Unit 2 Test Prep- Ch.4-6

List the strong acids:

List the strong bases:

A precipitation reaction is one that forms a:

1. Soluble product
2. Insoluble product
3. Liquid product
4. Gas product

The net ionic equation for any acid-base (or neutralization) reaction is:

1. H + OH 🡪 H2O
2. H2 + O2 🡪 2H2O
3. C + O2 🡪 CO2
4. N + O2 🡪 NO2

Write the ionic and net ionic equation for the following reactions:

Mg(NO3)2 (aq) + Na2CrO4 (aq) 🡪 MgCrO4 (s) + 2NaNO3 (aq)



Na3PO4 (aq) + FeCl3 (aq) 🡪 FePO4 (s) + 3NaCl (aq)



Rewrite the molarity formula if you wanted to solve for volume.

How many milliliters of 5.0 M copper (II) sulfate solution must be added to dilute a 160 mL solution of 0.30M copper (II) sulfate?

Determine the molarity of a solution if 6.30 moles of KNO3 dissolved in 241 ml of water?



If 25.00 mL of HCl solution with a concentration of 0.750 M is neutralized by 23.45 mL of NaOH, what is the concentration of the base?



In the following redox reaction, the element being oxidized is:

Zn + CuSO4 🡪 ZnSO4 + Cu

1. Zinc
2. Copper (II) sulfate
3. Zinc (II) sulfate
4. Copper

In the following redox reaction, the element referred to as the oxidizing agent is:

4Al + 3O2 🡪 2Al2O3

1. Aluminum
2. Oxygen
3. Aluminum oxide

When 15.0 g of fructose, C6H12O6, is burned with oxygen in a calorimeter, the initial temperature of the calorimeter is 53.5 °C, and the final temperature is 50.2°C. If the heat capacity of the calorimeter and its contents is 1.28 J/g-K, how much heat was produced by this reaction?

B2H6 (g) + 3O2 (g) → B2O3 (s) + 3H2O(l)

Calculate the enthalpy change for the reaction above using the following data.

2B(s) + 3H2 (g) → B2H6 (g) ΔH = 36 kJ/mol

H2 (g) + ½O2 (g) → H2O(l) ΔH = −286 kJ/mol

2B(s) + 1½O2 (g) → B2O3 (s) ΔH = −1274 kJ/mol



A system does 30.4 kJ of work and absorbs 73.0 kJ of heat from the environment. What is the change in internal energy of the system?

How much heat will be released when 6.78g of sulfur reacts with excess oxygen to form sulfur trioxide. ∆H=-791.4 kJ (HINT- write a balanced chemical equation first!)

What is the correct formula for change in enthalpy in a reaction?

1. (H of reactants) – (H of products)
2. Sum of H of products
3. (H of products) – (H of reactants)
4. Q=mCsT

Part A) A laser emits light with a frequency of 4.74x10^14 Hz. What is the wavelength of the light?

Part B) What is the energy of one photon projected by this radiation?

Which electron movement pathway is most favorable?

1. n=5 to n=3
2. n=3 to n=1
3. n=1 to n=3
4. n=3 to n=5

Emission is referred to as:

1. Release of energy towards the excited state
2. Gain of energy towards the nucleus
3. Release of energy towards the ground state
4. Gain of energy away from the nucleus

Write the full electron configuration for the following elements:

**Sulfur**

**Magnesium ion**

**Chromium**

Write the noble gas configuration for the following elements:

**Fluorine**

**Potassium**

**Zinc**

**Lanthanum**

If the angular momentum # is 2, what are all possible magnetic quantum values?

Which orbital does each angular quantum correspond to?

0 =

1 =

2 =

3 =

True or false:

1. If the principal quantum # (n) is 3, the angular momentum # (l) can be 3. \_\_\_\_\_\_\_
2. The magnetic spin can only be two possible numbers. \_\_\_\_\_\_\_
3. The s orbital only has one possible orientation. \_\_\_\_\_\_\_
4. The d orbital is “dumbbell shaped” and has 3 orientations. \_\_\_\_\_\_\_\_
5. Pauli Exclusion Principle states that no two electrons can have the same set of quantum numbers. \_\_\_\_\_\_\_