Section 3B Review

Name: _____

1) What element do all organic compounds contain? Why is this element so special in terms of bonding?

2) What are petrochemicals? What are they used to build?

3) What is a monomer? What is a polymer?

4) What is the process of making a polymer?

5) How do you make different plastics using the process above?

6) What is the maximum number of electrons held by the first electron shell? The second?

7) Draw Lewis dot structures of carbon, hydrogen, nitrogen and oxygen.

8) Draw a Lewis dot structure for a carbon dioxide (CO_2) molecule. Draw an NH_3 molecule.

9) How do covalent bonds hold atoms together? What is the magic number for valence electrons?

10) When a line is connecting two atoms, depicting a bond, how many electrons are represented by that line?

11) How many electrons would be needed to combine with one oxygen atom to form a stable bond?

12) What is a valence electron?

13) Complete the table:

	Type of bonds seen	**Number of atoms bonded to carbon atoms**	**Saturated or unsaturated**
Alkanes			
Alkenes			

	triple		

14) Draw a pentane, pentene, and pentyne molecule. Label each drawing with its molecular formula.

15) What do the following prefixes mean?

Meth: ____
Hex: _____
Prop: _____
Pent: _____
But: _____
Oct: _____
Eth: _____
Dec: _____

16) How does 1-pentene differ from 2-pentene?

17) What is the molecular formula for cyclopentane? (Hint: draw it out)

18) Draw cyclohexane. Explain how this is different from cyclohexene..

19) Next to each of the following molecules, indicate whether they are saturated or not. (Hint: if you don't remember the formulas, try drawing them out.)

C_6H_{12} _____
C_5H_{12} _____
C_5H_{10} _____
C_6H_{14} _____

20) Draw the structure for an alcohol, a carboxylic acid, an ester, and an ether.

21) A condensation ester is made by mixing a carboxylic acid with an alcohol. When this reaction happens, what other product is formed? Where do each of the elements in this product come from?