**أسئلة إرشادية الدوري الثاني**

**تحل بعضها مع الطلاب كـ open book activity وعليها 5 درجات**

1. Example of molecular compounds……………….
2. CO2 (b) NaCl (c) H2 (d) O2
3. Example of ionic compounds……………..
4. NiCl2 (b) H2O (c) Bromine (d) Na

3- Which of the following is not molecular element?

 a- He2 b- NO c- Ne2 d- H2

4-The empirical formula of nicotine in tobacco leaves (C=74.03%, H=8.70%, N=17.27% ) is --------------

 a- C6H9N b- C20H15N4 c- C5H7N  d- C25H19N5

1. The chemical formula of lead(II) phosphate is
2. Pb2(PO4)3  (b) Pb3(PO4)2  (c) Pb(PO4)2  (d) PbPO4

6- The formula of aluminum oxide is……………..

1. Al2O3 (b) AlO (c) Al3O2 (d) Al2O2

7- What is the empirical formula of a compound that contains 49.4% K, 20.3% S, and 30.3% O by mass?

1. KSO2
2. KSO3
3. K2SO4
4. K2SO3

8- The name of Cu(NO3)2 is

1. Copper (II) nitrate
2. Nitrate Copper
3. Nitrate
4. Copper

9- The chemical formula for molecular compounds (carbon disulphide) is:

1. CS2
2. CaS
3. S2C
4. CO

10- Give the chemical formula for lithium dichromate.

a- BaCl2 b- Li2Cr2O7 c- Na2Cr2O7 d- Li2SO4

11- The mass percent composition of calcium in CaCO3 is

1. 40% (b) 20% (c) 60% (d) 100%

12- All of the following are molecular compounds, except

 a- CO2 b- MgO c- NH3  d- PCl5

13- The formula of barium phosphate is ………………..

 a- Ba3(PO4)2 b- Ba3PO4 d- BaPO4

14- The reaction coefficients of the given reaction are

 a Co(NO3)3 + b (NH4)2S = c Co2S3 + d NH4NO3

A- a=2, b=1 , c=2 , d= 6 B- a=2, b=1 , c=3 , d= 3

C- a=3, b=2 , c=1 , d= 3 D- a=2, b=3 , c=1 , d= 6

15- When the following equation is balanced, the coefficient of H2 is \_\_\_\_\_\_\_\_.

 K (s) + H2O (l) → KOH (aq) + H2 (g)

1. 1
2. 2
3. 3
4. 4

16- Butanedione (a main component in the smell and taste of butter and cheese) contains the elements carbon, Hydrogen and oxygen the empirical formula of butaedione is C2H3O and its molar mass is 86.09. The molecular formula is

1. C4H6O2  (b) C6H9O3 (c) C8H12O4 (d)C10H15O5

17- Nitrogen content in fertilizers is very important for protein synthesis in plants, the mass% composition of nitrogen in CO(NH2)2 is

1. 56.67% (b) 46.67% (c) 26.67% (d) 36.67%

18- The name of CuI2 is

1. copper (I) iodide (b) copper (II) iodide (c) copper iodide (d) non

19- For the reaction shown, calculate the theoretical yield of the product (in moles) for 4 mol Ti and 4 mol Cl2

Ti(s) + 2Cl2(g) TiCl4(l)

1. 4 mol (b) 8 mol (c) 2 mol (d) 6 mol (e) non

20- For the reaction shown, calculate the theoretical yield of the product (in grams) for 7.5 g of Al and 24.8 g of Cl2

2Al(s) + 3 Cl2(g) 2AlCl3(s)

1. 20 g (b) 31 g (c) 25g (d) 15g (e) non

21- The correct name of HI(aq)

a- Hydrogen iodide b- Hydroiodic acid

c- Hydrogen monoiodide d- mono hydrogen monoiodide

22- The oxygen gas is considered as --------------------------

 a- molecular compound b- molecular element

c- ionic compound d- atomic element

23- The mass percent of F in CCl2F2 compound equals ----------------------- .

a- 31.42 % b- 58.64 % c- 50.64 % d- 30 %

24- 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- 80.12%

25- Calculate the morality of 4.3 mol of LiCl in 2.8 L solution.

1. 1.53 mol/L (b) 3.62 mol/L (c) 2.05 mol/L (d) 2.61 mol/L

26- How many moles of KCl are in 0.556 L of a 2.3 M KCl solution.

1. 1.28 (b) 2.55 (c) 3.62 (d) 4.32
2. To what volume should you dilute 50 mL of a 12 M stock HNO3 solution to obtain a 0.1 M HNO3 solution?
3. 3 L (b) 6 L (c) 4 L (d) 3

28- Which one of the following is a correct expression for molarity?

1. mol solute/L solvent
2. mol solute/mL solvent
3. mmol solute/mL solution

29- What is the molarity of an 85 ml ethanol C2H5OHsolution containing 1.77g of ethanol:

1. 0.452 M
2. 6.000 M
3. 0.006 M
4. 1.900 M

30- What volume (mL) of a concentrated solution of magnesium chloride (9.00 M) must be diluted to 350. mL to make a 2.75 M solution of magnesium chloride?

1. 2.75
2. 50.0
3. 45.0
4. 107

31- What is the molarity of a solution that contains 30 g of NaOH in 500 mL of solution?

 a- 1.2 M b- 1.5 M c- 0.75 M d- 1.3 M

32- What the volume need to make 3000 ml of 0.5 M KOH solution from a 10 M stock solution ?

 a- 150 ml b- 1.5 L c- 1500 ml d- 15 L

33- A solution that conducts electricity very well is known as.

 a- Nonelectrolyte b-Electrolyte c- Weak electrolyte d-Solvent

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

1. NH4NO3
2. C12H22O12
3. PbCl2
4. HC2H3O2

35- Which one of the following is a diprotic acid?

1. nitric acid
2. chloric acid
3. phosphoric acid
4. sulfuric acid

36- Which of the following is a weak electrolyte ?

 a- HCl b- pure H2O c- NaCl d- sugar

37- Which one of the following is a weak acid?

1. HNO3
2. HCl
3. HI
4. HF

38- When aqueous solutions of \_\_\_\_\_\_\_\_ are mixed, a precipitate forms.

1. NiBr2 and AgNO3
2. NaI and KBr
3. K2SO4 and CrCl3
4. KOH and Ba(NO3)2

39- Which combination will produce a precipitate?

1. Pb(NO3)2 (aq) and HCl (aq)
2. Cu(NO3)2 (aq) and KC2H3O2 (aq)
3. KOH (aq) and HNO3 (aq)
4. AgC2H3O2 (aq) and HC2H3O2 (aq)

40- Oxidation is the \_\_\_\_\_\_\_\_ and reduction is the \_\_\_\_\_\_\_\_.

1. gain of oxygen, loss of electrons
2. loss of oxygen, gain of electrons
3. loss of electrons, gain of electrons
4. gain of oxygen, loss of mass

41- For the given reaction, which of the following is reducing agent?

 Zn(s) + Fe2+ = Zn2+ + Fe(s)

 a- Fe b-Zn c- Fe2+ d- Zn2+

42- All of the following are polar covalent, except, …………………?

 a- HCl b- H2O c- Cl2 d- H2S

43- Treatment of gold metal with BrF3 and KF produces Br2 and KAuF4 as a salt of gold, the oxidizing agent is:

1. gold (b) BrF3 (c) KF (d) Br2 (e) KAuF4

44- The oxidation state of Cr and O in CrO42- are

1. 3, -2 (b) 6, -2 (c) 1, -4 (d) 4, 0

45- The bond between Br and Br in Br2 is

1. a pure covalent (b) a polar covalent (c) an ionic

46- The bond between Sr and O in SrO is

1. a pure covalent (b) a polar covalent (c) an ionic

47- If 30 g KCl is dissolved in enough water to make 2 L of solution, the molarity of the solution ……………..

(a) 0.2 M (b) 2M (c) 0.4 M (d) 0.1 M

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

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

49- Which of the following has the most bond strength?

 a- N-N b- N ≡ N c- N=N d- N-H

 50- Which of the following is redox reaction?

 a- NaCl(aq.) + AgNO3(aq.) = AgCl(s) + NaNO3(aq.)

 b- HCl(aq.) + NaOH(aq.) = H2O(l) + NaCl(aq.)

 c- Na(s) + Cl2(g) = 2NaCl(s)

 d- HCl(aq.) + H2O(l) = H3O+(l) + Cl-(aq.)

51- Electronegativity \_\_\_\_\_\_\_\_\_\_ from left to right within a period and \_\_\_\_\_from top to bottom within a group.

1. decreases, increases
2. increases, increases
3. stays the same, increases
4. increases, decreases