D13- Find the empirical formula for a compound that is 36.86 g (N) and 63.14 g (O).

a- NO_2 b- N_2O_3 c- NO d- N_2O

D14- The oxidation sate of copper (Cu) atom is ---------- .

a- 2 b- 0 c- 3 d- 4

D15- Which of the following is a strong base?

a- NH_3 b- HCl c- NaOH d- KBr

D16- Which of the following is a polar covalent bond?

a- HF b- Cl_2 c- NaCl d- Br_2

D17- Which of the following is a diprotic acid?

a- HF b- NaCl c- H_2SO_4 d- Al

D18- The definition of oxidation is the ----------.

a- loss of electrons b- gain of electrons c- loss of protons d- gain of protons

D19- When the following equation is balanced; the coefficient "a" is _____.

$$CH_{4\,(g)} + a\ O_{2\,(g)} \rightarrow CO_{2\,(g)} + 2\ H_2O_{(g)}$$

a- 4 b- 5 c- 1 d- 2

D20- Which of the following is considered a strong electrolyte?

a- NaCl solution b- sugar solution c- acetic acid d- NaCl solid

D21- Which of the following has the highest bond length?

a- $N{\equiv}O$ b- $N{-}N$ c- $N{\equiv}N$ d- $N{=}N$

D22- The type of chemical bond between metal and metal is ---------- .

a- ionic bond b- covalent bond c- nonmetallic bonding d- metallic bonding

D23- What is the Lewis structure of water molecule?

a- H O H

b- H–O–H

c- H O

d- O

D24- Which of the following is the most electronegative element?

a- fluorine b- carbon c- nitrogen d- iodine

D25- An acid reacts with a base to form ----------.

a- water + salt b- a precipitate c- a gas d- water + gas

Good Luck

(Choose and mark the correct answer in the Answer Sheet)

A1- Which of the following is a precipitate?

a- $KI_{(aq)}$ b- $PbI_2(s)$ c- $H_{2(g)}$ d- $PbNO_{3(aq)}$

A2- Which of the following is a polar covalent bond?

a- Na b- Cl_2 c- NaCl d- HCl

A3- In a neutralization reaction, an acid usually reacts with ———— .

a- a gas b- a base c- a precipitate d- water

A4- The following reaction: $Zn_{(s)} + Fe^{2+}_{(aq)} \rightarrow Zn^{2+}_{(aq)} + Fe_{(s)}$ is ———— .

a- oxidation-reduction reaction b- acid-base reaction c- precipitation reaction d- none

A5- The following equation: $H^+(aq) + OH^-(aq) \rightarrow H_2O(l)$ is ———— equation.

a- molecular b- spectator c- net ionic d- none

A6- Which of the following aqueous solutions can conduct electricity?

a- $(CH_3)_2O$ b- $C_6H_{12}O_6$ c- NaCl d- none

A7- The oxidation state of " N " in " NH_3 " is ———— .

a- (- 1) b- (+ 3) c- (+ 1) d- (- 3)

A8- Which of the following is the least electronegative element?

a- carbon b- nitrogen c- francium d- iodine

A9- Ammonia (NH_3) can be synthesized by the reaction:

$$2NO(g) + 5\,H_2(g) \rightarrow 2\,NH_3(g) + 2\,H_2O(g)$$

Starting with 86.3 g NO and 25.6 g H_2, find the limiting reactant?

a- H_2 b- NH_3 c- NO d- H_2O

A10- To what volume should you dilute 0.2 L of 15.0 M KI solution to obtain 3.0

a- 1.0 L b- 10.0 L c- 1.0 mL d- 0.1 mL

A11- Which of the following bonds have the least bond length?

a- Cl-Cl b- Br-Br c- F-F d- I-I

A12- Which of the following has the highest bond energy?

a- $N{=}O$ b- $N{-}N$ c- $N{\equiv}N$ d- $N{=}N$

A

A13- Give the name of $PbCl_4$.

a- lead (V) chloride b- lead (VI) chloride c- lead (IV) chloride d- lead (II) chloride

A14- Give the name of NI_3.

a- nitrogen triiodide b- mononitrogen iodide c- nickel triiodide d- none

A15- Find molecular formula for "C_2H_3O" which has a molar mass of 86.09 g/mol?

a- CHO b- $C_4H_6O_2$ c- $C_6H_9O_3$ d- C_2HO

A16- When the following equation is balanced; the coefficient "a" is ———— .

$$CH_{4\,(g)} + 2\,O_{2\,(g)} \rightarrow CO_{2\,(g)} + a\,H_2O_{\,(g)}$$

a- 2 b- 5 c- 1 d- 4

A17- The name of $Cr_2O_7^{2-}$ ion is ———— .

a- chromium b- chromes c- chromate d- dichromate

A18- Give the chemical formula for ammonium nitrate.

a- NH_4NO_3 b- Al_2NO_3 c- NH_4NO_2 d- $AlNO_2$

A19- What is the name of $HI_{(aq)}$?

a- hydrochloric acid b- hydroiodic acid c- hydroflouric acid d- hydrobromic acid

A20- Which of the following is an atomic element?

a- H_2O b- F_2 c- KNO_3 d- Xe

A21- The formula for the compound that forms between calcium and oxygen is

a- NaO b- CaO c- CaO_2 d- Ca_2O

A22- What is the empirical formula for CCl_4?

a- C_2Cl_8 b- CCl c- CCl_4 d- C_4Cl

A23- Calculate the mass percent composition of Cl in CCl_2F_2.

a- 58.64 % b- 12.22 % c- 60.05 % d- 18.64 %

A24- What is the percent yield of the product if the actual yield was 2.65 g an theoretical yield was 4.55 g?

a- 67.42% b- 57.17% c- 58.24% d- 50.12%

A25- What is the molarity (mol/L) of 2.0 mol NaOH in 2.0 L H_2O?

a- 0.08 mol/L b- 1.0 mol/L c- 0.10 mol/L d- 0.04 mol/L

Good Luck

D

(Choose and mark the correct answer in the Answer Sheet)

D1- How many grams of HCl required to prepare a 1 L of 1 M HCl?

a- 6.0 g b- 36.5 g c- 22.7 g d- 44.4 g

D2- Give the chemical formula for lithium dichromate.

a- $BaCl_2$ b- $Li_2Cr_2O_7$ c- $Na_2Cr_2O_7$ d- Li_2SO_4

D3- Calculate the mass percent composition of sulfur (S) in $Al_2(SO_4)_3$.

a- 28.07 % b- 42.22 % c- 50.05 % d- 88.12 %

D4- If 0.1 L of 0.25 M NaOH is diluted to 0.3 L, what is the final concentration of diluted solution?

a- 0.083 M b- 0.053 M c- 0.063 M d- 0.073 M

D5- What is the empirical formula for $C_6H_{12}O_6$?

a- $C_3H_6O_3$ b- CH_2O c- CH_3O d- CHO

D6- What is the percent yield of the product if the actual yield was 6.65 g and the theoretical yield was 8.55 g?

a- 97.42% b- 87.17% c- 77.78% d- 50.12%

D7- Give the name for $FeSO_4$.

a- iron (II) sulfate b- iron (III) sulfate c- iron thiosulfate d- iron (II) sulfide

D8- Determine the name of $HF_{(aq)}$.

a- hydrochloric acid b- hydroiodic acid c- hydroflouric acid d- hydrobromic acid

D9- Determine the reducing agent in the following reaction.

$$Zn_{(s)} + Fe^{2+}_{(aq)} \rightarrow Zn^{2+}_{(aq)} + Fe_{(s)}$$

a- $Fe_{(s)}$ b- Fe^{+2} c- $Zn_{(s)}$ d- $FeCl_2$

D10- The following reaction is a ---------- .

$$2\ KI_{(aq)} + Pb(NO_3)_{2(aq)} \rightarrow PbI_{2(s)} + 2\ KNO_{3(aq)}$$

a- precipitation reaction b- acid-base reaction c- oxidation-reduction reaction d- none

D11- Which of the following is a molecular element?

a- Xe b- I_2 c- $NaNO_3$ d- H_2O

D12- Which of the following is an ionic compound?

a- NO_2 b- Na^+ c- S_8 d- LiCl