**Chapter 2 Practice Problems**

1. What are the symbols of the following metals:

sodium, radium, iron, gold, manganese, lead, beryllium, chromium, uranium?

1. Give the names of the metals that correspond to the following symbols:

Sn Mg Co

Pt K Ag

Hg Ni Ba

1. What are the symbols of the following nonmetals:

fluorine, chlorine, bromine, sulfur, oxygen, phosphorus?

1. Give the names of the nonmetals that correspond to the following symbols:

As I Xe

He C Si

1. List the noble gas elements. Which of the noble gases has only radioactive isotopes (parenthesis around the mass)?
2. On the periodic table, how many elements are found in the
3. Second period? c. fourth period?
4. Third period? d. group 5A

1. How many protons and neutrons are contained in the nucleus of each of the following atoms? In an atom of each element, how many electrons are present?
2. 4222Ti c. 7632Ge e. 7533As
3. 6430Zn d. 8636Kr f. 4119K
4. Write the atomic symbol (AZX) for each of the isotopes described below:
5. Z = 8, number of neutrons = 9
6. The isotope of chlorine in which A = 37
7. Z = 27, A = 60
8. Number of protons = 26, number of neutrons = 31
9. The isotope of I with a mass number of 131
10. Z = 3, number of neutrons = 4
11. What is the symbol for an ion with 63 protons, 60 electrons, and 88 neutrons?
12. An ion contains 50 protons, 68 neutrons, and 48 electrons. What is its symbol?
13. What is the symbol of an ion with 16 protons, 18 neutrons, and 18 electrons?
14. Classify the following elements as metals or nonmetals:

Mg Si Rn

Ti Ge Eu

Au B Am

Bi At Br

1. For each of the following sets of elements, label each as either noble gases, halogens, alkali metals, alkaline earth metals or transition metals.
2. Ti, Fe, Ag
3. Mg, Sr, Ba
4. Li, K, Rb
5. Ne, Kr, Xe
6. F, Br, I
7. How many protons and neutrons are in the nucleus of each of the following atoms? In a neutral atom of each element, how many electrons are present?
8. 79Br d. 133Cs
9. 81Br e. 3H
10. 239Pu f. 56Fe
11. For each of the following ions, indicate the number of protons and electrons the ion contains.
12. Ba2+ e. Co3+
13. Zn2+ f. Te2-
14. N3- g. Br-
15. Rb+
16. What is the symbol for an ion with 63 protons, 60 electrons, and 88 neutrons? If an ion contains 50 protons, 68 neutrons, and 48 electrons, what is its symbol?
17. Which of the following sets of elements are all in the same group in the periodic table?
18. Fe, Ru, Os c. Sn, As, S
19. Rh, Pd, Ag d. Se, Te, Po
20. Would you expect each of the following atoms to gain or lose electrons when forming ions? What ion is the mostlikely in each case?
21. Ra c. P e. Br
22. In d. Te f. Rb
23. Complete the following table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Symbol | Protons | Neutrons | Electrons | Net charge |
| 23892U |  |  |  |  |
|  | 20 | 20 |  | 2+ |
|  | 23 | 28 | 20 |  |
| 8939Y |  |  |  |  |
|  | 35 | 44 | 36 |  |
|  | 15 | 16 |  | 3- |

|  |  |
| --- | --- |
|  **20) Formula** | **Name** |
|  Cu(NO3)2 |  |
| SnO2 |  |
| Ga(CN)3 |  |
| CrSO4 |  |
| Hg2O |  |
| FeBr3 |  |
| CoS |  |
| TiCl4 |  |
| NaBr |  |
| H2O |  |
| AlI3 |  |
| Rb2O |  |
| CaS |  |
| MnS |  |
| SO3 |  |
| N2Cl4 |  |
| HCl |  |
| HNO3 |  |
| HNO2 |  |
| HClO2 |  |
| **Name** | **Formula** |
| Cesium carbonate |  |
| Iron (III) chlorite |  |
| Diphosphorus hexabromide |  |
| Calcium dichromate |  |
| Lead (IV) oxide |  |
| Nitrogen trichloride |  |
| Strontium hydroxide |  |
| Ammonium sulfate |  |
| Phosphoric acid |  |
| Hydrobromic acid |  |
| Sulfurous acid |  |
| sulfuric acid |  |
| Strontium fluoride |  |
| Aluminum selenide |  |
| Potassium nitride |  |
| Magnesium phosphide |  |
| Tin(II) nitride |  |
| Cobalt (III) iodide |  |
| Mercury (II) oxide |  |
| Chromium (VI) sulfide |  |