

Name Key (print) Name 9A (sign)

Please show work for partial credit on the Long Answers and in some of the Short Answer Questions. Multiple choice questions have no partial credit. Please write anything you want graded legibly. If I cannot read your work, I obviously cannot grade it. (1 pts print AND sign exam)

*NA = not attempt BA = bad attempt*

**Part I MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question. (No Partial Credit for MC) (3 pts per question, 21 pts total)**

*NW = no work, NE = no explain*

- 1) Solutions are A  
A) homogeneous mixtures B) none of the above  
C) non uniform mixture D) heterogeneous mixture
- 2) Diamond and graphite are: B  
A) have the same crystalline structure B) the same element  
C) similar in physical properties D) bonded in the same way
- 3) The metric prefix that means one-hundredth (1/100) is B  
A) milli B) centi C) kilo D) mega
- 4) An example of an element which exists normally in its most stable form as diatomic molecules is: B  
A) NO<sub>2</sub> B) N<sub>2</sub> C) CO D) P<sub>4</sub>
- 5) Expressed in standard powers-of-10 notation and rounded to four significant figures, the number 0.00023648 is B  
A) 2.365 × 10<sup>4</sup> B) 2.365 × 10<sup>-4</sup> C) 2.364 × 10<sup>3</sup> D) 236.4 × 10<sup>-6</sup>
- 6) Density describes B  
A) weight per mass B) mass per unit volume  
C) volume per liter D) length per unit time.
- 7) Rounding the number 200.601 to three significant figures A  
A) gives 201 B) gives 200.601 C) gives 199 D) gives 200.

**Part II: Short Answers** (48 pts) Show work on all questions for partial and full credit even on questions which do not specify.

1. Metric conversions 1 kilograms = 1000 grams (4 pts)

2. Significant Figures: (4 pts) How many significant figures is in the following number?  
2.30002 6

3 Identify the following as (A) element (B) compound (by filling in the blank with the letters. (6 pts, 3 pts each)

In A In Cl<sub>3</sub> B

4. Fill in the blank with one of the letters. (A) heterogeneous mixture (B) homogeneous mixture

Wet sand A 3pt salty sea water (no sand) B 3pt

5. Match the following with the definition or example below. (8 pts, 2 pts each)

a. solute 1

b. solvent 2

c. solution 4

d. saturated solution 3

(1) The substance which you have less of in a solution..

(2) The substance which you have more of in a solution.

(3) A solution in which you dissolved KCl into water with some undissolved solid salt still in the bottom of the beaker.

(4) Homogeneous mixture

6. Given the following miniaturized periodic table, fill in the blank with the correct letter. (8 pts, 4 pts each)

(A) period (B) group (C) main group (representative elements) (D) transition metal elements (E) lanthanide/actinide

The image shows a miniaturized periodic table. A circled letter 'D' has an arrow pointing to the transition metal block (d-block). Another circled letter 'B' has an arrow pointing to the noble gas group (group 18).

7. Given the following list of chemical formulas, circle all which are covalent compounds (8 pts total, 1 pt each)

KCl      CO<sub>2</sub>      Sr<sub>3</sub>P<sub>2</sub>      MgF<sub>2</sub>      SO<sub>2</sub>      Li<sub>2</sub>O      CCl<sub>4</sub>      CaCl<sub>2</sub>

8. Name the binary compound shown. Ba F<sub>2</sub> given the name of the elements (barium, fluorine) (4 pts)

barium fluoride  
2pt                      2pt

**Part III: Long Answers** (31 pts) Show work on all questions for partial and full credit even on questions which do not specify. Remember "attempt" points.

1. Convert the following. Show work. (15 pts)

from 18.22 pounds to milligrams (453.6 grams = 1 pound, 100 centigrams = 1 gram, 1000 milligram = 1 gram)

$$18.22 \text{ pounds} \times \frac{453.6 \text{ g}}{1 \text{ pound}} \times \frac{1000 \text{ mg}}{1 \text{ g}} =$$

$$8264592 \text{ mg} \rightarrow 4 \text{ s.f.}$$

BA = -7  
Attempt -2

$$8.265 \times 10^6 \text{ mg}$$

2. Complete the following for the element symbols Na (16 pts, 2 pts each)

a. [(metal) or (nonmetal)] (circle one)

b. What is the atomic number? 11      c. What is the atomic mass? 22.99

b. How many protons? 11      How many total electrons (for a neutral atom)? 11

c. What is the group number? 1A      d. How many valence electrons? 1

e. What is the period number? 3

Name Kay (print) Name KB NW = no work (sign)

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NA = not attempted blue

Part I MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question. (No Partial Credit for MC) (3 pts per question, 21 pts total) BA = bad attempt

- 1) The metric prefix that means one-hundredth (1/100) is 1) C  
 A) mega                      B) milli                      C) centi                      D) kilo
- 2) Diamond and graphite are: WE = no explain 2) B  
 A) have the same crystalline structure                      B) the same element  
 C) bonded in the same way                      D) similar in physical properties
- 3) Expressed in standard powers-of-10 notation and rounded to four significant figures, the number 0.00023648 is 3) D  
 A)  $2.364 \times 10^3$                       B)  $2.365 \times 10^4$                       C)  $236.4 \times 10^{-6}$                       D)  $2.365 \times 10^{-4}$
- 4) Density describes 4) C  
 A) volume per liter                      B) weight per mass  
 C) mass per unit volume                      D) length per unit time.
- 5) Solutions are 5) B  
 A) non uniform mixture                      B) homogeneous mixtures  
 C) none of the above                      D) heterogeneous mixture
- 6) Rounding the number 200.601 to three significant figures 6) A  
 A) gives 201                      B) gives 200.601                      C) gives 199                      D) gives 200.
- 7) An example of an element which exists normally in its most stable form as diatomic molecules is: 7) D  
 A)  $P_4$                       B) CO                      C)  $NO_2$                       D)  $N_2$

**Part II: Short Answers** (48 pts) Show work on all questions for partial and full credit even on questions which do not specify.

1. Metric conversions 100 centiliter = one Liter (4 pts)

2. Significant Figures: (4 pts)

How many significant figures is in the following numbers ?

1.07 3

3 Identify the following as (A) element (B) compound (by filling in the blank with the letters. (6 pts, 3 pts each)

C O<sub>2</sub> B C A

4. Fill in the blank with one of the letters. (A) heterogeneous mixture (B) homogeneous mixture

Solid salt mixed with solid sugar A 3 pt salt and sugar dissolved in water B 3 pt

5. Match the following with the definition or example below. (8 pts, 2 pts each)

a. solution 4

b. saturated solution 3

c. solute 1

d. solvent 2

(1) The substance which you have less of in a solution..

(2) The substance which you have more of in a solution.

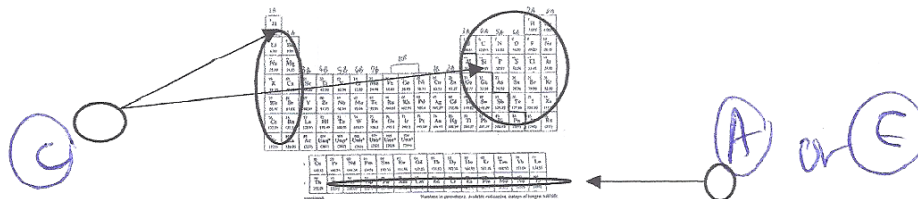
(3) A solution in which you dissolved KCl into water with some undissolved solid salt still in the bottom of the beaker.

(4) Homogeneous mixture

6. Given the following miniaturized periodic table, fill in the blank with the correct letter. (8 pts, 4 pts each)

(A) period (B) group (C) main group (representative elements) (D) transition metal elements

(E) lanthanide/actinide



7. Given the following list of chemical formulas, circle all which are covalent (ionic) compounds (8 pts total, 1 pt each)

SO<sub>2</sub>      Li<sub>2</sub>O      CCl<sub>4</sub>      CaCl<sub>2</sub>      KCl      CO<sub>2</sub>      Sr<sub>3</sub>P<sub>2</sub>      MgF<sub>2</sub>

8. Name the binary compound shown. Ca I<sub>2</sub> given the name of the elements (calcium, iodine) (4 pts)

calcium iodide tide

Part III: Long Answers (31 pts) Show work on all questions for partial and full credit even on questions which do not specify. Remember "attempt" points.

1. Convert the following. Show work. (15 pts)

from 72.5 meters to feet (12 inches = 1 foot, 2.54 cm = 1 inch, 100 cm = 1 meter)

$$72.5 \text{ meters} \times \frac{100 \text{ cm}}{1 \text{ m}} \times \frac{1 \text{ inch}}{2.54 \text{ cm}} \times \frac{1 \text{ foot}}{12 \text{ inches}}$$

$$= 237.860924 \text{ 3 s.f.}$$

238 feet

BA = -1      attempt -2      math -1

2. Complete the following for the element symbols F (16 pts, 2 pts each)

a [(metal) or (nonmetal)] (circle one) (answer the following for the element given).

b. What is the atomic number? 9      c. What is the atomic mass? 19.0

b. How many protons? 9      How many total electrons (for a neutral atom)? 9

c. What is the group number? 7A      d. How many valence electrons? 7

e. What is the period number? 2 (-2)

Name Key (print) Name IIA (sign)

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Part I MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question. (No Partial Credit for MC) (3 pts per question, 21 pts total)

- NA = not attempt BA = bad attempt  
NW = no work NE = no explain
- 1) Expressed in standard powers-of-10 notation and rounded to four significant figures, the number 0.00023648 is  $2.365 \times 10^{-4}$  B
- A)  $2.365 \times 10^4$     B)  $2.365 \times 10^{-4}$     C)  $2.364 \times 10^3$     D)  $236.4 \times 10^{-6}$
- 2) An example of an element which exists normally in its most stable form as diatomic molecules is: A
- A)  $N_2$     B)  $P_4$     C) CO    D)  $NO_2$
- 3) The metric prefix that means one-hundredth (1/100) is C
- A) milli    B) kilo    C) centi    D) mega
- 4) Diamond and graphite are: B
- A) have the same crystalline structure    B) the same element  
 C) bonded in the same way    D) similar in physical properties
- 5) Rounding the number 200.601 to three significant figures A
- A) gives 201    B) gives 200.    C) gives 200.601    D) gives 199
- 6) Solutions are A
- A) homogeneous mixtures    B) none of the above  
 C) heterogeneous mixture    D) non uniform mixture
- 7) Density describes D
- A) volume per liter    B) weight per mass  
 C) length per unit time.    D) mass per unit volume

**Part II: Short Answers** (48 pts) Show work on all questions for partial and full credit even on questions which do not specify.

1. Metric conversions 1000 milligrams = 1 gram. (4 pts)

2. Significant Figures: (4 pts)

How many significant figures is in the following numbers ?

2.002 4

3 Identify the following as (A) element (B) compound (by filling in the blank with the letters. (6 pts, 3 pts each)

SO<sub>2</sub> B S A

4. Fill in the blank with one of the letters. (A) heterogeneous mixture (B) homogeneous mixture

Iron filing mixed with sand A (3pt) coffee with sugar and cream B (3pt)

5. Match the following with the definition or example below. (8 pts, 2 pts each)

a. solvent 2

b. solution 4

c. solute 1

d. saturated solution 3

(1) The substance which you have less of in a solution..

(2) The substance which you have more of in a solution.

(3) A solution in which you dissolved KCl into water with some undissolved solid salt still in the bottom of the beaker.

(4) Homogeneous mixture

6. Given the following miniaturized periodic table, fill in the blank with the correct letter. (8 pts, 4 pts each)

(A) period (B) group (C) main group (representative elements) (D) transition metal elements

(E) lanthanide/actinide



white ionic

7. Given the following list of chemical formulas, circle all which are ~~covalent~~ (ionic) compounds (8 pts total, 1 pt each)

- Sr<sub>3</sub>P<sub>2</sub>
- MgF<sub>2</sub>
- SO<sub>2</sub>
- KCl
- CO<sub>2</sub>
- Li<sub>2</sub>O
- CCl<sub>4</sub>
- CaCl<sub>2</sub>

8. Name the binary compound shown. K Cl given the name of the elements (potassium, chlorine)(4 pts)

potassium chloride # prefix -1

**Part III: Long Answers** (31 pts) Show work on all questions for partial and full credit even on questions which do not specify. Remember "attempt" points.

1. Convert the following. Show work. (15 pts)

from 25.7 cups to milliLiter (4 cups = 1 quart, 1 liter = 1.06 quart, 1000 mL = 1 Liter)

$$25.7 \text{ cups} \times \frac{1 \text{ quart}}{4 \text{ cups}} \times \frac{1 \text{ L}}{1.06 \text{ quart}} \times \frac{1000 \text{ mL}}{1 \text{ L}} =$$

6061.320755  
 3 s.f.  
 6.06 x 10<sup>3</sup>

BA = -1  
 attempt -2  
 math -1

2. Complete the following for the element symbols Ca (16 pts, 2 pts each)

a. [(metal) or (nonmetal)] (circle one) (answer the following for the element given).

- b. What is the atomic number? 20 c. What is the atomic mass? 40.08
- b. How many protons? 20 How many total electrons (for a neutral atom)? 20
- c. What is the group number? 2A d. How many valence electrons? 2
- e. What is the period number? 4 -2

Name Key (print) Name IB (sign)

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NA = not attempted blue

Part I MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question. (No Partial Credit for MC) (3 pts per question, 21 pts total)

BA = bad attempt NW = no work

- 1) Density describes BA = bad attempt 1) A  
A) mass per unit volume B) length per unit time.  
C) weight per mass D) volume per liter
- 2) An example of an element which exists normally in its most stable form as diatomic molecules is: NE = no explain 2) A  
A) N<sub>2</sub> B) NO<sub>2</sub> C) P<sub>4</sub> D) CO
- 3) Diamond and graphite are: 3) B  
A) bonded in the same way B) the same element  
C) have the same crystalline structure D) similar in physical properties
- 4) Rounding the number 200.601 to three significant figures 4) B  
A) gives 200. B) gives 201 C) gives 200.601 D) gives 199
- 5) The metric prefix that means one-hundredth (1/100) is 5) C  
A) kilo B) mega C) centi D) milli
- 6) Expressed in standard powers-of-10 notation and rounded to four significant figures, the number 0.00023648 is 6) C  
A)  $2.364 \times 10^3$ . B)  $2.365 \times 10^4$  C)  $2.365 \times 10^{-4}$ . D)  $236.4 \times 10^{-6}$ .
- 7) Solutions are 7) C  
A) none of the above B) non uniform mixture  
C) homogeneous mixtures D) heterogeneous mixture

**Part II: Short Answers (48 pts)** Show work on all questions for partial and full credit even on questions which do not specify.

1. Metric conversions 10 decimeter = one meter (4 pts)

2. Significant Figures: (4 pts)

How many significant figures is in the following numbers ?

782.03 5

3 Identify the following as (A) element (B) compound (by filling in the blank with the letters. (6 pts, 3 pts each)

P A PCl<sub>3</sub> B

4. Fill in the blank with one of the letters. (A) heterogeneous mixture (B) homogeneous mixture

Sweet tea B (3pt) tea leaves with dry instant coffee, no water A (3pt)

5. Match the following with the definition or example below. (8 pts, 2 pts each)

a. solute 1

b. saturated solution 3

c. solution 4

d. solvent 2

(1) The substance which you have less of in a solution..

(2) The substance which you have more of in a solution.

(3) A solution in which you dissolved KCl into water with some undissolved solid salt still in the bottom of the beaker.

(4) Homogeneous mixture

6. Given the following miniaturized periodic table, fill in the blank with the correct letter. (8 pts, 4 pts each)

(A) period (B) group (C) main group (representative elements) (D) transition metal elements (E) lanthanide/actinide

7. Given the following list of chemical formulas, circle all which are covalent (ionic) compounds (8 pts total, 1 pt each)



8. Name the binary compound shown. Ag Br given the name of the elements (silver, bromine)(4 pts)

silver bromide

Part III: Long Answers (31 pts) Show work on all questions for partial and full credit even on questions which do not specify. Remember "attempt" points.

1. Convert the following. Show work. (15 pts)

from 262 feet to meters (12 inches = 1 foot, 2.54 cm = 1 inch, 100 cm = 1 meter)

$$262 \text{ feet} \times \frac{12 \text{ inches}}{1 \text{ foot}} \times \frac{2.54 \text{ cm}}{1 \text{ inch}} \times \frac{1 \text{ m}}{100 \text{ cm}} =$$

79.8576 → 3 s.f.

79.9 meters

BA = -1  
 attempt -2  
 math 1

2. Complete the following for the element symbols N (16 pts, 2 pts each)

a. [(metal) or (nonmetal)] (circle one) (answer the following for the element given).

b. What is the atomic number? 7 c. What is the atomic mass? 14.01

b. How many protons? 7 How many total electrons (for a neutral atom)? 7

c. What is the group number? 5A d. How many valence electrons? 5

e. What is the period number? 2