

Exam 2 Test Prep

Solutions are _____ mixtures

Determine if the following are a strong, weak, or nonelectrolyte:

NH_3 _____

$\text{C}_2\text{H}_5\text{OH}$ _____

CaCl_2 _____

If salt is mixed with water, what is the solvent, and what is the solute?

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



Write the net ionic equation for BaI_2 and Na_2SO_4 if it is a precipitation reaction. What are the spectator ions in this reaction?

What is the net ionic equation for aqueous nitric acid and aqueous strontium hydroxide?

Give one example of a strong acid and base. How do they dissociate in water?

Give an example of a weak acid and base. How do they dissociate in water?

What is oxidation and reduction?

What is the one type of reaction that redox reactions are not?

Determine the oxidation state of the boldfaced element: **H**₂S, **Cr**₂O₇²⁻, Na**2**SO₃, and **O**₂.

What is oxidized and reduced? What is the oxidizing and reducing agent?



What is the concentration (M) of lead (II) nitrate by dissolving 12.2g of solute in 97.5mL of solution?

How many moles of CoI_2 are present in 0.200L of a 0.400M solution of CoI_2 ?

What is the concentration of sodium sulfide in a solution by diluting 50.0mL of a 0.874M solution of sodium sulfide to a total volume of 50.0mL?

If it takes 50 mL of 0.5 M KOH solution to completely neutralize 125 mL of sulfuric acid solution (H_2SO_4), what is the concentration of the H_2SO_4 solution?

Can a reaction happen between potassium and copper (II) chloride? Hint: look at the activity series.

_____ is the capacity to do work

_____ and _____ are not state functions

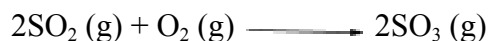
What is the change in internal energy of a system that releases 2500J of heat and does 7655J of work on the surroundings?

What is the J of heat released in the combustion of 16.0g of C₆H₆?

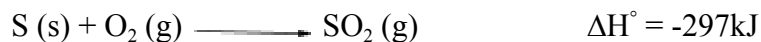


Calculate the specific heat capacity of a metal if a 17.0 g sample requires 481 J to change the temperature of the metal from 25.0 °C to 67.0 °C?

What is the enthalpy of reaction for



given



What is the $\Delta H^\circ_{\text{rxn}}$ in kJ for the following reaction?



Substance	ΔH°_f (kJ/mol)
$\text{H}_2\text{O} (\text{l})$	-286
$\text{NO} (\text{g})$	90
$\text{NO}_2 (\text{g})$	34
$\text{HNO}_3 (\text{aq})$	-207
$\text{NH}_3 (\text{g})$	-46

_____ is the heat change of a reaction at a constant pressure and is an extensive property

_____ is measured under standard conditions (25°C and 1.00atm pressure)

What is the difference between endothermic and exothermic?

When considering bond enthalpy, is it harder to break a single bond or a double bond?

What is the frequency of electromagnetic radiation that has a wavelength of 2.3×10^9 nm?

Calculate the energy of blue light that has a wavelength of 400 nm

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

If $n = 1$, then l can only be _____

If $n = 4$, and $l = 3$, then m_l can be _____

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

Can a subshell have two up arrows? If not, what rule does this violate?

Can a 2s subshell be filled before 1s subshell? If not, what rule does this violate?

Can 2 arrows fill the first orbital in a 2p subshell before having one arrow in each orbital first? If not, which rule does this violate?

What is the electron configuration for nitrogen?

What is the electron configuration for Mg^{2+} ?

What is the condensed electron configuration for S^- ?

What is the condensed electron configuration for Bi?

What is the condensed electron configuration for copper, chromium, and silver?