Organic Chemistry I (CHM 335) Fall 16 Dr. Hahn MW am Quiz I 9/7W Exam # _____

Sign Name Key Print Name _____

Please show work on all questions for partial credit even on questions which do not specify. (50 total pts)

1. Give the electron configuration for the element Br. (6 pts)

$1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 4s^2, 3d^{10}, 4p^5$

2. (a) Given the following formula, calculate the number of valence electrons for the molecule. Show work. C O_2 Br H (6 pts) $4 + (6 * 2) + 7 + 1 = 24\bar{e}$

math $-\frac{1}{2}$

(b) Given the following 2 Lewis Dot structures (for the formula above), circle the correct one. (4 pts)

3. VSEPRT: Given the Lewis Dot structure which you chose above in (2b), for the atom with the *

a) What is the number of electron domains (VSEPRT electron pairs) around the atom with the * 3 (a) 4 (b)

(2 pts each, 12 pts total)

b) How many lone pairs on the atom with the * 0 (a) 1 (b)

c) What is the structure of the electron pairs at the atom with the * trigonal planar (a) tetrahedral (b)

d) What is the structure of the molecule at the * (a) trigonal planar (b) trigonal pyramidal

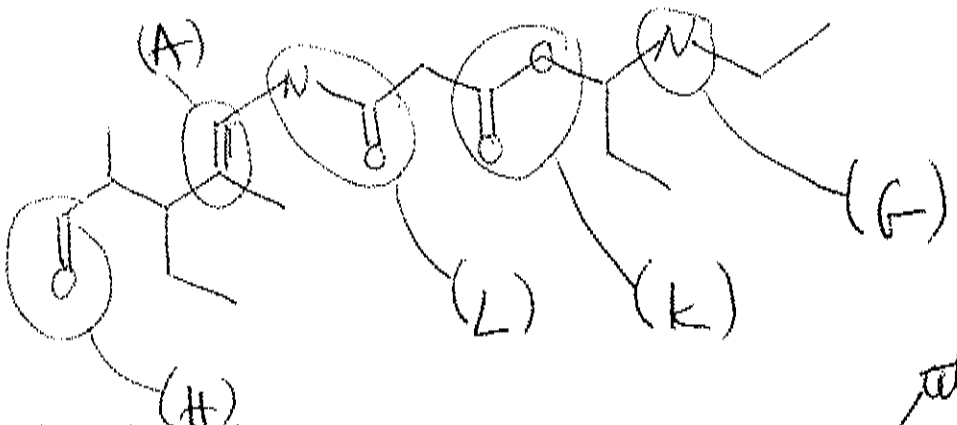
e) Draw in dipole moment arrows in the Lewis Dot structure which you chose above in (2b).

f) Name the intermolecular force for the molecule which you chose above in (2b). H bonding (dipole ≠ zero as well)

Graded consistent

4. Given the following molecule, fill in the parenthesis with the letter of the functional group.

(A) alkene (B) alkyne (C) arene (D) alkyl halide (E) alcohol (F) ether (G) amine (H) aldehyde (I) ketone (J) carboxylic acid (K) ester (L) amide (M) acid halide (N) acid anhydride (You may use the same letter multiple times) (4 pts each. 12 pts total) – do 3 of 5 parenthesis



5. For the following condensed molecular formula, write out the skeletal molecular formula. (10 pts)

$CH_3CH_2C(CH_3)(CH_2CH_2CH(CH_3)_2)CH_2CH_2CH_2CH_3$

attempt −5 attempt +5

decane / −10C

6-ethyl-2,5-dimethyldecane

Extra Credit: Name the molecule above in #5 using IUPAC rules. (6 pts)

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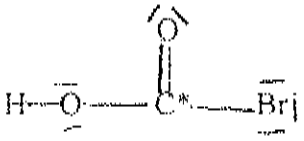
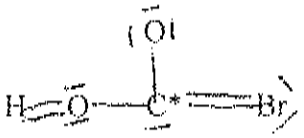
1. Give the electron configuration for the element Br. (6 pts)

2. (a) Given the following formula, calculate the number of valence electrons for the molecule. Show work. C O_2 Br H (6 pts)

(b) Given the following 2 Lewis Dot structures (for the formula above), circle the correct one. (4 pts)





3. VSEPRT: Given the Lewis Dot structure which you chose above in (2b), for the atom with the *

a) What is the number of electron domains (VSEPRT electron pairs).around the atom with the * _____ (2 pts each, 12 pts total)

b) How many lone pairs on the atom with the * _____

c) What is the structure of the electron pairs at the atom with the * _____

d) What is the structure of the molecule at the * _____

e) Draw in dipole moment arrows in the Lewis Dot structure which you chose above in (2b).

f) Name the intermolecular force for the molecule which you chose above in (2b).

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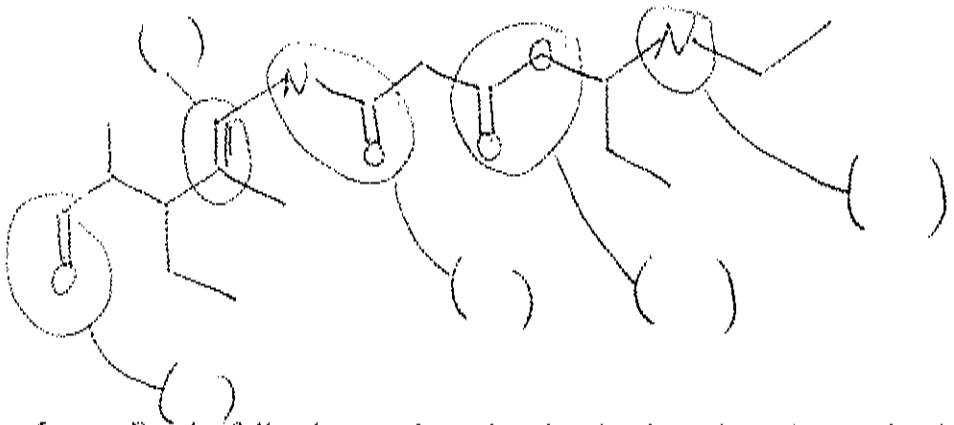
4. Given the following molecule, fill in the parenthesis with the letter of the functional group. (A) alkene (B) alkyne (C) arene (D) alkyl halide (E) alcohol (F) ether (G) amine (H) aldehyde (I) ketone (J) carboxylic acid (K) ester (L) amide (M) acid halide (N) acid anhydride (You may use the same letter multiple times) (4 pts each, 12 pts total) – do 3 of 5 parenthesis



5. For the following condensed molecular formula, write out the skeletal molecular formula. (10 pts)

CH_2–CH_2 –CH-$(CH_3)_2$

CH_2

CH_3–CH_2–C–CH_2–CH_2–CH_2–CH_3

CH_3

Extra Credit: Name the molecule above in #5 using IUPAC rules. (6 pts)