CHM 2210 Name: _____
CH 1 HW

I. Write the following definitions

a. Organic chemistry (present)

b. Organic chemistry (historical)

c. Vitalism

d. Aufbau principle

e. Hund's rule

f. Additive combination of orbitals

g. Subtractive combination of orbitals

II. How can you tell a synthesized compound from a plant derived compound with respect to ^{14}C dating?

III. Are all carbon compounds considered organic? Why/why not?

IV. Where do you find electrons, protons and neutrons? What charges do each have?

V. What is a node?

VI. What is the most important difference between ionic and covalent bonding?

VII. Draw the whole ground state electron configuration for the following and circle the valence electrons

a. Cr^{3+}

b. O^{2-}

c. Pb

d. N

e. C

VIII. Label the following ionic, polar covalent, or non-polar covalent

a. $N_{2(g)}$

b. $HCl_{(aq)}$

c. $NaF_{(s)}$

d. $H_2O_{(l)}$

e. $MgBr_{2(s)}$

f. $O_{2(g)}$

IX. How many valence electrons do the following atoms or ions have?

a. Br

b. I^-

c. O

d. P

e. N^{3-}

f. C

g. Rb

h. Ba

X. Draw the Lewis dot structure for the following, including formal charges

a. CH_3COOH

b. H_3O^+

c. NH_4^+

d. CH_2O

e. $CH_3CO_2^-$

f. H_2SO_4

g. PO_4^{3-}

h. CO_2

i. CH_3COCH_3

j. CH_3CH_2CN

k. NO_2^-

l. N_2O

m. HCN

n. C_5H_5N

o. Cl_2CO

XI. Draw the skeletal structure for the following

a. $CH_3(CH_2)_4CH_3$

b. $CH_3CH(CH_3)CH(CH_3)CH_3$

c. $(CH_3)_2CHCH(CH_3)_2$

d. $CH_3CH_2C(CH_2CH_3)(CH_3)CH_2CH_3$

e. $CH_3CH(OH)CH(CH_3)CH_2CH_3$

f. $CH_3CH(Cl)CH(CH_3)CH(CH_3)CH(Br)CH_3$

g. $CH_3(CH_2)_2C(CH_3)_2(CH_2)_2CH_3$

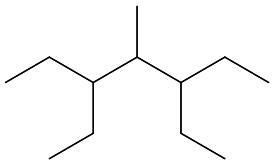
h. $(CH_3)_2CHC(CH_2CH_3)(CH_3)CH(CH_3)_2$

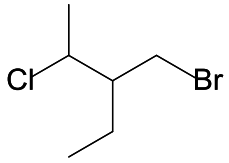
i. $CH_3CH_2C(CH_3)CHCH(CH_3)_2$

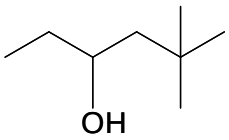
j. $CHCCH_3$

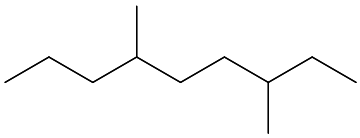
k. $CH(Cl)CHCHO$

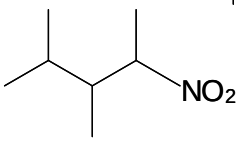
XII. Draw the condensed structural formula for the following

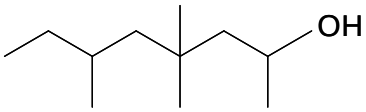
a. 

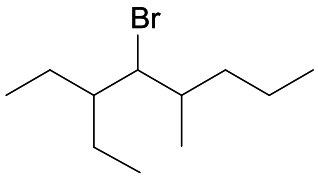
b. 

c. 

d. 

e. 

f. 

g. 

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