Chemistry CP Final Exam Part 2 Study Guide

Chapters 8 – 14, 20, & 21 review material

(This is just a ***guide*** on the topics to help you study! Be sure to review through all of your notes!)

A – Define:

1 – coefficient
2 – activity series
3 – synthesis
4 – combustion
5 – excess reactant
6 – actual yield

B – Solve the following: (show all work)

1 – How many grams of lithium chloride will form when chlorine gas reacts with 0.64 mol of lithium bromide.

2 – When 97.0 g ammonium nitrate is heated it forms oxygen, water and how many grams of nitrogen?

3 – When 0.823 mol of iron reacts with 0.628 mol of copper (II) sulfate, which is the limiting reactant? The products are copper and iron (II) sulfate.

4 – When 0.097 mol of magnesium reacts with excess nitrogen, it forms 0.027 mol magnesium nitride. What is the percent yield?

C – Identify the type of reaction for those in Section B.

D – Define:

1 – ideal gas
2 – elastic collision
3 – temperature
4 – diffusion
5 – compression
6 – pressure
7 – STP
8 – molar volume

E – Solve the following: (show all work)

1 – With a starting of volume of 435 mL and pressure of 92.3 kPa for the nitrogen gas, what is the ending pressure if the volume is now 475 mL?

2 – The pressure of the helium gas was 1.2 atm with a temperature of 26.0^{o}C. What is its pressure if the temperature drops to 12.0^{o}C?

3 – The compressed air had a volume of 3.25 L, pressure of 1.45 atm and temperature of 18.0^{o}C. What is the volume of the air if it is now at STP?

4 – What is the temperature of the 6.50 g of nitrogen dioxide gas in a 2.4 L cylinder at 1.18 atm?

F – Identify the name of the gas law used in Section E.

G – Define:

1 – viscosity
2 – capillary action
3 – miscible
4 – amorphous
5 – sublimation
6 – evaporation
7 – heat of fusion
8 – triple point
9 – heterogeneous mixture
10 – suspension
11 – solute
12 – solubility
13 – unsaturated solution
14 – insoluble
15 – electrolyte
16 – dissociation
17 – ionization
18 – dilute

H – Solve the following: (show all work)

1 – What is the molarity if 411 g of sodium hydroxide is in the 720. mL solution?

2 – How many grams of copper (II) sulfate are contained in a 0.75 M solution of 1.3 L?

I – Complete the following:

1 – Write the dissolution equation for potassium bromide in water. How many moles of ions are formed?

2 – Write the dissolution equation for potassium bromide in water. How many moles of ions are formed?

J – Define:

1 – catenation
2 – isomer
3 – hydrocarbon
4 – benzene
5 – alkane
6 – alcohol
7 – amino acid
8 – carbohydrate
9 – lipid
10 – DNA

K – Complete the following:

1 – two carbon atoms
2 – all single bonds on carbons
3 – carbons in a ring
4 – 3 carbon attached group
5 – 7 carbon atoms
6 – three double bonds between carbons
7 – general formula for alkynes
8 – name of OH group on alcohols
9 – bromine is attached

L – Name the following structures:

1: $CH \equiv C - CH_2 - CH_3$

2: $CH_3 - CH_2 - CH_2 - CH_2 - CH_3$

3:

4:
$$CH_2 = CH - \underset{\displaystyle CH_3}{\underset{|}{CH}} - \underset{\displaystyle CH_3}{\underset{|}{CH}} - CH_2 - CH_3$$

5:
$$CH_3 - CH_2 - CH_2 - \underset{\displaystyle H}{\underset{|}{N}} - CH_3$$

6:
$$CH_3 - \underset{\displaystyle Br}{\underset{|}{C}} - \underset{\displaystyle Br}{\underset{|}{CH}} - CH_2 - CH_2 - CH_2 - CH_3$$

7:
$$CH_3 - CH_2 - CH_2 - \overset{\displaystyle O}{\overset{\|}{C}} - OH$$

8:
$$CH_3 - \underset{\displaystyle OH}{\underset{|}{CH}} - \underset{\displaystyle OH}{\underset{|}{CH}} - CH_2 - CH_3$$

M – Draw the following structures:

1: 3-bromo-2-iodoheptane
2: methylpentylamine
3: 3-heptanol
4: 2,3-hextanediol
5: ethanoic acid
6: 4-ethyloctane
7: 3,3-diethylpentane
8: 1, 2, 3-trimethylcyclopropane
9: 1,2,3-butatriene
10: 3,4-dimethyl-1,5-heptdiyne