Unit 2A Test Review

I. Mixtures and Pure Substances.

A. Identify each as a pure substance (PS), homogeneous mixture (HM), or a heterogeneous mixture (HT).

1. Platinum _____
2. Dr. Pepper _____
3. Beer _____
4. Trail mix _____
5. Oatmeal raison cookie _____
6. brass _____
7. Air _____
8. Oxygen _____
9. Sodium chloride _____
10. Potting soil _____

B. Identify each pure substance as an element or a compound.

1. Carbon dioxide _____
2. Mercury _____
3. H_2 _____
4. H_2O _____
5. S_8 _____
6. Hydrogen peroxide _____
7. Ca _____
8. Iron _____
9. Iron oxide _____
10. CCl_4 _____

II. Separation of Mixtures

1. A mixture of sand and salt water could be separated by _____.
2. The components of gasoline could be separated by _____.
3. The components of green tea could be separated by their color using _____.

III. Properties of Matter

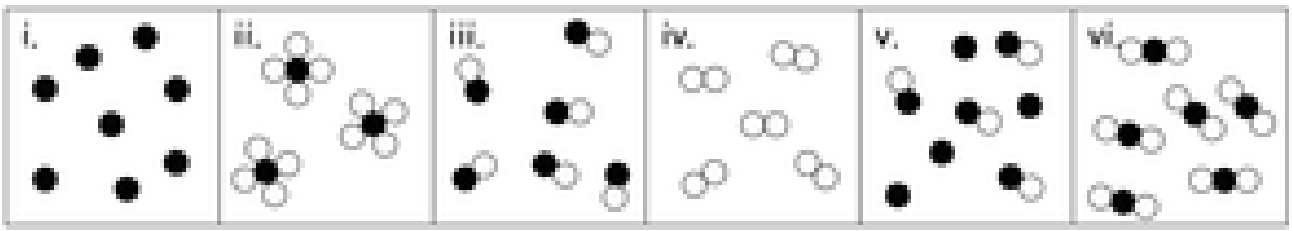
A. Identify each property as intensive (I) or extensive (E).

1. Density _____
2. Mass _____
3. pH _____
4. length _____
5. boiling point _____
6. temperature _____

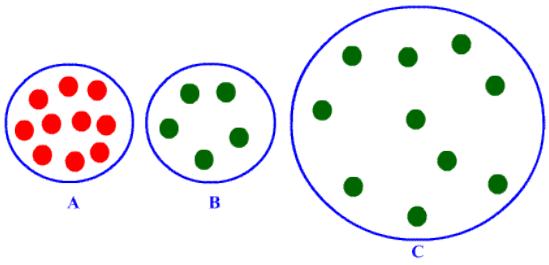
B. Identify each property or change as chemical (C) or physical (P).

1. Ability to react _____
2. Fermentation _____
3. Evaporation _____
4. Sublimation _____
5. Color change _____
6. Shredding paper ____
7. Melting _____
8. Burning _____
9. Length _____
10. Rusting _____

IV. Particle Diagrams



1. Label each box as an element, compound, molecules, homogeneous or heterogeneous mixture.
2. Take the contents of box (ii) and show it undergoing a chemical change.
3. Take the contents of box (iii) and show it undergoing a physical change.
4. If the contents of box (i) are at 25 C, what would it look like at 0 C?
5. Compare the relative densities of samples a, b, and c
6. Draw three particle diagrams for water, one as a solid, one as a liquid, and one as a gas.



V. Temperature

°F = 1.8°C + 32	°C = (°F-32)/1.8	°C + 273 = K

1. 415 K = ___ °C
2. 62.14°C = ___ F
3. 0 K = ___ °F
4. 0°C = ___ K
5. 25 K = ___ °C
6. 1154 °C = ___ K
7. 238 K = ___ °C
8. 700. °C = ___ °F
9. 98.6°F = ___ K
10. 42.5°C = ___ K

VI. Density

1. The mass of a rectangular block is 45 g. If the block is measured and found to be 1.5 in per side, what is the density of the block in g/cm^3? **Hint: watch units!**

2. 0.98 kg of aluminum is placed in 100.0 mL of water. If the density of aluminum is 0.27 g/cm^3, what will the final volume of water be after the aluminum is submerged?

3. A cylindrical bar of gold that is 1.5 in high and 0.25 in in diameter has a mass of 23.1984 g as determined by an analytical balance at 303 K. An empty graduated cylinder is weighed on a triple beam balance and has a mass of 73.47 g. After pouring a small amount of a liquid (also at 303 K) into the graduated cylinder, the mass is 79.16 g. When the gold cylinder is placed in the graduated cylinder (the liquid covers the top of the gold cylinder), the volume indicated on the graduated cylinder is 8.5 mL.

   (a) What is the density of the gold cylinder at 303 K?

   (b) What is the density of the liquid at 303 K?

VII. Energy

1. An _____ process releases heat. The sign of the heat will be _____ and the container will feel ____.
2. An _____ process absorbs heat. The sign of the heat will be _____ and the container will feel _____.
3. Evaporation is an example of an _____ process. Burning is an example of an _____ process.

4. A 15.75-g piece of iron absorbs 1086.75 joules of heat energy, and its temperature changes from 25°C to 175°C. Calculate the specific heat capacity of iron.

5. How many joules of heat are needed to raise the temperature of 10.0 g of aluminum from 55°C to 22 C, if the specific heat of aluminum is 0.90 J/g°C?