

### Extra Homework Problems for Chapter 25

1. Describe the basic components of a nucleotide.

- ① Nitrogen containing organic base (purine or pyrimidine)
- ② Pentose sugar
- ③ Phosphate linkage

2. Explain the structure of DNA and how it is held together.

1° - phosphate/sugar backbone with the sequence of bases

2° - two strands of sugar/phosphate wound in a double helix

The helix is held together by hydrogen bonding between complimentary base pairs.

3. What would be the base pair sequence for the following

RNA a. UGGGCCAAU  
ACCCGGUUA

DNA b. TTTCGCGAAT  
AAAGCGCTTA

RNA c. UAAACCCG  
AUUUGGGC

4. What can affect the physical shape of proteins?

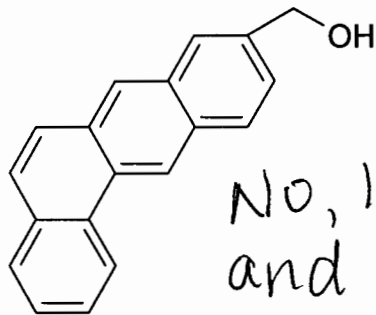
- ① heat
- ② poisons
- ③ some solvents

5. What are monosaccharides and polysaccharides? Give an example of each.

Mono - small carbohydrate molecules, that when broken down give quick energy (glucose)

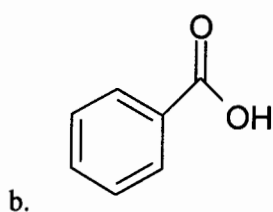
Poly - polymers of carbohydrates that store large amounts

of energy (starch)

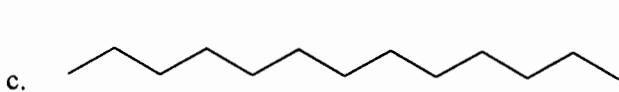


a.

No, large hydrocarbon and therefore nonpolar. Likes only dissolve likes and water is polar

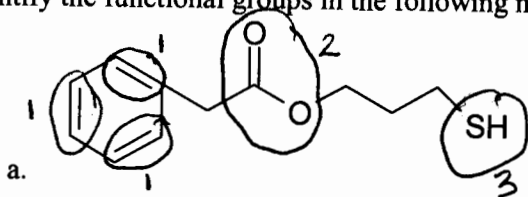


Yes, small hydrocarbon with the ability to hydrogen bond with water.

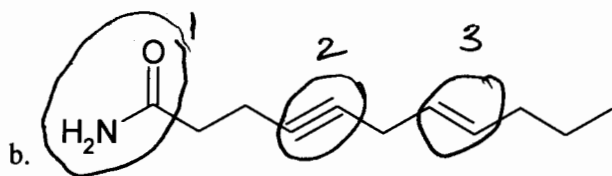


No, a large hydrocarbon molecule that is nonpolar

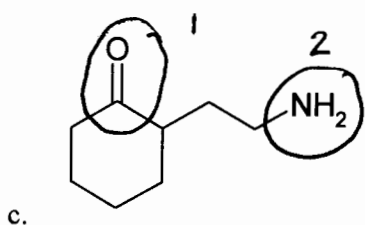
7. Identify the functional groups in the following molecules



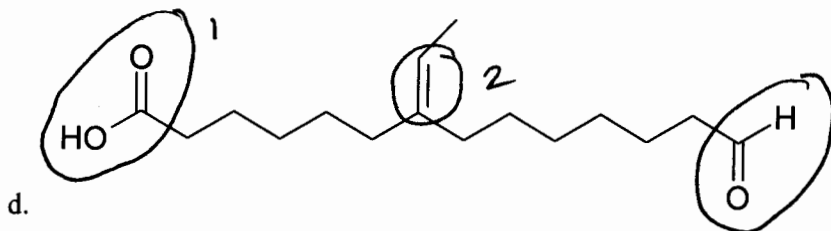
1. alkene
2. ester
3. thiol



1. amide
2. alkyne
3. alkene



1. ketone
2. amine



1. carboxylic acid
2. alkene
3. aldehyde