Chapter 3 Biochemistry Review - Answer the bolded questions on your own paper. Name Key

1) **What properties of carbon make it suitable for forming organic molecules?**
2) Match the functional groups with their names.

a. Phosphate	1. - CH_3
b. Methyl	2. – PO_4
c. Amine	3 - COOH
d. Carboxyl	4. – NH_2
e. Hydroxyl	5 - CHO
f. Carbonyl	6. -OH

3) Label each of the functional groups with the correct name

phosphate carboxyl methyl amine hydroxyl carbonyl

4) **List the 4 macromolecules and the monomers of each.** protein = amino acid carbohydrate = monosaccharide nucleic acid = nucleotide lipid = ∅
5) **List the function of each type of macromolecule.**
6) **Draw the structure of an amino acid.**
7) **What makes the amino acid glycine different than alanine?** The "R" groups are different
8) Draw and explain the primary, secondary, tertiary, and quaternary structure of proteins.
9) Write the correct letter next to each

a. Protein b. Carbohydrate c. Lipid d. Nucleic acid

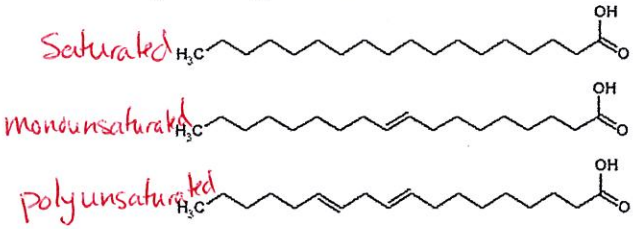
i. Monosaccharide B	viii. RNA D
ii. Amino acid A	ix. cholesterol C
iii. DNA D	x. glucose B
iv. Steroid C	xi. saturated fatty acid C
v. Triglyceride C	xii. Phospholipid C
vi. Cellulose B	xiii. glycogen B
vii. Starch B	xiv. Polysaccharide B

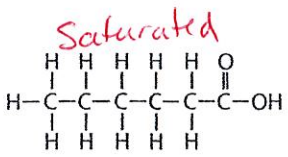
10) What is the difference between dehydration synthesis and hydrolysis?
11) Label the following as monosaccharides, disaccharides, or polysaccharides

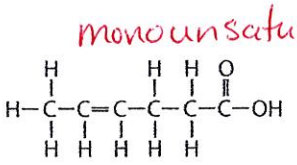
M P P P M D

a. Glucose b. starch c. glycogen d. e. f.

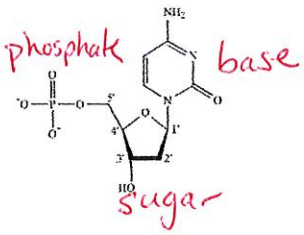
12) What type of macromolecules are the following? Label as saturated, monounsaturated, or polyunsaturated.







13) What are the three parts of a nucleotide? Label the figure with these parts.
14) From the lab –



	Molecule tested for:	Positive result	Negative result
Biuret	protein	purple	blue
Benedicts	simple sugar	orange	blue
Paper Bag	lipid	translucent	—
Iodine	starch	black	yellow

#5 Look at the PPT - here are a few

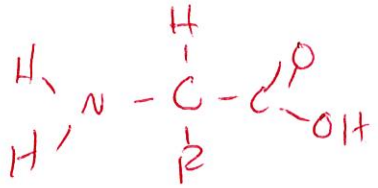
* protein = enzymes, cell membrane, transport structure

* carbohydrates, =. energy
  - Starch = energy storage in plants
  - Cellulose = structure in plants
  - glycogn = energy storage in animals

* lipids - stores energy - triglyceride
  - Steroids - testosterone, cholesterol hormones
  - cell membrane (phospholipids)
  - coatings (wax) protection

* nucleic acids
  - genetic information = DNA, RNA
  - usable energy = ATP

6.



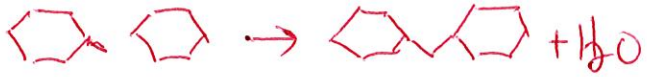
8. 1° gly - ala - met - ala
the sequence of amino acids

2° = ~~ - α helix + β sheets

3° = ~~ - 3-D structure

4° = ~~ >1 protein chain

10. dehydration synthesis



hydrolysis