Quiz III General Chemistry I Lecture Fall 12 Dr. Hahn 20 pts 10/2 T 8:30 am A quiz # _____

Name Key (print name) Name (sign name)

NA = not attempted

Please show all ~~work for full credit.~~

1. To calculate mass percent of oxygen in water, the formula is (4 pts, 2 pts top and 2 pts bottom)

mass % oxygen = (a) 16.0 g (b) 2 x 16.0 g (c) 2 x 1.01 g (d) [(2 x 1.01) + 16.0] g (circle one letter) / (a) 16.0 g (b) 2 x 16.0 g (c) 2 x 1.01 g (d) [(2 x 1.01) + 16.0] g (circle one letter) x 100

2. The definition of molarity (M) is (4 pts, 2 pts top, 2 pts bottom)

molarity (M) = # moles of solute / # Liters of solution or # moles solute / 1000 ml solution

Please fill in the blank to complete the definition.

3. For the following reaction complete the balancing of the equation by filling in a number into each of blanks for the missing coefficients. Note to balance chemical reactions, you change ~~coefficients~~ but you leave the subscripts alone. (6 pts, 3 pts each blank) Ok if multiple of blank

2 CO_2 (g) + $CaSiO_3$ (s) + H_2O (l) → SiO_2 (s) + 1 $Ca(HCO_3)_2$ (aq)

2C, 4O, Ca, Si, 3O, 2H, 1O, 8O | Si, 2O, Ca, 2H, 2C, 6O, 8O

4. For the following balanced chemical reaction, if you start the reaction with 69.3 grams of Na_2S how many grams of $NaNO_3$ would you get? (FW Na_2S =78.0 g/mol; FW $NaNO_3$ = 85.0 g / mol) (6 pts, show work)

Na_2S (aq) + $Cu(NO_3)_2$ (aq) → 2$NaNO_3$ (aq) + CuS (s)

$69.3\ g\ Na_2S \times \frac{1\ mol\ Na_2S}{78.0\ g\ Na_2S} \times \frac{2\ mol\ NaNO_3}{1\ mol\ Na_2S} \times \frac{85.0\ g\ NaNO_3}{1\ mol\ NaNO_3} = 151\ g\ NaNO_3$

1 pt | 1 pt | 1 pt | 2 pt | math 1 pt

Extra Credit (2 pts) If you have 35.4 mL of a 4.5 M solution of NaCl , how many grams of NaCl (given the formula weight shown: FW NaCl = 58.5 g/mol) do you have in the solution ? (show work) ½ pt

$35.4\ mL\ NaCl\ soln. \times \frac{4.5\ mol\ NaCl}{1000\ mL\ NaCl\ soln} \times \frac{58.5\ g\ NaCl}{1\ mol\ NaCl} = 9.3\ g\ NaCl$

½ pt | ½ pt | ½ pt

Quiz III General Chemistry I Lecture Fall 12 Dr. Hahn 20 pts 10/2 T 8:30 am B quiz # _____

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

NA = not attempted

Please show all work for full credit.

1. To calculate mass percent of oxygen in water, the formula is (4 pts, 2 pts top and 2 pts bottom)

mass % = (a) 16.0 g (b) 2 x 16.0 g (c) 2 x 1.01 g (d) [(2 x 1.01) + 16.0] g (circle one letter)
hydrogen
x 100
(a) 16.0 g (b) 2 x 16.0 g (c) 2 x 1.01 g (d) [(2 x 1.01) + 16.0] g (circle one letter)

2. The definition of molarity (M) is (4 pts, 2 pts top, 2 pts bottom)

molarity (M) = # moles of solute / # Liter of solution or # moles solute / 1000 ml solution

Please fill in the blank to complete the definition.

3. For the following reaction complete the balancing of the equation by filling in a number into each of blanks for the missing coefficients. Note to balance chemical reactions, you change coefficients but you leave the subscripts alone. (6 pts, 3 pts each blank)

Ok if multiple of blank

_____ Cu_2O (s) + C(s) → 2 Cu(s) + CO (g)

2 Cu, 1 O, 1 C | 2 Cu, 1 C, 1 O

4. For the following balanced chemical reaction, if you start the reaction with 35.2 grams of HCl , how many grams of H_2S would you get?(FW HCl = 36.51 g/mol, FW H_2S = 34.02 g/mol (6 pts, show work)

FeS (s) + 2 HCl (aq) → $FeCl_2$ (aq) + H_2S (g)

$35.2\ g\ HCl \times \frac{1\ mol\ HCl}{36.51\ g\ HCl} \times \frac{1\ mol\ H_2S}{2\ mol\ HCl} \times \frac{34.02\ g\ H_2S}{1\ mol\ H_2S} = 16.4\ g\ H_2S$

(1 pt) (1 pt) (1 pt) (2 pt) math 1 pt

Extra Credit (2 pts) If you have 4.5 mL of a 2.5 M solution of KBr , how many grams of KBr (given the formula weight shown: FW KBr = 119.0 g/mol) do you have in the solution ? (show work)

$4.5\ mL\ KBr\ solution \times \frac{2.5\ mol\ KBr}{1000\ mL\ solution} \times \frac{119.0\ g\ KBr}{mol\ KBr} = 1.3\ g\ KBr$

(1/2 pt) (1/2 pt) (1/2 pt) math 1/2 pt

Quiz III General Chemistry I Lecture Fall 12 Dr. Hahn 20 pts 10/2 T 9:55 am A quiz # _____

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

NA = not attempted

Please show all work for full credit.

1. To calculate mass percent of oxygen in NO_2, the formula is (4 pts, 2 pts top and 2 pts bottom)

mass % oxygen = $\dfrac{\text{(a) 16.0 g (b) 2 x 16.0 g (c) 14.0 g (d) [14.0 + (2 x 16.0)] g (circle one letter)}}{\text{(a) 16.0 g (b) 2 x 16.0 g (c) 14.0 g (d) [14.0 + (2 x 16.0)] g (circle one letter)}}$ x 100

2. The definition of molarity (M) is (4 pts, 2 pts top, 2 pts bottom)

molarity (M) = $\dfrac{\#\ \text{moles}\ \text{of solute}}{\#\ \text{Liter}\ \text{of solution}}$ or $\dfrac{\#\ \text{moles solute}}{1000\ \text{ml solution}}$

Please fill in the blank to complete the definition.

3. For the following reaction complete the balancing of the equation by filling in a number into each of blanks for the missing coefficients. Note to balance chemical reactions, you change coefficients but you leave the subscripts alone. (6 pts, 3 pts each blank) OK if multiple of blank

1 Na_2S (aq) + $Cu(NO_3)_2$ (aq) → 2 $NaNO_3$ (aq) + CuS (s)

2 Na, 1 S, 1 Cu, 2 N, 6 O = 2 Na, 2 N, 6 O, 1 Cu, 1 S

4. For the following balanced chemical reaction, if you start the reaction with 402.3 grams of CO_2, how many grams of H_2O (l) will you use up? (FW CO_2 = 44.0 g/mol, FW H_2O = 18.02) (6 pts, show work)

$2\ CO_2\ (g) + CaSiO_3\ (s) + H_2O\ (l) \rightarrow SiO_2\ (s) + Ca(HCO_3)_2\ (aq)$

$402.3\ g\ CO_2 \times \dfrac{1\ mol\ CO_2}{44.0\ g\ CO_2} \times \dfrac{1\ mol\ H_2O}{2\ mol\ CO_2} \times \dfrac{18.02\ g\ H_2O}{1\ mol\ H_2O} = 82.38\ g\ H_2O$

(1 pt) (1 pt) (1 pt) (2 pt) math 1 pt

Extra Credit (2 pts) If you have 170.2 mL of a 1.7 M solution of $NaNO_3$, how many grams of $NaNO_3$ (given the formula weight shown: FW $NaNO_3$ = 85.0 g/mol) do you have in the solution ? (show work)

$170.2\ ml\ NaNO_3\ solution \times \dfrac{1.7\ mol\ NaNO_3}{1000\ ml\ NaNO_3\ solution} \times \dfrac{85.0\ g\ NaNO_3}{1\ mol\ NaNO_3} = 25\ g\ NaNO_3$

(1/2 pt) (1/2 pt) (1/2 pt) 2 pt math

Quiz III General Chemistry I Lecture Fall 12 Dr. Hahn 20 pts 10/2 T 9:55 am B quiz # _____

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

NA = not attempted

Please show all work for full credit.

1. To calculate mass percent of nitrogen in NO_2, the formula is (4 pts, 2 pts top and 2 pts bottom)

mass % nitrogen = $\frac{\text{(a) 16.0 g (b) 2 x 16.0 g (c) 14.0 g (d) [14.0 + (2 x 16.0)] g (circle one letter)}}{\text{(a) 16.0 g (b) 2 x 16.0 g (c) 14.0 g (d) [14.0 + (2 x 16.0)] g (circle one letter)}}$ x 100

2. The definition of molarity (M) is (4 pts, 2 pts top, 2 pts bottom)

molarity (M) = $\frac{\#\ \text{moles of solute}}{\#\ \text{Liter of solution}}$ or $\frac{\#\ \text{moles solute}}{1000\ \text{ml solution}}$

Please fill in the blank to complete the definition.

3. For the following reaction complete the balancing of the equation by filling in a number into each of blanks for the missing coefficients. Note to balance chemical reactions, you change coefficients but you leave the subscripts alone. (6 pts, 3 pts each blank) OK if multiple of blank

FeS (s) + 2 HCl (aq) → 1 $FeCl_2$ (aq) + H_2S (g)

Fe, S, 2H, 2Cl } 1 Fe, 2Cl, 2H, 1S

4. For the following balanced chemical reaction, if the reaction gives 16.5 grams of Cu(s), how many grams of CO (g) will you form ? (FW Cu = 63.55 g/mol, FW CO = 28.0 g/mol) (6 pts, show work) Cu_2O (s) + C(s) → 2 Cu(s) + CO (g)

$16.5\ \text{g Cu} \times \frac{1\ \text{mol Cu}}{63.55\ \text{g Cu}} \times \frac{1\ \text{mol CO}}{2\ \text{mol Cu}} \times \frac{28.0\ \text{g CO}}{1\ \text{mol CO}} = 3.63\ \text{g CO}$

(1 pt) (1 pt) (1 pt) (2 pt) math 1 pt

Extra Credit (2 pts) If you have 25.2 mL of a 3.2 M solution of NH_4F , how many grams of NH_4F (given the formula weight shown: FW NH_4F = 37.04 g/mol) do you have in the solution ? (show work)

$25.2\ \text{ml NH}_4\text{F solution} \times \frac{3.2\ \text{mol NH}_4\text{F}}{1000\ \text{ml solution}} \times \frac{37.04\ \text{g NH}_4\text{F}}{1\ \text{mol NH}_4\text{F}} = 2.99\ \text{g NH}_4\text{F}$

(1/2 pt) (1/2 pt) (1/2 pt) 2 pt math

Quiz III General Chemistry I Lecture Fall 12 Dr. Hahn 20 pts 10/2 T 8:30 am A quiz # 1-8

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

Please show all work for full credit.

1. To calculate mass percent of oxygen in water, the formula is (4 pts, 2 pts top and 2 pts bottom)

$$\text{mass \% oxygen} = \frac{\text{(a) 16.0 g (b) 2 x 16.0 g (c) 2 x 1.01 g (d) [(2 x 1.01) + 16.0] g (circle one letter)}}{\text{(a) 16.0 g (b) 2 x 16.0 g (c) 2 x 1.01 g (d) [(2 x 1.01) + 16.0] g (circle one letter)}} \times 100$$

2. The definition of molarity (M) is (4 pts, 2 pts top, 2 pts bottom)

$$\text{molarity (M)} = \frac{\#\ \_\_\_\_\_\ \text{of solute}}{\#\ \_\_\_\_\_\ \text{of solution}}$$

Please fill in the blank to complete the definition.

3. For the following reaction complete the balancing of the equation by filling in a number into each of blanks for the missing coefficients. Note to balance chemical reactions, you change coefficients but you leave the subscripts alone. (6 pts, 3 pts each blank)

_____ CO_2 (g) + $CaSiO_3$ (s) + H_2O (l) → SiO_2 (s) + _____ $Ca(HCO_3)_2$ (aq)

4. For the following balanced chemical reaction, if you start the reaction with 69.3 grams of Na_2S how many grams of $NaNO_3$ would you get? (FW Na_2S =78.0 g/mol; FW $NaNO_3$ = 85.0 g / mol) (6 pts, show work)

Na_2S (aq) + $Cu(NO_3)_2$ (aq) → $2NaNO_3$ (aq) + CuS (s)

Extra Credit (2 pts) If you have 35.4 mL of a 4.5 M solution of NaCl , how many grams of NaCl (given the formula weight shown: FW NaCl = 58.5 g/mol) do you have in the solution ? (show work)

Quiz III General Chemistry I Lecture Fall 12 Dr. Hahn 20 pts 10/2 T 8:30 am B quiz # 1-9

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

Please show all work for full credit.

1. To calculate mass percent of oxygen in water, the formula is (4 pts, 2 pts top and 2 pts bottom)

mass % = (a) 16.0 g (b) 2 x 16.0 g (c) 2 x 1.01 g (d) [(2 x 1.01) + 16.0] g (circle one letter)
hydrogen _____ x 100
(a) 16.0 g (b) 2 x 16.0 g (c) 2 x 1.01 g (d) [(2 x 1.01) + 16.0] g (circle one letter)

2. The definition of molarity (M) is (4 pts, 2 pts top, 2 pts bottom)

$$\text{molarity (M)} = \frac{\#\ \_\_\_\_\_\ \text{of solute}}{\#\ \_\_\_\_\_\ \text{of solution}}$$

Please fill in the blank to complete the definition.

3. For the following reaction complete the balancing of the equation by filling in a number into each of blanks for the missing coefficients. Note to balance chemical reactions, you change coefficients but you leave the subscripts alone. (6 pts, 3 pts each blank)

_____ Cu_2O (s) + C(s) → _____ Cu(s) + CO (g)

4. For the following balanced chemical reaction, if you start the reaction with 35.2 grams of HCl , how many grams of H_2S would you get?(FW HCl = 36.51 g/mol, FW H_2S = 34.02 g/mol (6 pts, show work)

FeS (s) + 2 HCl (aq) → $FeCl_2$ (aq) + H_2S (g)

Extra Credit (2 pts) If you have 4.5 mL of a 2.5 M solution of KBr , how many grams of KBr (given the formula weight shown: FW KBr = 119.0 g/mol) do you have in the solution ? (show work)

Quiz III General Chemistry I Lecture Fall 12 Dr. Hahn 20 pts 10/2 T 9:55 am A quiz # 4-8

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

Please show all work for full credit.

1. To calculate mass percent of nitrogen in NO_2, the formula is (4 pts, 2 pts top and 2 pts bottom) 0

mass % oxygen = $\dfrac{\text{(a) 16.0 g (b) 2 x 16.0 g (c) 14.0 g (d) [14.0 + (2 x 16.0)] g (circle one letter)}}{\text{(a) 16.0 g (b) 2 x 16.0 g (c) 14.0 g (d) [14.0 + (2 x 16.0)] g (circle one letter)}}$ x 100

2. The definition of molarity (M) is (4 pts, 2 pts top, 2 pts bottom)

$$\text{molarity (M)} = \frac{\#\ \_\_\_\_\_\ \text{of solute}}{\#\ \_\_\_\_\_\ \text{of solution}}$$

Please fill in the blank to complete the definition.

3. For the following reaction complete the balancing of the equation by filling in a number into each of blanks for the missing coefficients. Note to balance chemical reactions, you change coefficients but you leave the subscripts alone. (6 pts, 3 pts each blank)

_____ Na_2S (aq) + $Cu(NO_3)_2$ (aq) → _____ $NaNO_3$ (aq) + CuS (s)

4. For the following balanced chemical reaction, if you start the reaction with 402.3 grams of CO_2 , how many grams of H_2O (l) will you use up? (FW CO_2 = 44.0 g/mol, FW H_2O = 18.02) (6 pts, show work)

2 CO_2 (g) + $CaSiO_3$ (s) + H_2O (l) → SiO_2 (s) + $Ca(HCO_3)_2$ (aq)

Extra Credit (2 pts) If you have 170.2 mL of a 1.7 M solution of $NaNO_3$, how many grams of $NaNO_3$ (given the formula weight shown: FW $NaNO_3$ = 85.0 g/mol) do you have in the solution ? (show work)

Quiz III General Chemistry I Lecture Fall 12 Dr. Hahn 20 pts 10/2 T 9:55 am B quiz # 2-11

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

Please show all work for full credit.

1. To calculate mass percent of nitrogen in NO_2, the formula is (4 pts, 2 pts top and 2 pts bottom)

mass % nitrogen = $\dfrac{\text{(a) 16.0 g (b) 2 x 16.0 g (c) 14.0 g (d) [14.0 + (2 x 16.0)] g (circle one letter)}}{\text{(a) 16.0 g (b) 2 x 16.0 g (c) 14.0 g (d) [14.0 + (2 x 16.0)] g (circle one letter)}}$ x 100

2. The definition of molarity (M) is (4 pts, 2 pts top, 2 pts bottom)

$$\text{molarity (M)} = \frac{\#\ \_\_\_\_\_\ \text{of solute}}{\#\ \_\_\_\_\_\ \text{of solution}}$$

Please fill in the blank to complete the definition.

3. For the following reaction complete the balancing of the equation by filling in a number into each of blanks for the missing coefficients. Note to balance chemical reactions, you change coefficients but you leave the subscripts alone. (6 pts, 3 pts each blank)

_____ FeS (s) + _____ HCl (aq) → _____ $FeCl_2$ (aq) + H_2S (g)

4. For the following balanced chemical reaction, if the reaction gives 16.5 grams of Cu(s), how many grams of CO (g) will you form ? (FW Cu = 63.55 g/mol, FW CO = 28.0 g/mol) (6 pts, show work) Cu_2O (s) + C(s) → 2 Cu(s) + CO (g)

Extra Credit (2 pts) If you have 25.2 mL of a 3.2 M solution of NH_4F , how many grams of NH_4F (given the formula weight shown: FW NH_4F = 37.04 g/mol) do you have in the solution ? (show work)