

AP Chemistry – Semester Exam Review – 40

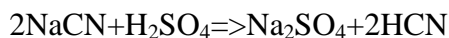
Name _____ Per ____

1. A compound has the following mass % composition. Determine the empirical formula.
Ni:32.5%
H:1.12%
C:13.3%
O:53.1%
2. An atom of ^{105}Pd has 45 electrons. How many neutrons does it have and what is its charge?
3. Write the condensed electron configuration for Ga^{2+} .
4. The electron in a hydrogen atoms undergoes a transition from $n=7$ to $n=6$ with the emission of a photon. What is the wavelength of the photon in nm?
5. What is the velocity of a neutron if it has a wavelength of 4.72×10^{-15} meters?
6. What are the four quantum numbers for the last electron in Rb^{+1} ?
7. Convert 45000.0 to scientific notation.
8. What is the IUPAC name of $\text{Pt}(\text{SO}_4)_2$?
9. What is the molar mass of $\text{C}_5\text{H}_8\text{OCl}_2$?
10. What is the percent mass composition of lead(II) sulfite?

11. For the unbalanced equation shown below, how many grams of NO_2 will be produced by 39.7 grams of $\text{C}_2\text{H}_5\text{N}$?



12. For the balanced equation shown below, if 92.2 grams of NaCN were reacted with 69.7 grams of H_2SO_4 , how many grams of HCN would be produced?



13. A gas system has initial pressure and volume of 1510 torr and 965 mL. If the volume changes to 0.229 L, what will the resultant pressure be in atm?

14. A gas system has an initial volume of 1.85 L with the temperature unknown. When the volume changes to 3610 mL the temperature is found to be 488°C . What was the initial temperature in $^\circ\text{C}$?

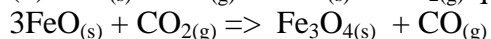
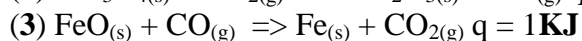
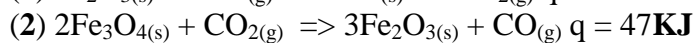
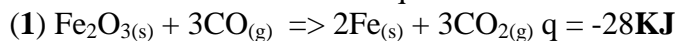
15. A gas system has volume, amount and temperature of 6.56 L, 0.486 moles and 16.00°C , respectively. What is the pressure in torr?

16. For the unbalanced equation shown below, if the reaction of 39.5 g of O_2 produces 7.57 g of H_2O , what is the percent yield?



17. If 0.968 moles of CH₄ effuses in 280 seconds, how many seconds would it take for the same number of moles of CO to effuse?

18. Use the thermochemical equations shown below to determine the enthalpy for the final reaction:



19. How many moles are present in 600. mL of a 1.15 M solution?

20. What volume in mL of a 0.717 M solution of acetone would be required if you wanted 0.195 moles of solute?

21. There are 14.54 g of KOH dissolved in 675.4 mL of water. What are the freezing and boiling points of the solution?

22. A solution of diethylether with a nonvolatile compound has mole fraction of 0.695 and a partial pressure of 361 torr., what is the P^o of the diethylether in kPa?