

Name Key VA = not attend Print Name _____

Please show work on all questions for partial credit even on questions which do not specify. (25 total pts)

1. For the following molecule given the Lewis Dot Structure (1 pt per letter, 5 pts) 2/12/16 F

(a) What is the VSEPR shape of the electrons at *? trigonal planar

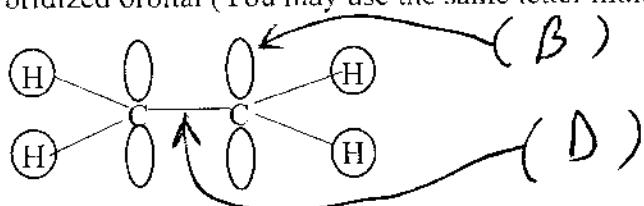
(b) What is the VSEPR shape of the molecule at *? trigonal planar

(c) Draw any non zero dipole moment arrows on the molecule. no pts off

(d) Is the vector sum of the individual dipoles [(zero) or (nonzero)] (circle one) arrow one missing or gave vector sum arrow

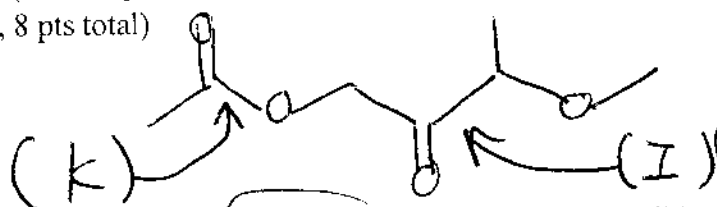
(e) What is the intermolecular force for the molecule? [(H bonding) (dipolar) (van der waals)] (circle one) arrow

2. Given the following molecular orbital diagram for the alkene $H_2C=CH_2$, fill the parenthesis with a matching letter. (A) s orbital (B) p orbital (C) sp^3 hybridized orbital (D) sp^2 hybridized orbital (E) sp hybridized orbital (You may use the same letter multiple times) (3 pts each, 6 pts total)



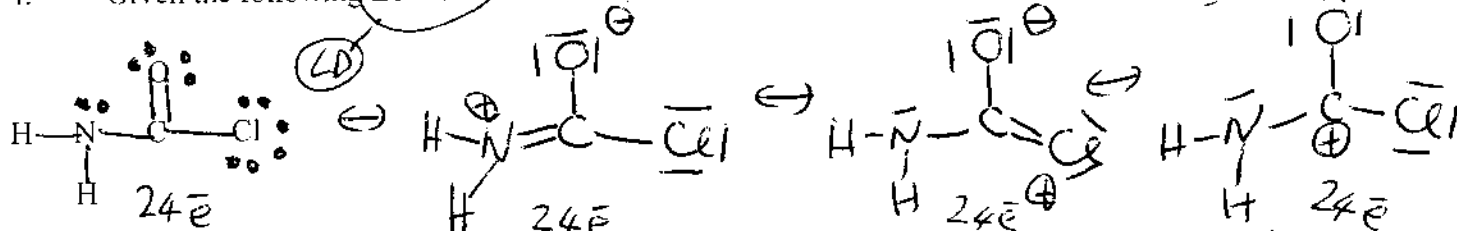
same LD
attempt -2
BA = bad attempt -3
BBA -4
moved atoms
not LD -6

3. 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 all the letters or none of the letters and may use the same letter multiple times) (4pts each, 8 pts total)

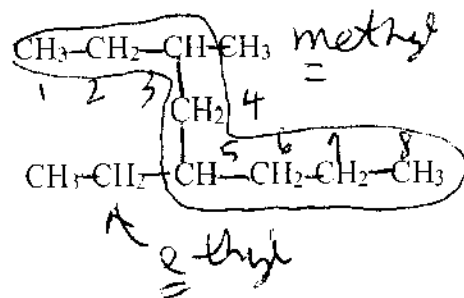


extra wrong - no pts
gave correct +

4. Given the following Lewis Dot structure, draw one valid resonance structure. (6 pts)



Extra Credit: (2 pts) Name the following molecule using IUPAC rules. [Please ask me to post the names of the root alkanes on the projector (if I forget) because I went over it today and I do not expect you to memorize the alkane root names immediately.] (show work)

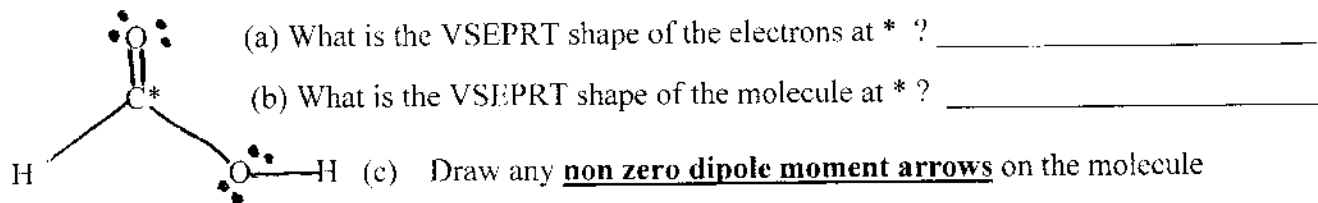


octane
lowest possible #
lower than 4, 6
5-ethyl-3-methyloctane
alphabetize
attempt -1
small error
BA -1 1/2 -1

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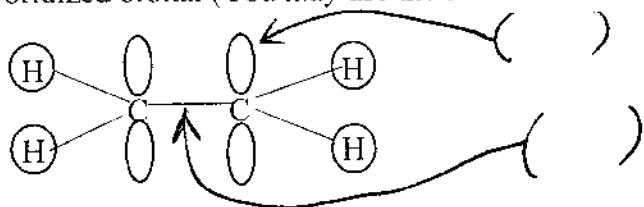
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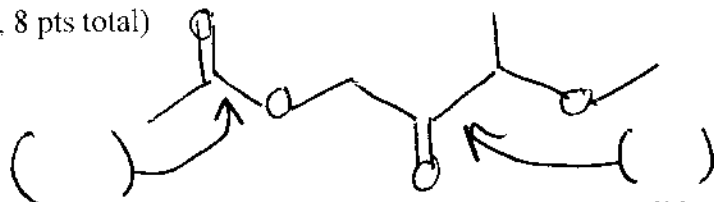
- (d) Is the vector sum of the individual dipoles [(zero) or (nonzero)] (circle one)

- (e) What is the intermolecular force for the molecule ? [(H bonding)(dipolar)(van der waals)] (circle one)

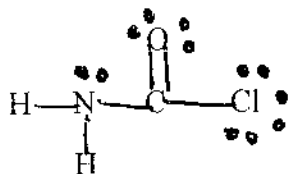
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