

Chemistry 0094 R10  
Fall 2000  
Test #2

Wednesday, October 25, 2000

Time: 2 hours

Name: \_\_\_\_\_

Student Number: \_\_\_\_\_

*This exam consists of **six** pages of questions, a periodic table, and a sheet containing the symbols, masses, and names of the elements. Please ensure that you have a complete paper and, if you do not, obtain one from me **immediately**. Good luck!*

- 1) **[5 marks]** A certain element occurs naturally as five different isotopes. Use this information and the data provided in the table below to complete the rest of the table.

Nuclide Symbol	Mass (amu)	Percent Abundance
	45.9526	8.25
	46.9518	7.44
	47.9479	
	48.9479	5.41
	49.9448	5.18

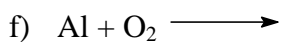
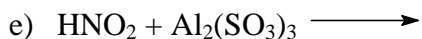
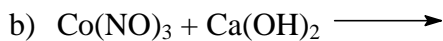
**[20 marks]** Name the following compounds:

- |                                                              |                                          |
|--------------------------------------------------------------|------------------------------------------|
| a) $\text{Al}_2\text{O}_3$ _____                             | b) $\text{Ca}_3\text{N}_2$ _____         |
| c) $\text{PbBr}_2$ _____                                     | d) $\text{CuI}$ _____                    |
| e) $\text{Cs}_2\text{SO}_3$ _____                            | f) $\text{AgBrO}_4$ _____                |
| g) $\text{Na}_2\text{SeO}_3$ _____                           | h) $\text{NH}_4\text{NO}$ _____          |
| i) $\text{H}_2\text{SO}_2(\text{aq})$ _____                  | j) $\text{H}_3\text{P}(\text{aq})$ _____ |
| k) $\text{Os}(\text{OH})_3$ _____                            | l) $\text{Ca}(\text{OH})_2$ _____        |
| m) $\text{HF}(\text{g})$ _____                               | n) $\text{SO}_2$ _____                   |
| o) $\text{BrF}_3$ _____                                      | p) $\text{SF}_6$ _____                   |
| q) $\text{CBr}_4$ _____                                      | r) $\text{F}_2\text{O}$ _____            |
| s) $\text{Na}_2\text{CO}_3 \cdot 9\text{H}_2\text{O}$ _____  |                                          |
| t) $\text{Fe}(\text{ClO})_3 \cdot 8\text{H}_2\text{O}$ _____ |                                          |

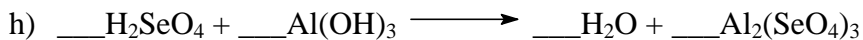
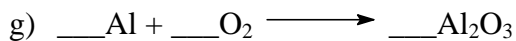
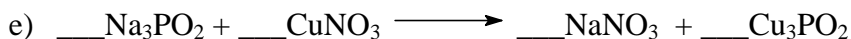
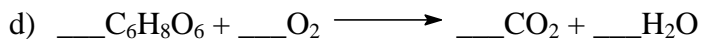
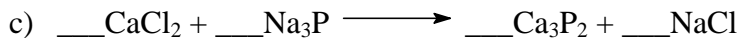
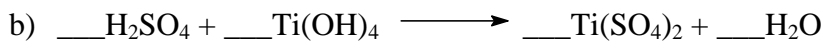
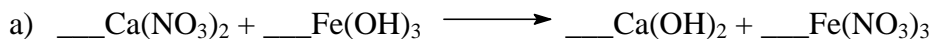
2) [20 marks] Give the formula for the compounds which have the following names. Indicate phases where necessary.

- a) sodium sulphide \_\_\_\_\_
- b) iron(III) phosphite \_\_\_\_\_
- c) aluminum hyponitrite \_\_\_\_\_
- d) silver(I) bromate \_\_\_\_\_
- e) nickel(III) carbonate dihydrate \_\_\_\_\_
- f) periodic acid \_\_\_\_\_
- g) tin(II) hydroxide \_\_\_\_\_
- h) hydroiodic acid \_\_\_\_\_
- i) tetraphosphorus decoxide \_\_\_\_\_
- j) carbon tetrabromide \_\_\_\_\_
- k) barium oxide \_\_\_\_\_
- l) copper(I) selenide \_\_\_\_\_
- m) indium hypophosphite \_\_\_\_\_
- n) mercury(II) oxide \_\_\_\_\_
- o) iron(II) selenite pentahydrate \_\_\_\_\_
- p) hydrogen sulphide \_\_\_\_\_
- q) potassium hydroxide \_\_\_\_\_
- r) dinitrogen monoxide \_\_\_\_\_
- s) argon difluoride \_\_\_\_\_
- t) zirconium(III) sulphide \_\_\_\_\_

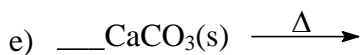
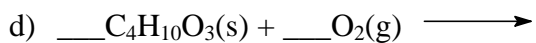
3) [8 marks] Assume that each of the following reactions occurs and provide the formulae for the products formed. **Do not balance the equations or indicate the phases of the products.**



4) [8 marks] Balance each of the following reactions.



5) **[8 marks]** Complete and balance the following equations. Indicate the phases of all products. If you do not expect a reaction to occur, write "NR" to the right of the arrow. Provide only the balanced molecular equation. Assume that all products are at room temperature.



6) [2 marks] Which of the reactions in question 5 is/are:

Single Displacement	5(a)	5(b)	5(c)	5(d)	5(e)	5(f)	5(g)	5(h)
Double Displacement	5(a)	5(b)	5(c)	5(d)	5(e)	5(f)	5(g)	5(h)
Decomposition	5(a)	5(b)	5(c)	5(d)	5(e)	5(f)	5(g)	5(h)
Combustion	5(a)	5(b)	5(c)	5(d)	5(e)	5(f)	5(g)	5(h)
Combination	5(a)	5(b)	5(c)	5(d)	5(e)	5(f)	5(g)	5(h)

7) [2 marks] A 50.00 mL sample of solution **A** (concentration 50.00 g KCl/L) was taken and diluted to 500.0 mL to form solution **B**. What is the concentration (in g/L) of solution **B**?