

35

Package #1

Key

# CHEMISTRY 11 REVIEW

- The formula  $(\text{NH}_4)_2\text{CrO}_4$  represents
  - 14 atoms.
  - 15 atoms.
  - 18 atoms.
  - 19 atoms.
- The formula  $\text{Al}_2(\text{SO}_4)_3$  represents
  - 10 atoms.
  - 17 atoms.
  - 19 atoms.
  - 34 atoms.
- The number of significant digits in the number  $4.50030 \times 10^{-3}$  is
  - 1
  - 3
  - 5
  - 6
  - 7
- Which of the following values has 3 significant digits.
  - 100.0
  - 0.032
  - 6.00
  - 0.09
- The number 0.002 has how many significant digits?
  - 1
  - 2
  - 3
  - 4
- The number 3.0 has how many significant digits?
  - 1
  - 2
  - 3
  - 4
- The number 7005.0 has how many significant digits?
  - 2
  - 3
  - 4
  - 5
- The number that has 3 significant digits is
  - 303
  - 0.98
  - 5050.0
  - 6.030

9. What is the mass of 1 atom of calcium in grams? (2 marks)

$$1 \text{ atom Ca} \times \frac{1 \text{ mole}}{6.02 \times 10^{23} \text{ atoms}} \times \frac{40.1 \text{ g Ca}}{1 \text{ mole}} =$$

$$6.6 \times 10^{-23} \text{ g or}$$

10. How many moles of silicon are in 30.5 g of silicon?

$$30.5 \text{ g} \times \frac{1 \text{ mole Si}}{28.1 \text{ g}} = 1.09 \text{ moles Si}$$

$$7 \times 10^{-23} \text{ g}$$

11. How many grams of copper are there in 2.55 mol of copper?

$$2.55 \text{ mol Cu} \times \frac{63.6 \text{ g}}{1 \text{ mol}} = 162 \text{ g Cu}$$

12. How many atoms are there in one half mole of Zinc, (Zn)?

$$0.5 \text{ mol Zn} \times \frac{6.02 \times 10^{23} \text{ atoms}}{1 \text{ mol Zn}} = 3.01 \times 10^{23} \text{ atoms}$$

13. Write the formula for the compound boron trifluoride in the space provided.



14. Write the formula for the compound boron trichloride in the space provided.



15. Write the formula for the compound bromine dioxide in the space provided.



16. Write the formula for the compound diantimony decaoxide in the space provided.



17. Write the chemical name for  $\text{BF}_3$  in the space provided.

Boron trifluoride

18. Write the chemical name for  $\text{B}_5\text{H}_9$  in the space provided.

pentaboran nonahydride

19. Write the chemical name for  $\text{SbF}_5$  in the space provided.

antimony pentafluoride or Antimony (V) fluoride

20. Write the chemical name for  $\text{P}_2\text{S}_5$  in the space provided.

diphosphorus penta sulfide

21. Write the name for  $\text{V}_2(\text{CO}_3)_5$  in the space provided.

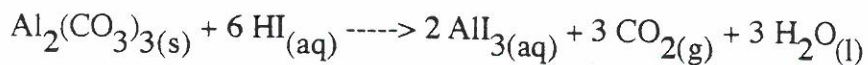
Vandium<sup>(V)</sup> carbonate

22. Write the name for  $\text{Bi}(\text{NO}_3)_5$  in the space provided.

Bismuth<sup>(V)</sup> nitrate

12

23. Use the lab data below, along with the balanced chemical equation, to answer the following questions.



Mass of crucible and  $\text{Al}_2(\text{CO}_3)_3$ .....27.41 g

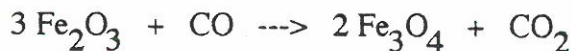
Mass of crucible only.....25.29 g

Mass of crucible and  $\text{AlI}_3$ .....32.33 g

$2.12 \text{ g Al}_2(\text{CO}_3)_3 \times \frac{1 \text{ mol}}{234} \times \frac{2 \text{ mol AlI}_3}{1 \text{ mol Al}_2(\text{CO}_3)_3} = 7.39 \text{ g AlI}_3$  40%

- a) What mass of  $\text{Al}_2(\text{CO}_3)_3$  was used? 2.12 g  $\text{Al}_2(\text{CO}_3)_3$   
 b) What mass of  $\text{AlI}_3$  was produced? 7.04 g  $\text{AlI}_3$   
 c) Theoretically, what should have been the mass of  $\text{AlI}_3$  produced? (3) 7.39 g  $\text{AlI}_3$   
 d) Using the theoretical and actual values of  $\text{AlI}_3$  produced, calculate the percentage error in this experiment. (2)  $\frac{\text{actual}}{\text{theoretical}} \times 100\% = \frac{7.04 \text{ g}}{7.39 \text{ g}} \times 100\% = \boxed{95.3\%}$  yield

24. Given the following **balanced** equation:



$134.4 \text{ g CO} \times \frac{1 \text{ mol CO}}{28 \text{ g CO}} \times \frac{2 \text{ mol Fe}_3\text{O}_4}{1 \text{ mol CO}} \times \frac{231.7 \text{ g}}{1 \text{ mol}} = \boxed{2.22 \times 10^3 \text{ g Fe}_3\text{O}_4}$

If 134.4 grams of CO is combined with an excess of  $\text{Fe}_2\text{O}_3$ , what mass of  $\text{Fe}_3\text{O}_4$  will be formed?  $2.22 \times 10^3 \text{ g Fe}_3\text{O}_4$

25. A student measures out 7.2 mL of water in a 10 mL graduated cylinder and 641 mL in a 1000 mL graduated cylinder. If the two volumes are combined in a beaker the total should be recorded as

- A. 648 mL.      B. 648.2 mL.      C. 650 mL.      D. 6.5 x 10<sup>2</sup>.

26. Two different balances are used in determining the masses of two different objects as 624.1 g and 4.24 g. The total of these two masses be recorded as

- A. 628 g.      B. 628.3 g.      C. 628.34 g.      D. 630 g.

