Organic Chemistry I (CHEM 340) Fall 15 Dr. Hahn MWF 11 am Quiz I Form A Exam # _____

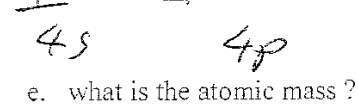
Sign Name Key Print Name _____

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

1. a. For the element **Se** show the electron configuration for all electrons in the format $1s^2\ 2s^2, \ldots$ etc (2pts each letter, 12 pts total) $1s^2,\ 2s^2,\ 2p^6,\ 3s^2,\ 3p^6,\ 4s^2,\ 3d^{10},\ 4p^4$ (−4 pt each)

b. For the same element show the electron configuration for all **valence** electrons in the same format. $4s^2\ 4p^4$ (not −1)

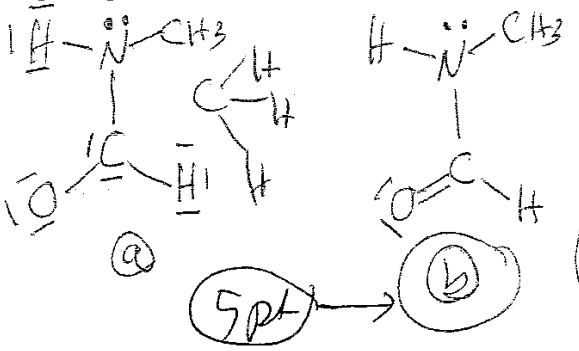
c. For the same element, show the valence electron configuration orbital diagram in the format: (1s 2s etc) using up and down arrows to represent electrons. (not −1) (extra wrong −1 pt)



d. For the same element, what is the group number ? 6A e. what is the atomic mass ? 78.96 f. what is the atomic number ? 34

2. Give the **symbol of one element** which belongs to the "s block" of the periodic table. Ca (2 pts) (any group 1A + 2A element)

3 Given the following Lewis dot structures, which is the correct Lewis Dot structure? Circle the letter under the **correct structure** and then give at **one reason** why the **wrong structure is incorrect**. (9 pts, 5 pts choice, 4 pts explanation)



5pt

@ is wrong H more than duet, C more than octet

valence $\bar{e}$ = $5\bar{e} + 2(4\bar{e}) + 5(1\bar{e}) + 6\bar{e}$ (N, C, H, O) $= 24\bar{e}$

@ has $20 \times 2 = 40\ \bar{e}$

b has $12 \times 2 = 24\ \bar{e}$

4pt

4. Given the following Lewis Dot structure, do VSEPRT

a. Number of VSEPRT electron pairs around the atom with the * 4 (1 pt)

b. Number of lone pairs around the atom with the * 2 (1 pt)

c. VSEPRT molecular geometry for the atom with the * bent (2 pts)

Extra Credit: Given the following, give the skeletal structure which corresponds. (2 pts)

$CH_3-CH_2-CH_2-CH_3$

wrong #C −2

Organic Chemistry I (CHEM 340) Fall 15 Dr. Hahn MWF 11 am Quiz I Form B Exam # _____

Sign Name Key Print Name blue

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

1. a. For the element **Sn** show the electron configuration for all electrons in the format $1s^2$, $2s^2$, … etc (2pts each letter, 12 pts total) $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 4s^2, 3d^{10}, 4p^6, 5s^2, 4d^{10}, 5p^2$ −3 each 1 free

b. For the same element show the electron configuration for all **valence** ~~electrons~~ in the same format. $5s^2\ 5p^2$ not −1

c. For the same element, show the valence electron configuration orbital diagram in the format:

{ 1v 1 etc} using up and down arrows to represent electrons.
1s 2s

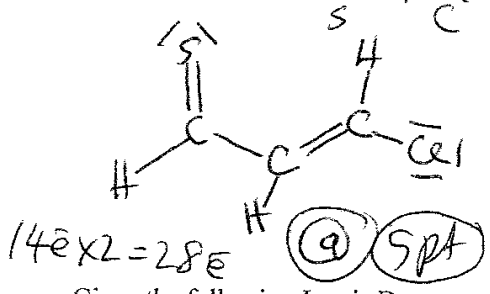
not −1 1v 5s 1 1 — 5p

d. For the same element, what is the group number ? 4A e. what is the atomic mass ?

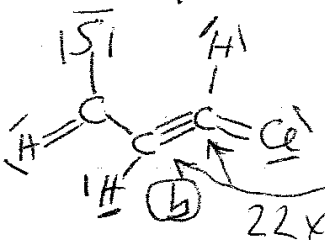
118.710 f. what is the atomic number ? 50

2. Give the **symbol of one element** which belongs to the "d block" of the periodic table. Co (2 pts) (any 3B to 2B element group)

3 Given the following Lewis dot structures, which is the correct Lewis Dot structure? Circle the letter under the **correct structure** and then give at **one reason** why the **wrong structure is incorrect** (9 pts, 5 pts choice, 4 pts explanation) $6\bar{e} + 3(4\bar{e}) + (7\bar{e}) + 3(1\bar{e}) = 28\bar{e}$ (S, C, Cl, H)



$14\bar{e} \times 2 = 28\bar{e}$ (a) 5pt

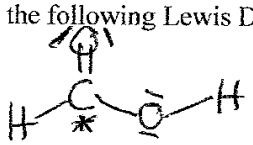


(b) has too many ē, H more than duet, C more than ~~Octet~~

$22 \times 2 = 44\bar{e}$

4pt

3. Given the following Lewis Dot structure, do VSEPRT

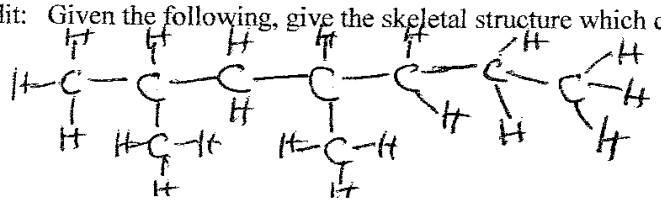


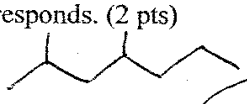
a. Number of VSEPRT electron pairs around the atom with the * 3 (1 pt) (= counts as 1)

b. Number of lone pairs around the atom with the * zero (1 pt)

c. VSEPRT molecular geometry for the atom with the * trigonal planar (2 pts)

Extra Credit: Given the following, give the skeletal structure which corresponds. (2 pts)





wrong #C or wrong placement −2

Organic Chemistry I (CHEM 340) Fall 15 Dr. Hahn MW 5 pm Quiz I Exam # _____

Sign Name Key Print Name _____

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

1. a. For the element **As** show the electron configuration for all electrons in the format $1s^2$, $2s^2$, … etc (2pts each letter, ~~12 pts total~~) $1s^2, 2s^2, 2p^6, 3s^2, 3p^6, 4s^2, 3d^{10}, 4p^3$ (-½ pt each)

b. For the same element show the electron configuration for all **valence** electrons in the same format. $4s^2, 4p^3$ (not -1 pt)

c. For the same element, show the valence electron configuration ~~orbital diagram~~ in the format:

{1↓ 1 etc} using up and down arrows to represent electrons. (not -1)

1s 2s

1↓ 1 1 1

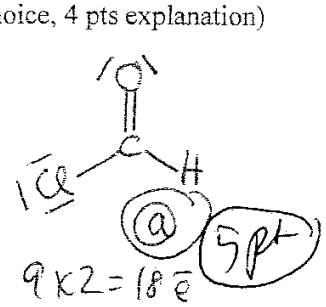
4s 4p

d. For the same element, what is the group number ? 5A e. what is the atomic mass ?

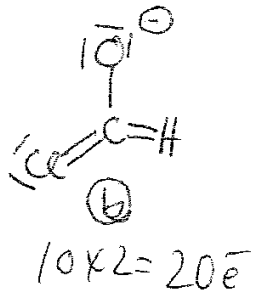
74.92 f. what is the atomic number ? 33

2. Give the **symbol of one element** which belongs to the "p block" of the periodic table. B (2 pts) any group 3A to 8A element

3 Given the following Lewis dot structures, which is the correct Lewis Dot structure? Circle the letter under the **correct structure** and then give at **one reason** why the **wrong structure is incorrect**. (9 pts, 5 pts choice, 4 pts explanation)



9 x 2 = 18 e⁻ (5pt)



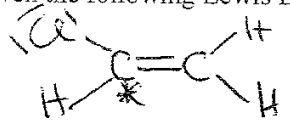
10 x 2 = 20 e⁻

C Cl H

6e⁻ + 4e⁻ + 7e⁻ + 1e⁻ = 18e⁻

(b) has too many e⁻, H more than duet, C more than octet (4pt)

3. Given the following Lewis Dot structure, do VSEPRT

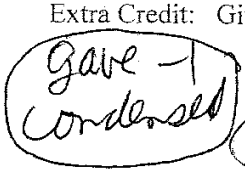


a. Number of VSEPRT electron pairs around the atom with the * 3 (1 pt) (= counts as one)

b. Number of lone pairs around the atom with the * zero (1 pt)

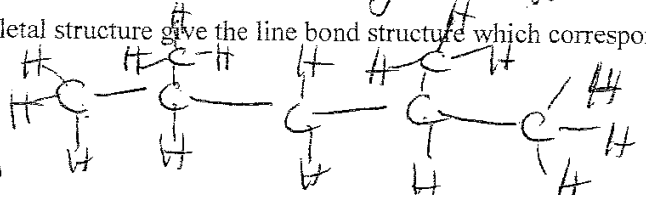
c. VSEPRT molecular geometry for the atom with the * trigonal planar (2 pts)

Extra Credit: Given the following skeletal structure give the line bond structure which corresponds. (2 pts)



gave -1 condensed

wrong #C -2



Organic Chemistry I (CHEM 340) Fall 15 Dr. Hahn MWF 11 am Quiz I Form A Exam # _____

Sign Name _____ Print Name _____

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

1. a. For the element **Se** show the electron configuration for all electrons in the format $1s^2$, $2s^2$, … etc (2pts each letter, 12 pts total)

b. For the same element show the electron configuration for all **valence** electrons in the same format.

c. For the same element, show the valence electron configuration orbital diagram in the format:

{⇅ ⇅ etc} using up and down arrows to represent electrons.

1s 2s

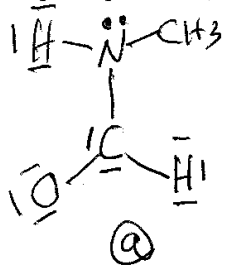
d. For the same element, what is the group number ? _____ e. what is the atomic mass ?

_____ f. what is the atomic number ? _____

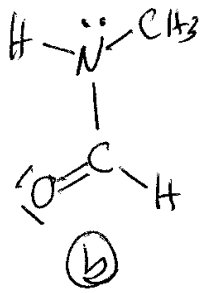
2. Give the **symbol of one element** which belongs to the "s block" of the periodic

table. _____ (2 pts)

3 Given the following Lewis dot structures, which is the correct Lewis Dot structure? Circle the letter under the **correct structure** and then give at **one reason** why the **wrong structure is incorrect**. (9 pts, 5 pts choice, 4 pts explanation)



(a)



(b)

4. Given the following Lewis Dot structure, do VSEPRT

a. Number of VSEPRT electron pairs around the atom with the * _____ (1 pt)

b. Number of lone pairs around the atom with the * _____ (1 pt)

c. VSEPRT molecular geometry for the atom with the * _____ (2 pts)

Extra Credit: Given the following, give the skeletal structure which corresponds. (2 pts)

$CH_3-CH_2-CH_2-CH_3$

Organic Chemistry I (CHEM 340) Fall 15 Dr. Hahn MWF 11 am Quiz I Form B Exam # _____

Sign Name _____ Print Name _____

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

1. a. For the element **Sn** show the electron configuration for all electrons in the format $1s^2$, $2s^2$, … etc (2pts each letter, 12 pts total)

b. For the same element show the electron configuration for all **valence** electrons in the same format.

c. For the same element, show the valence electron configuration orbital diagram in the format:

{ ↿⇂ ↿⇂ etc} using up and down arrows to represent electrons.

1s 2s

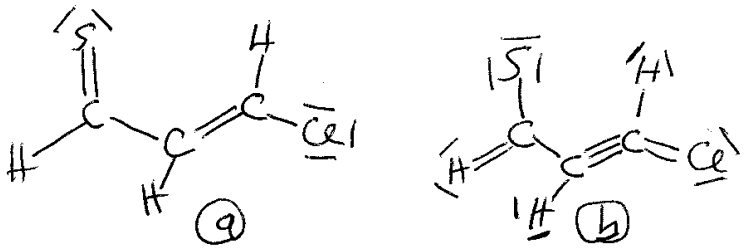
d. For the same element, what is the group number ? _____ e. what is the atomic mass ?

_____ f. what is the atomic number ? _____

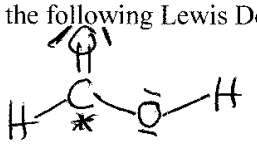
2. Give the **symbol of one element** which belongs to the "d block" of the periodic

table. _____ (2 pts)

3 Given the following Lewis dot structures, which is the correct Lewis Dot structure? Circle the letter under the **correct structure** and then give at **one reason** why the **wrong structure is incorrect**. (9 pts, 5 pts choice, 4 pts explanation)



3. Given the following Lewis Dot structure, do VSEPRT

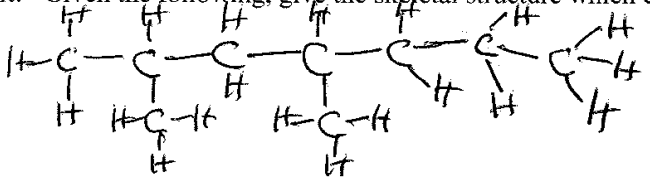


a. Number of VSEPRT electron pairs around the atom with the * _____ (1 pt)

b. Number of lone pairs around the atom with the * _____ (1 pt)

c. VSEPRT molecular geometry for the atom with the * _____ (2 pts)

Extra Credit: Given the following, give the skeletal structure which corresponds. (2 pts)



Organic Chemistry I (CHEM 340) Fall 15 Dr. Hahn MW 5 pm Quiz I Exam # _____

Sign Name _____ Print Name _____

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

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b. For the same element show the electron configuration for all **valence** electrons in the same format.

c. For the same element, show the valence electron configuration orbital diagram in the format:

{⇅ ⇅ etc} using up and down arrows to represent electrons.

1s 2s

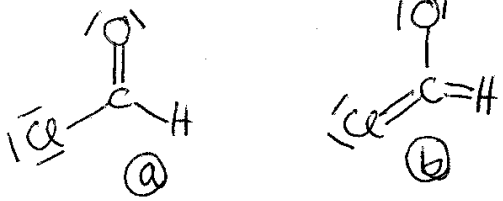
d. For the same element, what is the group number ? _____ e. what is the atomic mass ?

_____ f. what is the atomic number ? _____

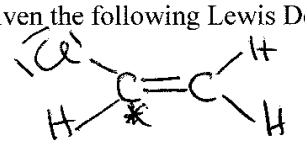
2. Give the **symbol of one element** which belongs to the "p block" of the periodic

table. _____ (2 pts)

3 Given the following Lewis dot structures, which is the correct Lewis Dot structure? Circle the letter under the **correct structure** and then give at **one reason** why the **wrong structure is incorrect**. (9 pts, 5 pts choice, 4 pts explanation)



3. Given the following Lewis Dot structure, do VSEPRT



a. Number of VSEPRT electron pairs around the atom with the * _____ (1 pt)

b. Number of lone pairs around the atom with the * _____ (1 pt)

c. VSEPRT molecular geometry for the atom with the * _____ (2 pts)

Extra Credit: Given the following skeletal structure give the line bond structure which corresponds. (2 pts)