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

   Doberiener

   Newlands

   Lewis

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

Isotope	*Protons*	*Neutrons*	*Electrons*
$^{177}Hf^{3+}$			
$^{209}Po^{2+}$			
$^{212}At^{-}$			
^{243}Am			
$^{3}H^{+}$			

3. Give the nuclear notation of the following:

Isotope	*Protons*	*Neutrons*	*Electrons*
	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.)

   P^{3-}

   Mg^{2+}

   Br^{-}

   As^{3-}

   Te^{2-}

   Li^{+}

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)