Quiz II General Chemistry I Lecture Fall 14 Dr. Hahn 20 pts 9/12 F 9:30am form A quiz # ____

Name Key (print name) Name _____ (sign name)

Please show all work for full credit and to get partial credit. $N_A = 6.022 \times 10^{23}$

1. For the following symbols give the element name. For the following element name, write down the element symbol. (4 pts, 2 pts each)

Hg Mercury barium Ba

2. Given the following directly from the periodic table, (8 pts, 1 pt each)

15 P 30.973761

a. Write the symbol for the element in the form of ${}^{A}_{Z}X$ $^{31}_{15}P$

b. How many protons ? 15 c. How many electrons (for a neutral atom) ? 15

d. How many neutrons ? 16 (show work)

31 − 15 = 16

e. How much does **one atom** of the element weigh 30.973761 amu

f. How much does **one mole** of the element weigh 30.973761 grams

g. How many atoms does **one mole** of the element contain 6.022×10^{23}

h. What is the charge on the element as an ion ? −3 explain or show work.

Group IIA → 5 → 5 − 8 = −3

3. If you have 78.2 grams of the element **Na** , (8 pts, 4 pts per letter)

a. How many moles do you have ? show work. (molar mass = 22.989770)

$$78.2\text{ g Na} \times \frac{1\text{ mol Na}}{22.99\text{ g Na}} = 3.40\text{ mol}$$

b. How many atoms do you have in that many grams ? (show work).

$$78.2\text{ g Na} \times \frac{1\text{ mol Na}}{22.99\text{ g Na}} \times \frac{6.022 \times 10^{23}\text{ atoms}}{1\text{ mol Na}} = 2.05 \times 10^{24}\text{ atoms}$$

Extra Credit: Give the correct formula for the element Al (+3) combined with the element S (-2) . (2 pts)

Al^{+3} S^{-2} Al_2S_3 or $(\#Al)(+3) + (\#S)(-2) = 0$

What is the name of the binary ionic compound that you wrote the formula for above? (2 pts)

Cation − aluminum Anion Sulfur − ending + ide

aluminum sulfide − ionic − no # prefix

Quiz II General Chemistry I Lecture Fall 14 Dr. Hahn 20 pts 9/12 F 9:30am form B quiz # ____

Name (print name) Kelly Name (sign name) _____

Please show all work for full credit and to get partial credit. $N_A = 6.022 \times 10^{23}$

1. For the following symbols give the element name. For the following element name, write down the element symbol. (4 pts, 2 pts each)

Potassium K N nitrogen

2. Given the following directly from the periodic table, (8 pts, 1 pt each)

37
Rb
85.4678

a. Write the symbol for the element in the form of ${}^{A}_{Z}X$ ${}^{85}_{37}Rb$

b. How many protons ? 37 c. How many electrons (for a neutral atom) ? 37

d. How many neutrons ? 48 (show work)

85 − 37 = 48

e. How much does **one atom** of the element weigh 85.4678 amu

f. How much does **one mole** of the element weigh 85.4678 grams

g. How many atoms does **one mole** of the element contain 6.022×10^{23}

h. What is the charge on the element as an ion ? +1 explain or show work.

Rb in group IA → charge = + group # = +1

3. If you have 16.55 grams of the element **P** , (8 pts, 4 pts per letter)

a. How many moles do you have ? show work. P atomic mass = 30.973761

$$16.55\ g \times \frac{mol\ P}{30.97\ g\ P} = 0.5344\ mol\ P$$

b. How many atoms do you have in that many grams ? (show work).

$$16.55g \times \frac{mol\ P}{30.97\ g\ P} \times \frac{6.022 \times 10^{23}\ atoms}{1\ mol\ P} = 3.218 \times 10^{23}\ atom$$

Extra Credit: Give the correct formula for the element Na (+1) combined with the element O (-2) . (2 pts)

$Na^{+1}O^{-2} \rightarrow Na_2O$ or $(\#Na)(+1) + (\#O)(-2) = 0$ (2 Na, 1 O)

What is the name of the binary ionic compound that you wrote the formula for above? (2 pts)

cation − sodium anion oxygen − ending + ide

sodium oxide (ionic − no # prefix)

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Name (print name) key Name (sign name) _____

Please show all work for full credit and to get partial credit. $N_A = 6.022 \times 10^{23}$

1. For the following symbols give the element name. For the following element name, write down the element symbol. (4 pts, 2 pts each)

Fe iron hydrogen H

2. Given the following directly from the periodic table, (8 pts, 1 pt each)

38
Sr
87.62

a. Write the symbol for the element in the form of ${}^{A}_{Z}X$ $^{88}_{38}Sr$

b. How many protons ? 38 c. How many electrons (for a neutral atom) ? 38

d. How many neutrons ? 50 (show work)

88 − 38 = 50

e. How much does **one atom** of the element weigh 87.62 amu

f. How much does **one mole** of the element weigh 87.62 grams

g. How many atoms does **one mole** of the element contain 6.022×10^{23}

h. What is the charge on the element as an ion ? +2 explain or show work.

Sr → group # = IIA, Charge = + group # = +2

for ionic

3. If you have 423.2 grams of the element S , (8 pts, 4 pts per letter)

a. How many moles do you have ? show work.

S → atomic mass # = 32.066

$$423.2\ g\ S \times \frac{1\ mol\ S}{32.07\ g\ S} = 13.20\ mol\ S$$

b. How many atoms do you have in that many grams ? (show work).

$$423.2\ g\ S \times \frac{1\ mol\ S}{32.07\ g\ S} \times \frac{6.022 \times 10^{23}\ atoms}{1\ mol\ S} = 7.947 \times 10^{24}$$

Extra Credit: Give the correct formula for the element Ba (+2) combined with the element N (-3) . (2 pts)

$Ba^{+2}\ N^{-3} \rightarrow Ba_3N_2$ or $(\#Ba)(+2) + (\#N)(-3) = 0$

What is the name of the binary ionic compound that you wrote the formula for above? (2 pts)

cation − barium anion nitrogen − ending + ide =

barium nitride − no # prefix

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Name Key (print name) Name _____ (sign name)

Please show all work for full credit and to get partial credit. $N_A = 6.022 \times 10^{23}$

1. For the following symbols give the element name. For the following element name, write down the element symbol. (4 pts, 2 pts each)

Silver Ag sulfur S

2. Given the following directly from the periodic table, (8 pts, 1 pt each)

35 Br 79.904

a. Write the symbol for the element in the form of ${}^{A}_{Z}X$ ${}^{80}_{35}Br$

b. How many protons ? 35 c. How many electrons (for a neutral atom) ? 35

d. How many neutrons ? 45 (show work)

$80 - 35 = 45$

e. How much does **one atom** of the element weigh 79.904 amu

f. How much does **one mole** of the element weigh 79.904 grams

g. How many atoms does **one mole** of the element contain 6.022×10^{23}

h. What is the charge on the element as an ion ? −1 explain or show work.

Group # Br = VII A → Charge = $7 - 8 = -1$

3. If you have 6.77 grams of the element **Se**, (8 pts, 4 pts per letter)

a. How many moles do you have ? show work.

Se atomic mass = 78.96

$6.77\text{g Se} \times \frac{1\text{ mol Se}}{78.96\text{ g Se}} = 0.0857$

b. How many atoms do you have in that many grams ? (show work).

$6.77\text{g Se} \times \frac{1\text{ mol Se}}{78.96\text{ g Se}} \times \frac{6.022 \times 10^{23}\text{ atoms}}{1\text{ mol Se}} = 5.16 \times 10^{22}\text{ atoms}$

Extra Credit: Give the correct formula for the element Mg (+2) combined with the element Br (-1). (2 pts)

Mg^{+2} Br^{-1} $MgBr_2$ → or $(\#Mg)(+2) + (\#Br)(-1) = 0$ (#Mg = 1, #Br = 2)

What is the name of the binary ionic compound that you wrote the formula for above? (2 pts)

Cation magnesium Anion bromine - ending + ide

magnesium bromide (ionic no #prefix)

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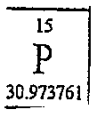
Name _____ Name _____
(print name) (sign name)

Please show all work for full credit and to get partial credit. $N_A = 6.022 \times 10^{23}$

1. For the following symbols give the element name. For the following element name, write down the element symbol. (4 pts, 2 pts each)

Hg _____ barium _____

2. Given the following directly from the periodic table, (8 pts, 1 pt each)



a. Write the symbol for the element in the form of ${}^{A}_{Z}X$ _____

b. How many protons ? _____ c. How many electrons (for a neutral atom) ? _____

d. How many neutrons ? _____ (show work)

e. How much does **one atom** of the element weigh _____ amu

f. How much does **one mole** of the element weigh _____ grams

g. How many atoms does **one mole** of the element contain _____

h. What is the charge on the element as an ion ? _____ explain or show work.

3. If you have 78.2 grams of the element **Na** , (8 pts, 4 pts per letter)
a. How many moles do you have ? show work.

b. How many atoms do you have in that many grams ? (show work).

Extra Credit: Give the correct formula for the element Al (+3) combined with the element S (-2) . (2 pts)

What is the name of the binary ionic compound that you wrote the formula for above? (2 pts)

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Name _____ Name _____
(print name) (sign name)

Please show all work for full credit and to get partial credit. $N_A = 6.022 \times 10^{23}$

1. For the following symbols give the element name. For the following element name, write down the element symbol. (4 pts, 2 pts each)

Potassium _____ N _____

2. Given the following directly from the periodic table, (8 pts, 1 pt each)

37
Rb
85.4678

a. Write the symbol for the element in the form of ${}^{A}_{z}X$ _____

b. How many protons ? _____ c. How many electrons (for a neutral atom) ? _____

d. How many neutrons ? _____ (show work)

e. How much does **one atom** of the element weigh _____ amu

f. How much does **one mole** of the element weigh _____ grams

g. How many atoms does **one mole** of the element contain _____

h. What is the charge on the element as an ion ? _____ explain or show work.

3. If you have 16.55 grams of the element **P** , (8 pts, 4 pts per letter)
a. How many moles do you have ? show work.

b. How many atoms do you have in that many grams ? (show work).

Extra Credit: Give the correct formula for the element Na (+1) combined with the element O (-2) . (2 pts)

What is the name of the binary ionic compound that you wrote the formula for above? (2 pts)

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Name _____ Name _____
(print name) (sign name)

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1. For the following symbols give the element name. For the following element name, write down the element symbol. (4 pts, 2 pts each)

Fe _____ hydrogen _____

2. Given the following directly from the periodic table, (8 pts, 1 pt each)

38
Sr
87.62

a. Write the symbol for the element in the form of ${}^{A}_{Z}X$ _____

b. How many protons ? _____ c. How many electrons (for a neutral atom) ? _____

d. How many neutrons ? _____ (show work)

e. How much does **one atom** of the element weigh _____ amu

f. How much does **one mole** of the element weigh _____ grams

g. How many atoms does **one mole** of the element contain _____

h. What is the charge on the element as an ion ? _____ explain or show work.

3. If you have 423.2 grams of the element **S** , (8 pts, 4 pts per letter)
a. How many moles do you have ? show work.

b. How many atoms do you have in that many grams ? (show work).

Extra Credit: Give the correct formula for the element Ba (+2) combined with the element N (-3) . (2 pts)

What is the name of the binary ionic compound that you wrote the formula for above? (2 pts)

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(print name) (sign name)

Please show all work for full credit and to get partial credit. $N_A = 6.022 \times 10^{23}$

1. For the following symbols give the element name. For the following element name, write down the element symbol. (4 pts, 2 pts each)

Silver _____ sulfur _____

2. Given the following directly from the periodic table, (8 pts, 1 pt each)

a. Write the symbol for the element in the form of ${}^{A}_{Z}X$ _____

b. How many protons ? _____ c. How many electrons (for a neutral atom) ? _____

d. How many neutrons ? _____ (show work)

e. How much does **one atom** of the element weigh _____ amu

f. How much does **one mole** of the element weigh _____ grams

g. How many atoms does **one mole** of the element contain _____

h. What is the charge on the element as an ion ? _____ explain or show work.

3. If you have 6.77 grams of the element **Se**, (8 pts, 4 pts per letter)
a. How many moles do you have ? show work.

b. How many atoms do you have in that many grams ? (show work).

Extra Credit: Give the correct formula for the element Mg (+2) combined with the element Br (-1). (2 pts)

What is the name of the binary ionic compound that you wrote the formula for above? (2 pts)