

Name _____

Chemistry 11 Review Unit 8

1. Give the contribution to Chemistry by each of the following people:

Mendeleev

Rutherford

Dalton

Democritus

Thomson

Bohr

Schrodinger

Doberniener

Newlands

Lewis

2. Give the number of protons, neutrons and electrons in the following:

| <i>Isotope</i> | <i>Protons</i> | <i>Neutrons</i> | <i>Electrons</i> |
|------------------------|----------------|-----------------|------------------|
| $^{177}\text{Hf}^{3+}$ | | | |
| $^{209}\text{Po}^{2+}$ | | | |
| $^{212}\text{At}^{-}$ | | | |
| ^{243}Am | | | |
| $^3\text{H}^{+}$ | | | |

3. Give the nuclear notation of the following:

| <i>Isotope</i> | <i>Protons</i> | <i>Neutrons</i> | <i>Electrons</i> |
|----------------|----------------|-----------------|------------------|
| | 42 | 54 | 39 |
| | 32 | 42 | 32 |
| | 108 | 157 | 105 |
| | 86 | 136 | 86 |
| | 52 | 74 | 54 |

4. Give a short explanation of how Bohr's atomic model was able to explain the spectrum of hydrogen.

5. What is meant by an **orbital**?

6. Using the Energy Level Diagram for Many Electron Atoms (p.153 of SW), give the electron configuration for each of the following atoms: (You may use core notation)

Si

Cr

Br

Sr

K

Fe

Ge

P

7. Using the Energy Level Diagram for Many Electron Atoms (p.153 of SW), give the electron configuration for each of the following ions:(You may use core notation.)



8. What is the letter which represents the principal quantum number? _____

What does it stand for? _____

9. The elements Ce-Lu are filling up _____ orbitals.

10. In order to become stable,

an atom of Ca will _____ electrons and become the ion _____

an atom of Se will _____ electrons and become the ion _____

an atom of K will _____ electrons and become the ion _____

an atom of Br will _____ electrons and become the ion _____

an atom of N will _____ electrons and become the ion _____

an atom of As will _____ electrons and become the ion _____

an atom of Al will _____ electrons and become the ion _____

an atom of Te will _____ electrons and become the ion _____

11. Name two elements which are classified as metalloids
12. As you move from left to right in the third period of the periodic table, the atomic radius gets _____

Explain why this happens

13. What is meant by **ionization energy**?

14. What happens to ionization energy as you move down a vertical column? _____

Explain why this happens

15. What happens to atomic radius as you move down a column? _____

Explain why this happens

16. What happens to ionization energy as you move across a period from left to right? _____

Explain why this happens.

17. For each of the following pairs, circle the one which is more reactive:

Ca Ba, Rb Ag, Se O, N Be, Cs Na, At Cl, Br Kr, Si Cl, C F,

18. For each of the following pairs, circle the one with the higher density:

Mg Ba, B Tl, Ne Xe, Pb Si, Cs Li

19. For each of the following pairs, circle the one which is most metallic:

Be Ba, Al In, He C, Pb Si, Cs Pt, Au Te

20. Write a balanced equation for the reaction of rubidium with water
21. Write a balanced equation for the reaction of lithium with air.
22. Which gas is used to fill ordinary electric light bulbs? **Argon** Why? **Noble Gas, will not support combustion of the filament like ordinary air would.**
23. Helium is the _____ most abundant element in the universe?
24. In an **ionic** bond, electrons are _____
25. Give three examples of **ionic compounds**. _____
26. Ionic compounds have _____ melting points. From this we know they have (strong/weak) _____ bonds between the ions.
27. Bonds in which electrons are shared equally or almost equally are called _____
28. Draw the electron-dot structure of a **diatomic oxygen molecule**
- A **diatomic iodine molecule**
- A **diatomic nitrogen molecule**
29. What is meant by a **polar covalent** bond?
30. Explain what causes **London forces**. Use a diagram

(NOTE: Electron-dot structures for compounds will also be on the test. See Assignment #14)