Possible Additional Questions for Physics Test

X1. (6 points) List three ways light can be polarized.

1.

2.

3.

X2. (10 points) When we used a battery to break up water into hydrogen and oxygen gas and then exploded them, energy is conserved, but was transformed in a variety of ways. Fill in each blank space with one of the following types of energy: **Chemical, Mechanical, Electrical, Heat, Light, Sound**

_____ energy within the battery was converted to _____ energy flowing through the wires going to the electrodes in the water dish.

That energy broke apart the water molecules into hydrogen and oxygen gas which have more _____ energy than the original water from which they came. After placing the igniter with its thin wire section into the bag with the hydrogen and oxygen gas, a tiny amount of battery energy was used to blow apart the thin wire and cause a spark.

The resulting explosion released the stored _____ energy of the gases, converting it to _____ energy that splashed the water, _____ energy that we could see, and _____ energy that we could hear. All other energy was converted to _____ energy.

To recharge the batteries, I later needed to take _____ energy from the wall outlet to replenish the _____ energy within the battery.

X3a. (5 points) What fault in an power drill can make it dangerous to use if the drill is connected to an old-fashioned two-wire outlet.

X3b. (5 points) How does three-wire house wiring help reduce this danger?

X3c. (5 points) How does a ground-fault breaker reduce the danger further?