

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