

Name: Key

Chemistry 121
Fall 2005, Test 2
Test Answer Sheet, Form A

I. Multiple Choice: Clearly CIRCLE the best answer.

1. A B **C** D
2. A **B** C D
3. A B C **D**
4. A B **C** D
5. A **B** C D

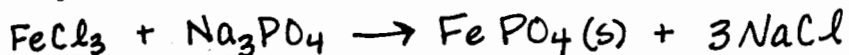
II. Balanced Reactions and Calculations: Show all work on the Test Answer Sheet. Partial credit will be given for correct work. If I cannot read the work, it will not be graded.

6. water and a salt

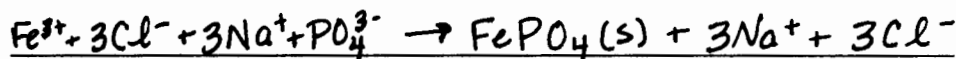
7. Circle the answer:

- a. **SOL** or IS c. SOL or **IS** e. SOL or **IS**
b. SOL or **IS** d. **SOL** or IS f. **SOL** or IS

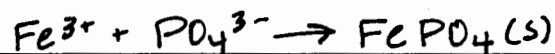
8. (a) Complete



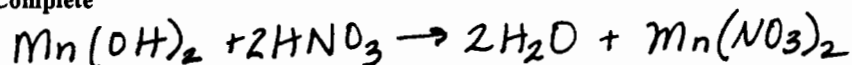
(b) Ionic



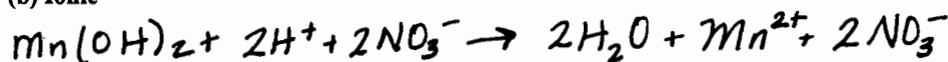
(c) Net Ionic



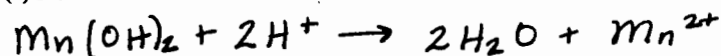
9. (a) Complete



(b) Ionic



(c) Net Ionic



10. (10 pts) $(NH_4)_2CO$

$$\begin{aligned} 2N &= 2(14.019/\text{mol}) = 28.029/\text{mol} \\ 8H &= 8(1.0089/\text{mol}) = 8.0649/\text{mol} \\ 1C &= 1(12.019/\text{mol}) = 12.019/\text{mol} \\ 1O &= 1(16.009/\text{mol}) = 16.009/\text{mol} \\ & \hline & 64.099/\text{mol} \end{aligned}$$

Key, Form A

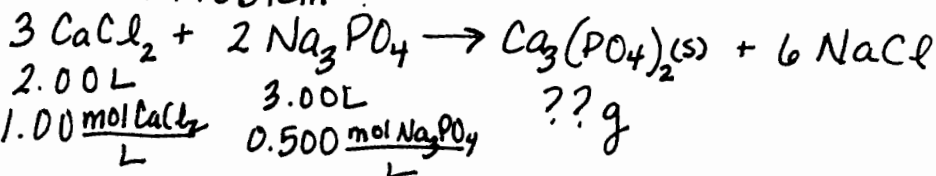
11. (10 pts)

$$4.615 \text{ g C} \times \frac{1 \text{ mol C}}{12.01 \text{ g C}} = 0.384 \text{ mol C}$$

$$0.385 \text{ g H} \times \frac{1 \text{ mol H}}{1.008 \text{ g H}} = 0.382 \text{ mol H}$$

$$\frac{0.384}{0.382} \frac{\text{H}}{0.382} = \text{C}_1 \text{H}_1 = \text{CH}$$

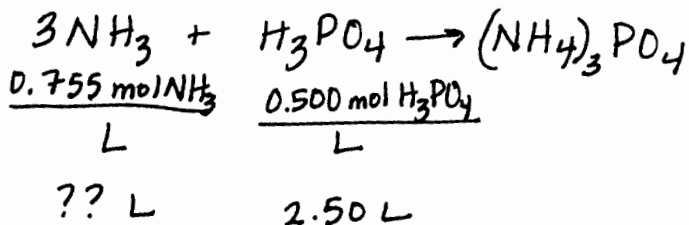
12. (15 pts) LR Problem



$$2.00 \text{ L} \times \frac{1.00 \text{ mol CaCl}_2}{\text{L}} \times \frac{1 \text{ mol Ca}_3(\text{PO}_4)_2}{3 \text{ mol CaCl}_2} \times \frac{310. \text{ g Ca}_3(\text{PO}_4)_2}{1 \text{ mol Ca}_3(\text{PO}_4)_2} = \boxed{207 \text{ g Ca}_3(\text{PO}_4)_2}$$

$$3.00 \text{ L} \times \frac{0.500 \text{ mol Na}_3\text{PO}_4}{\text{L}} \times \frac{1 \text{ mol Ca}_3(\text{PO}_4)_2}{2 \text{ mol Na}_3\text{PO}_4} \times \frac{310. \text{ g Ca}_3(\text{PO}_4)_2}{1 \text{ mol Ca}_3(\text{PO}_4)_2} = 233 \text{ g Ca}_3(\text{PO}_4)_2$$

13. (10 pts)



$$2.50 \text{ L} \times \frac{0.500 \text{ mol H}_3\text{PO}_4}{\text{L}} \times \frac{3 \text{ mol NH}_3}{1 \text{ mol H}_3\text{PO}_4} \times \frac{\text{L}}{0.755 \text{ mol NH}_3} = \boxed{4.97 \text{ L}}$$

14. (10 pts)

$$5.0 \text{ g C}_2\text{H}_5\text{OH} \times \frac{1 \text{ mol C}_2\text{H}_5\text{OH}}{46.07 \text{ g C}_2\text{H}_5\text{OH}} \times \frac{6.02 \times 10^{23} \text{ molecules C}_2\text{H}_5\text{OH}}{1 \text{ mol C}_2\text{H}_5\text{OH}} = \boxed{6.5 \times 10^{22} \text{ molecules C}_2\text{H}_5\text{OH}}$$