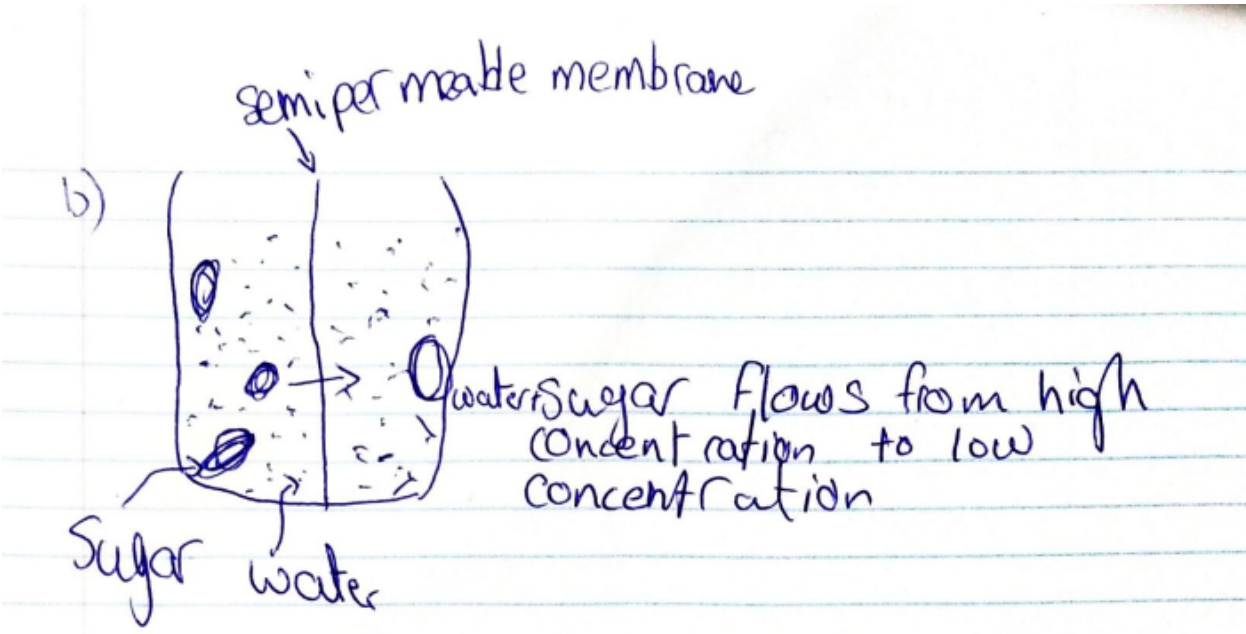
1. The difference between an atom and an Ion is that an atom has a neutral charge with the same amount of protons and electrons, while ions usually have inherent charges that are due to a greater amount of protons or electrons.
2. Ionic and covalent bonds.
3. An element is a single atom on the periodic table of elements. A compound is a mixture of two or more elements, and a mixture is a mixing of two or more elements in the liquid form.
4. Covalent bonds are between nonmetals and nonmetals. Ionic bonds are between metals and nonmetals and are stronger than covalent bonds.
5.
    a. 1
    b. 2
    c. 4
    d. 3
    e. Full valence shell - number of valence electrons = bonds formed
6.
    a. Pure substances are made of the same type of particle
    b. A mixture is made of two or more substances.
    c. Solution is a solid dissolved in a liquid
    d. Substances in two different phases that don't settle out
7.
    a. Acid
    b. base
    c. Salt and water
    d. Acids taste like citrus/acidic and are dangerous
        i. Bases are usually found in bath salts and are bitter
    e. The lower the PH value, the more acidic it is
8. The oxygen hogs the negative charge creating a dipole, meaning that the hydrogen atoms which have a positive dipole charge are pushed far away from the oxygen, and repelled slightly away from each other.
9. **And 10**
    a. Mass energy can neither be created nor destroyed
    b. Energy is taken from the sun and the energy flows throughout the food chain. Furthermore, all glucose, and other starches are created by taking resources from the environment, and when respiration occurs, they still conserve mass and energy.
10.
11. A
    a. Golgi body
    b. Cell membranes
    c. Mitochondria
    d. Vacuole
    e. Cytoplasm

f. Ribosomes
g. Nucleus
h. Endoplasmic Reticulum
i. SHows an animal cell

12. Both are the same process just going in different directions. One takes energy from the sun, while the other gives energy to the body
13.
    a. Fats are responsible for long-term energy storage; also called lipids
    b. Proteins are one or more folded and coiled polypeptides; made of amino acids
    c. Carbohydrates range from small sugar molecules to large starch molecules
    d. nucleic acids are directly involved with inheritance
14.
    a. Osmosis is the diffusion of water through a selectively permeable membrane. Diffusion is the movement of solutions through a selectively permeable membrane.
    b. 

    c. The cell membrane is selectively permeable allowing for diffusion and osmosis of specific substances that are required for life processes.
15. A
    a. Both sides of the membrane have the same concentration.
    b. The hypotonic solution has less solute concentration than the hypertonic
    c. The hypertonic solution has less solute concentration than the hypotonic
16.

| Name of element | symbol | Number of Protons | Number of neutrons | Atomic Mass |
|---|---|---|---|---|
| Neon | Ne | 10 | 10 | 20 |

| | | | | |
|---|---|---|---|---|
| Chlorine | Cl | 17 | 18 | 35 |
| Nickle | Ni | 28 | 31 | 59 |
| Chromium | Cr | 24 | 24 | 52 |
| Tungsten | W | 74 | 110 | 184 |

17.

a. 5 atoms, aprox 78 amu
b. 24 atoms, aprox 180 amu
c. 14 atoms, aprox 121 amu

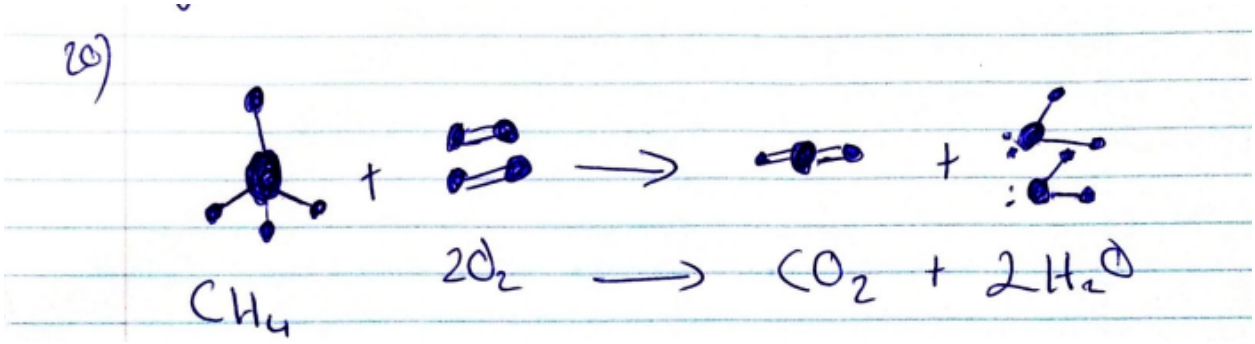
18.

a. $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$
b. $2CH_2O_2 \rightarrow C_2H_2O_3 + H_2O$
c. $C_6H_{12}O_6 \rightarrow 2C_2H_6O + 2CO_2$

19. A

a. The second one represents a combustion reaction because it uses oxygen while burning to create carbon dioxide and another product of combustion
b. The first uses a neutralization reaction because it uses a acid, base and results in salt + water.

20.




21. Cellular respiration is similar to combustion of methane because they both take a carbohydrate, combust it with oxygen to create energy, carbon dioxide, and water.

22.