32. We learned about a synthesis reaction that affects the air quality in Los Angeles. (1) What reaction was this and (2) what is the common name for the brown air in LA?

* 4 points

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33. Write the formulas/equation for the following reaction: Calcium + oxygen --> calcium oxide

* 4 points

_____

34. Write the formulas/equation for the following reaction: phosphorus + sulfur → diphosphorus pentasulfide

* 4 points

_____

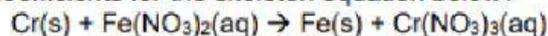35. Select the correct answer to the question *

4 points

1) What are the missing coefficients for the skeleton equation below?

$$Al_2(SO_4)_3(aq) + KOH(aq) \rightarrow Al(OH)_3(aq) + K_2SO_4(aq)$$
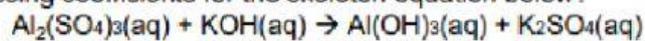
A) 1,3,2,3
B) 2,12,4,6
C) 4,6,2,3
D) 1,6,2,3
E) 2,3,1,1

36. Select the correct answer to the question *

4 points

2) What are the missing coefficients for the skeleton equation below?
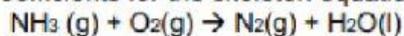
$$Cr(s) + Fe(NO_3)_2(aq) \rightarrow Fe(s) + Cr(NO_3)_3(aq)$$

A) 4,6,6,2
B) 2,3,2,3
C) 2,3,3,2
D) 1,3,3,1
E) 2,3,1,2

37. Select the correct answer to the question * 4 points

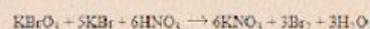3) What are the missing coefficients for the skeleton equation below?
$$NH_3 (g) + O_2(g) \rightarrow N_2(g) + H_2O(l)$$
A) 4,3,2,6
B) 2,1,2,3
C) 1,3,1,3
D) 2,3,2,3
E) 3,4,6,2

38. Solve and answer the question * 4 points

How many moles of $KBrO_3$ are required to prepare 0.0700 moles of Br_2 according to the reaction:

$$KBrO_3 + 5KBr + 6HNO_3 \rightarrow 6KNO_3 + 3Br_2 + 3H_2O$$

(a) 0.210
(b) 0.0732
(c) 0.0704
(d) 0.220
(e) 0.0233

39. Solve and answer the question * 4 points

Calculate the mass of hydrogen formed when 25 grams of aluminum reacts with excess hydrochloric acid.
$$2Al + 6HCl \rightarrow Al_2Cl_6 + 3H_2$$

(a) 0.41 g
(b) 1.2 g
(c) 1.8 g
(d) 2.8 g
(e) 0.92 g

40.   Solve and answer the question *   2 points

The limiting reagent in a chemical reaction is one that:
(a) has the largest molar mass (formula weight).
(b) has the smallest molar mass (formula weight).
(c) has the smallest coefficient.
(d) is consumed completely.
(e) is in excess.

_____

41.   Solve and answer the question *   4 points

1. Determine the volume, in liters, occupied by 0.030 moles of a gas at STP.

_____

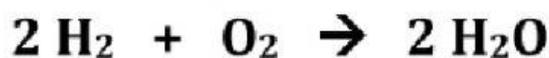42.   Solve and answer the question *   4 points

How many moles of argon atoms are present in 11.2 L of argon gas at STP?

_____

43.   Solve and answer the question *   4 points

$$2\ H_2\ +\ O_2\ \rightarrow\ 2\ H_2O$$

1) Given 5 moles of H_2O, how many liters of O_2 are used?

_____

44.   Solve and answer the question *   4 points

1 atm = 101.3 kPa = 101,325 Pa = 760 mm Hg = 760 torr = 14.7 lb/in² (psi)

1. The air pressure for a certain tire is 109 kPa. What is this pressure in atmospheres?

45.   Solve and answer the question *   4 points

1 atm = 101.3 kPa = 101,325 Pa = 760 mm Hg = 760 torr = 14.7 lb/in² (psi)

5. A bag of potato chips is sealed in a factory near sea level. The atmospheric pressure at the factory is 761.3 mm Hg. The pressure inside the bag is the same. What is the pressure inside the bag of potato chips in Pa?

46.   Solve and answer the question *   4 points

6. The same bag of potato chips from Problem 5 is shipped to a town in Colorado, where the atmospheric pressure is 99.82 kPa. What is the difference (in Pa) between the pressure in the bag and the atmospheric pressure of the town?

47.   What is Boyles Law? *   4 points

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48. What is Charles Law? *   4 points

_____

49. What is Gay - Lussac's Law? *   4 points

_____

50. solve the problem and answer *   4 points

 1. A sample of oxygen gas occupies a volume of 250. mL at 740. torr pressure. What
     volume will it occupy at 800. torr pressure?

_____

51. solve the problem and answer *   4 points

 1. A sample of nitrogen occupies a volume of 250 mL at 25° C.   What volume will it
     occupy at 95° C?

_____

52. solve the problem and answer *   4 points

 7. If a gas in a closed container is pressurized from 15.0 atmospheres to 16.0
 atmospheres and its original temperature was 25.0 °C, what would the final
 temperature of the gas be?

_____

53. what is a solution in chemistry? *   4 points

_____

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54.   what is a solute in chemistry? *   4 points

_____

55.   what is a solvent in chemistry? *   4 points

_____

56.   What is Molarity defined as in chemistry? *   4 points

_____

57.   What is MOLALITY defined as in chemistry? *   4 points

_____

58.   solve and answer *   4 points

      1. How many moles of CaCl2 would be dissolved in 1.0 L of a 0.1 M solution of CaCl2?

_____

59.   solve and answer *   4 points

      5. How many grams of Lithium Bromide would be needed to make 1.43L of 4 M Lithium Bromide solution?

_____

60.   What is an exothermic reaction? *   4 points

_____

61. What is an endothermic reaction? *   4 points

_____

62. solve and answer *   4 points

Find the amount of heat (Q) needed to raise the temperature of 5.00 g of a substance from 20.0° C to 30.0°C if the specific heat of the substance is 2.01 J/g°C.

_____

63. solve and answer *   4 points

A metal with a specific heat of 0.780 J/g°C requires 45.0 J of heat to raise the temperature by 2.00°C. What is the mass of the metal?

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