Unit 5: Chemical Bonding and Inorganic Nomenclature *Name*_____ *Hr* _____

Chapter 12

1. What are very rare in nature?

2. How atoms are bonded together affects a substance's _____and _____ properties.

3. Graphite and diamond are both 100% carbon. Why do these two substances behave differently?

4. The _____ of a molecule plays a central role in its taste or smell.

12.1

5. What is a chemical bond?

6. Define bond energy.

7. Ionic bonding results from attractions among what?

8. Write the general equation for the formation of an ionic compound.

9. When nuclei share electrons, we have _____ _____.

10. The H_2 molecule is more _____ than two hydrogen atoms.

11. What type of bond do we have when electrons are shared unequally?

12. What does the δ mean?

Chapter 3

3.11

13. At what temperature does table salt melt?

14. We can best explain the properties of sodium chloride by what?

15. Why can an electric current travel along a metal wire?

16. Substances that contain ions can conduct electric current only if:

17. Why can't solid NaCl conduct a current?

18. What is the net charge on a chemical compound?

Chapter 4

19. In chemistry's early days, chemists coined _____ _____ for the substances they worked with, but today there exists a _____ for naming compounds.

20. What are binary compounds?

21. What are the two classes of binary compounds?

4.1

22. Which ion is always written first in the formula of a binary ionic compound?

23. How do we name binary ionic compounds?

24. What is the difference between Type I and Type II cations?

25. In the formulas of ionic compounds, ions are represented by the _____ _____, but when the individual ions are written out, we always include the _____.

26. What two charges could a lead ion have?

27. What does a Roman numeral specify?

28. A Roman numeral does NOT specify:

29. Describe when to use –*ic* and when to use –*ous* in the older system of nomenclature.

30. Why will the text use only the Roman numeral system?

31. Which metals should NOT be identified by a Roman numeral?

32. When a metal that forms more than one cation is present, how do you determine the charge on that ion?

4.2

33. What is unique about Type III binary compounds?

34. When should you never use the prefix *mono*–?

35. Why do we drop the final *o* or *a* when the second element is oxygen?

4.3

36. Review: Type I: cation having only one _____ bonded to an anion

Type II: cation having one of _____ charges bonded to an anion

Type III: two different _____ bonded together

4.4

37. Describe polyatomic ions.

38. What are oxyanions?

39. Write the names of the following polyatomic ions: ClO^{1-}

ClO_2^{1-}

ClO_3^{1-}

ClO_4^{1-}

40. To name compounds with polyatomic ions, you must learn to _____ the common polyatomic ions.

41. When more than one of the same polyatomic ion appears in a chemical formula, you enclose the ion in _____ and write a _____ to indicate how many of that type of ion.

4.6

42. Why is it important to be able to figure out the chemical formula from the chemical name?