Exam 2 Test Prep

Give examples of homogenous mixtures.

If sugar is mixed with tea, what is the solvent, and what is the solute?

Does this equation yield a precipitate? If so, what compound is the precipitate?

$$AgNO_3\,(aq) + NaCl\,(aq) \rightarrow AgCl\,(?) + NaNO_3\,(?)$$

Write the molecular equation, complete ionic equation, and net ionic equation for the precipitation reaction that occurs when aqueous solutions of calcium chloride and sodium carbonate are mixed.

What is the net ionic equation for the reaction between hydrochloric acid and potassium hydroxide?

What are the spectator ions in the reaction between zinc sulfate and potassium hydroxide?

List 3 strong acids and bases.

How do weak acid and bases dissociate in water?

Determine the oxidation state of the boldfaced element: $\mathbf{N}H_3$, $\mathbf{Cr}_2O_7^{2-}$, $\mathbf{N}_2$, $Na_2\mathbf{S}O_3$

In the following reaction, what is oxidized and reduced? What is the oxidizing and reducing agents? $CuSO4+Zn \rightarrow Cu+ZnSO4$

What is the concentration of a potassium chloride (KCl) solution if 18.5 g of KCl is dissolved in 150 mL of solution?

How many moles of NaCl are present in 0.500 L of a 0.250 M solution of NaCl?

You have a 12.0 M solution of sulfuric acid (H_2SO_4), and you need to prepare 250 mL of a 3.0 M H_2SO_4 solution. What volume of the 12.0 M stock solution will you need to dilute?

If it takes 30.0 mL of 0.25 M NaOH to neutralize 15.0 mL of H_3PO_4 (phosphoric acid) solution, what is the molar concentration of the H_3PO_4 solution?

Will a reaction happen between Zinc metal and Copper (II) sulfate? If so, write the balanced equation. *Hint: Look at the activity series

_____ is the ability to do work or transfer heat.

Energy can be converted from one form to another, but it can neither be _____ or _____.

What is the change in internal energy of a system that releases 1800 J of heat and does 5300 J of work on the surroundings?

How much heat in kJ must be transferred to the following reaction to produce 298.0 g C from SiO2 (silica) and C (carbon) according to following reaction scheme?

$$SiO2\ (s) + 2\ C\ (s) \rightarrow Si\ (S) + 2\ CO\ (g) \qquad \Delta H = 690.0\ KJ$$

Calculate the specific heat of a metal if a 25.0 g sample requires 756 J to change the temperature of the metal from 20.0°C to 80.0°C.

If 950 J of heat is available, how many grams of aluminum (specific heat = 0.90 J/g°C) can be heated from 15.0°C to 75.0°C?

Using the equations:

H_2 (g) + F_2 (g) → 2 HF (g) ΔH = -85.7 kJ

C (s) + 2 F_2 (g) → CF_4 (g) ΔH = 126.9 kJ

Determine the molar enthalpy (in KJ) for the reaction:

C (s) + 4 HF (g) → CF_4 (g) + 2 H_2 (g)

Determine the ΔH for the following reaction using the three chemical reactions. Round your answer to four significant figures.

CS_2 (l) + 3O_2 (g) → CO_2 (g) + 2 SO2 (g) ΔH = _____

C (s) + 2 S (s) → CS_2 (l) ΔH = +68.9 kJ/mol

C (s) + O_2 (g) → CO_2 (g) ΔH = -376.5 kJ/mol

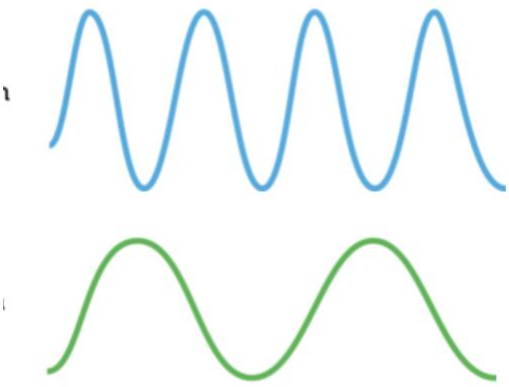
S (s) + O_2 (g) → SO_2 (g) ΔH = -298.8 kJ/mol

In thermodynamics _____, is the internal energy plus the product of pressure and volume, an extensive property.

In an _____ reaction the energy of products is higher than the energy of reactants.

In an _____ reaction the energy of reactants is greater than the energy of products.

Determine which wave has the higher wavelength?



Of all the colors of visible light red light has the longest wavelength and violet light has the shortest wavelength. Which color of light has the greatest energy?

What is the frequency of electromagnetic radiation that has a wavelength of 5.6×10^{8} nm?

What is the energy (E) of a photon of green light with a wavelength of 580. nm?

What shape are s orbitals? What shape are p orbitals?

The relationship between n and l: l _____ n-1

If n = 1, then l can only be _____

If n = 2 then l can be _____

If n = 3 then l can be _____

If n = 3, and l = 2, then m_l can be _____

What is the electron configuration for Arsenic?

What is the electron configuration for Ca^{+}?

What would be the quantum numbers (n, l, and m_l) if you are given phosphorus?

What would be the quantum numbers (n, l, m_l, and m_s) if you are given chlorine?

What is the condensed electron configuration for Iodine?

In the following space draw the energy level for Krypton: