

Question Bank:

2nd Year

Practical Inorganic Chemistry (First and Second course)

.....

Q1\ Fill in blanks

1-Sodium hydroxide is not primary standard substance because it is

2-The examples of Pseudo halogen are,,
and

3-In the preparation of barium thiocyanate we must heat the solution two times, the first heating is to remove Gas and the second to remove

4- Sodium hydroxide is present in, and form.

5-Sodium hydroxide have other name which is known as or
.....

6-The Pseudo halogen are polyatomic, analogues of halogens, whose chemistry resembling that of the true

7-Dry glassware must be used in the preparation of Stannic iodide, because this salt
..... in water.

8- Sodium hydroxide can be prepared in laboratory by method.

9- Sodium hydroxide corrosive to several metals like

10- In the preparation of SnI_4 , both Tin and Iodine with acetic acid and acetic unhydride solvent must be heat for about one hour, so Process must be used for the preparation of this salt.

11-Potassium iodate used as agent and SnI_4 used as agent in the determination of Iodide in SnI_4 .

12- The chemical formula of sodium carbonate is

13-The solubility of and Salt increase with increasing the temperature.

14-There chemical formula of Alum is

15-Potassium iodate used as agent and SnI_4 used as agent in the determination of Iodide in SnI_4 .

16-Dry glassware must be used in the preparation of SnI_4 . Because this salt hydrolysis in water to and

17- The chemical name of (BaCO_3) is

18-Sources of sodium chloride are and

19-Barium chloride and sodium carbonate are used as a in the purification of Table salt.

20-The solubility of and Salt increase with increasing the temperature.

21-There chemical formula of Alum is

22-Potassium iodate used as and SnI_4 used as agent in the determination of Iodide in SnI_4 .

23-Dry glassware must be used in the preparation of SnI_4 . Because this salt hydrolysis in water to and

24-The reagent that can be used for detection of sulphate ion is and the reagent for detection of aluminum ion in alum composition is

25-The solubility of a substance fundamentally depend on the and properties of the solute and solvent as well as, and pH of the solution.

26-Hydrogen peroxide must be keep in dark bottle because when it exposed to light it will decomposes to and

27-Sources of sodium chloride are and

28-Determination of Iodide in SnI_4 salt is a reaction.

29-In the preparation of SnI_4 , Both Tin and Iodine with acetic acid and acetic unhydride solvent must be heat for about one hour, so process must be used for the preparation of this salt.

30-The sample of crude sodium chloride contain impurities such as,, and

- 31-The solubility curve is a plotted curve between and
- 32-Barium peroxide is anwhich is used for bleaching.
- 33-The general composition of alum is
- 34-Salts that change their structure by increasing the temperature give a kind of solubility curve called
- 35-Potassium iodate used as an in the determination of Iodide in SnI_4 salt.
- 36-There are two types of solubility curves and
- 37-By increasing temperature the solubility of $\text{K}_2\text{Cr}_2\text{O}_7$
- 38-The impurities that present in crude sodium chloride are,,, and trace amount of and
- 39-The general composition of Alum is
- 40-The stability of Alum decrease with increase the atomic weight of the metal ion and the stability increase with increase the atomic weight of the metal ion.
- 41-The stability of peroxides MO_2 increase from CaO_2 to BaO_2 because the increase from top to bottom.
- 42-The Sources of sodium chloride are and
- 43-The ions that are component of alum are, and
- 44-There are two types of solubility curves and
- 45-The stability of peroxides MO_2 increase from CaO_2 to BaO_2 because the increase from top to bottom.
- 46-By increasing the tempreature the solubility of $\text{K}_2\text{Cr}_2\text{O}_7$
- 47-Dry glassware must be used in the preparation of SnI_4 because this salt in water.
- 1- Sodium hydroxide can be prepared in laboratory by method.

2-Potassium iodate used as agent and SnI_4 used as agent in the determination of Iodide in SnI_4 .

3-In the preparation of barium thiocyanate we must heat the solution two times, the first heating is to remove Gas and the second to remove

4- Sodium hydroxide is present in, and form.

5-The examples of Pseudo halogen are,, and

The Sources of sodium chloride are and

1) The Solubility curve is a plotted curve between and

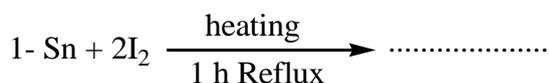
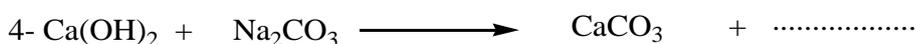
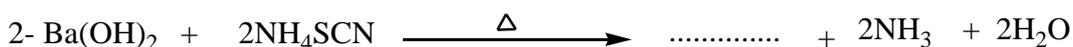
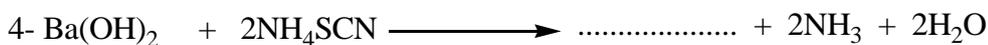
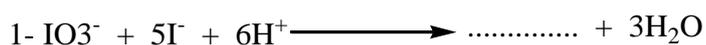
2) The stability of peroxides MO_2 increase from CaO_2 to BaO_2 because the increase from top to bottom.

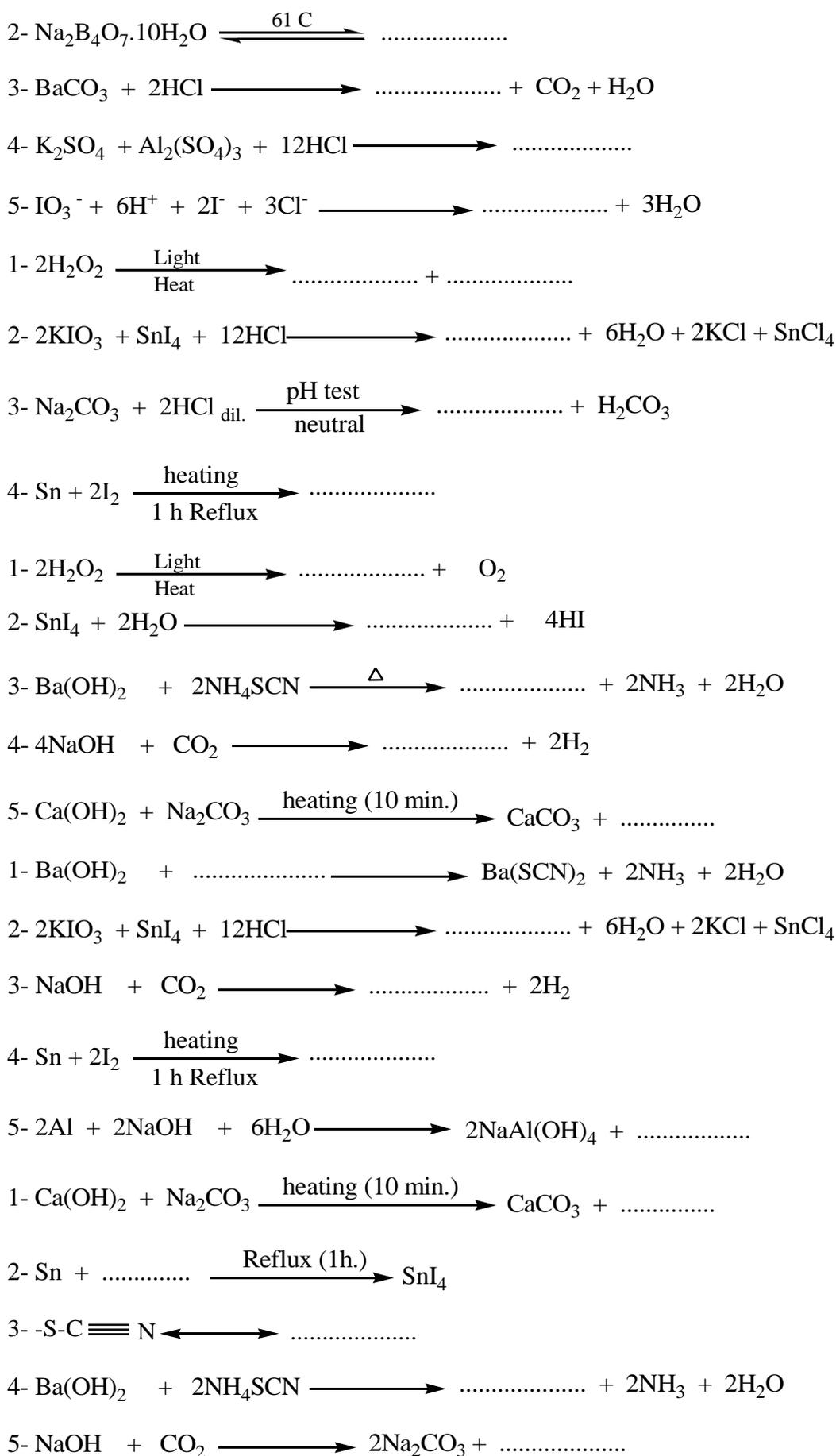
3) The examples of Pseudo halogen are,,, and

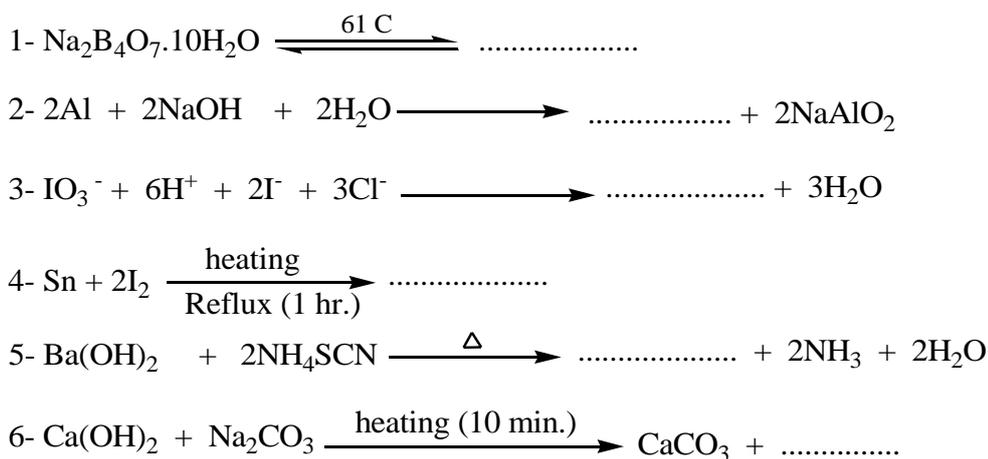
4) Sodium hydroxide can be prepared in laboratory by method.

5) By increasing temperature the solubility of $\text{K}_2\text{Cr}_2\text{O}_7$

Q2\ Complete the following reactions:







Q3\ Write three uses of the following:

- 1- SnI_4
- 2- $\text{Ba}(\text{SCN})_2$
- 3- NaOH
- 4- Barium peroxide salt
- 5- Alum
- 6- Sodium Chloride.

Q4\ Define the following term:

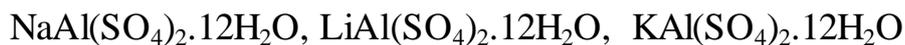
Solubility curve, Double salt, Solubility, Ionic bond, Pseudo halogen, Cosak method , Define solubility curve, what are the sorts of solubility curve and what is the effect of temperature on the solubility of potassium dichromate and calcium acetate salts.

Q5\ Answer the following question (Write the reaction where possible):

- 1- In the preparation of $\text{Ti}(\text{IV})$ tetraiodide salt, using wet glassware are not allowed?
- 2- Why thiocyanate ion is known as pseudo halogen?
- 3- Sodium hydroxide is not primary standard substance?
- 4- Stannic iodide salt was prepared by reflux process (draw the equipment)?
- 5- Stannic iodide salt was prepared by reflux process?
- 6- In the preparation of $\text{Ti}(\text{IV})$ tetraiodide salt, you have to use dry glassware?
- 7- It is not possible to store sodium hydroxide in aluminium container?

- 8-Using sulfuric acid solution (6 N) in the preparation of barium thiocyanate salt?
- 9- In the preparation of barium thiocyanate salt we have to heat the solution two times?
- 10-Using reflux unit (Reflux) in the preparation of stannic iodide salt
- 11-** All glassware that used for preparation of stannic iodide salt must be kept in drying.
- 12-** Stannic iodide salt was prepared by reflux process, draw the equipment needed.
- 13-** The role of using potassium iodate, stannic iodide and hydrochloric acid in the determination of iodide ion in stannic iodide salt?
- 14-Write steps for the preparation of barium peroxide salt?
- 15-Write the chemical reaction for the purification of table salt
- 16-Write the main reaction for the preparation of barium peroxide salt
- 17-**Write the half reaction for the determination of iodide ion in stannic iodide salt.
- 18-** By chemical reaction describe the detection of Aluminum and Sulphate ion in Alum composition.
- 19-Write Main and half reaction for the determination of Iodide in Stannic Iodide.
- 20-**Write the chemical reaction for the purification of Table salt.
- 21-What is the effect of temperature on the solubility of the following salts:
a-Lead nitrate b-Ammonium chloride c-Calcium acetate d-Sodium chloride e-Potassium dichromate
- 22- Write four impurities that present in sodium chloride impure salt and what are the two salts that used as a precipitant agent in the purification of table salt?
- 23-Explain the effect of temperature on the solubility of borax
- 24- What are the reagents that can be used for qualitative detection of aluminum and sulphate ions in alum composition? (write the chemical reaction)
- 25- Write the general composition of Alum and write three uses of this salt
- 26- Hydrogen peroxide must be keep in dark bottle and in the fridge, Why?
- 27- What is the chemical name of Alum and write the chemical reaction for the detection of sulphate and aluminum ions in alum composition?
- 28- What are the sources of table salt and write three uses of sodium chloride salt

29- Explain and Order the following Alum in increasing stability:



30-How can you determine iodide ion in a sample of stannic iodide salt? Write the name of the process and explain it by half reactions.

Q2\ Write the chemical reaction for the preparation of Sodium hydroxide.

Q3\ By (VBT) theory describe the structure of barium thiocyanate.

Q2\ By chemical reaction describe how sodium hydroxide corrosive to Aluminum metal.

Q3\ Write the half reaction for the determination of Iodide in Stannic Iodide.

Q4\ A- By chemical reaction describes the qualitative detection of Aluminum and Sulphate ion in Alum composition.

B- Write the main reaction for the preparation and detection of **(three)** of the following gases in the laboratory:

1- N_2 2- CO_2 3- O_2 4- NH_3 5- SO_2

B- Write the main reaction for the preparation and detection of **(three)** of the following gases in the laboratory:

2- N_2 2- CO_2 3- O_2 4- NH_3 5- SO_2

Q6\ Write the main reaction for the preparation of these salts:

1- Barium peroxide.

2- Alum.

3- Stannic Iodide.

4-Sodium hydroxide

5-Barium thiocyanate

6- Write the steps for the preparation of BaO_2 .

7-Write the main reaction for the determination of Iodide in Stannic iodide.

8-Write the main reaction for the preparation of Stannic Iodide.

9-Write the main reaction for the preparation of stannic iodide and by chemical reaction explain the quantitative determination of iodide ion in the formed salt.

Q7/

A. Write the chemical reaction for the preparation of the following gases in laboratory with equipment of preparation: 1-NH₃ 2-H₂ 3-N₂

B. Write the chemical reaction for detection of these gases in the Lab:

1-N₂ 2-O₂ 3-CO₂

Q8/ Answer the following questions:

1-Ammonia gas is lighter than air, while carbon dioxide gas is heavier than air?

2-In the preparation of hydrogen gas, the prepared gas can be collected in water, while ammonia gas is not?

3- Formation of white smoke when concentrated hydrochloric acid is added to the prepared ammonia gas.

Q9/

A. Draw the MOT diagram for (1- Nitrogen and 2-Oxygen) gas and calculate their bond order?

**B. Draw the geometrical shape and write type of hybridization of: 1- Ammonia
2-Hydrogen 3-Carbon dioxide gas**

Q10\ Give the reason for each of the following:

1- Alum of potassium is more stable than Alum of Sodium.

2- Using NH₄OH in the preparation of BaO₂.

3- Using Reflux in the preparation of SnI₄.

4-Hydrogen peroxide must be kept in dark bottle.

5-Write the chemical reaction for the purification of Table salt.

6-Using BaCl₂ (2%) in the purification of Table salt

7-By increasing temperature the solubility of calcium acetate decreases.

8-Dry glassware must be used in the preparation of SnI_4 .

9-Dry glassware must be used in the preparation of stannic iodide.

10-Alum known as double salt.

11-Borax gives discontinuous solubility curve with increasing temperature.

12-why sodium hydroxide is not primary standard substance, support your answer by chemical reaction.

13-Why dry glassware must be used in the preparation of stannic iodide, support your answer by chemical reaction.

14- By chemical reaction describe how sodium hydroxide corrosive to Aluminum metal.

A- Sodium hydroxide is not primary standard substance.

B- Dry glassware must be used in the preparation of stannic iodide

1- Dry glassware must be used in the preparation of SnI_4 .

2- Hydrogen peroxide must be kept in dark bottle.

3-Using NH_4OH in the preparation of barium peroxide salt.

4- Sodium hydroxide is not primary standard substance.

5-Alum of Potassium is more stable than Alum of Sodium.

Q11

1-Take (2.9 g) from $\text{Ca}(\text{OH})_2$ and (100 ml) Na_2CO_3 solution (0.5 M) was added. Heat the solution to boiling point about (10 minute) and let it for one week. Separate the solution from the precipitate, by decantation process. Evaporate the solution on the heat source. After drying the weight of precipitate was (4 g). Calculate percentage of NaOH.

Atomic Weight: Na: 23, O:16, H:1, C:12

2- 4 g) of NH_4SCN and (8 g) of $\text{Ba}(\text{OH})_2 \cdot 8\text{H}_2\text{O}$ are placed in a beaker, then (50 ml) distilled water was added. The solution is boiled until ammonia gas is no longer evolved. The mixture must be alkaline to phenolphthalein. Filter the solution to separate the precipitate from the solution. Take the filtrate and add (6 N) H_2SO_4

solution dropwise until the solution become neutral. After that, heat the solution for the second time to remove barium bicarbonate. The formed precipitate was separated by filtration process and after drying the weight of precipitate was (4 g). Calculate the percentage of barium thiocyanate.

Atomic Weight: N:14, C:12, H:1, S:32.06, Ba:137.32

3-(0.6 g) of SnI_4 dissolved in (15 ml) CCl_4 and (20 ml) concentrated HCl was added. This solution was titrated with a standard Potassium iodate (0.0025 M). (28 ml) of potassium iodate was need to get the yellow colour (end point). Calculate the practical percentage of Iodide in SnI_4 .

Atomic Weight: I: 126.9

4-(2 g) of barium carbonate dissolved in (10 ml) HCl (1:1) and boiling it to librate CO_2 gas (1).

Add (8 ml) Hydrogen peroxide to (4 ml) ammonium hydroxide solution (1:2) cool the mixture in ice bath (2). Then barium chloride solution that prepared in solution (1) was added drop wise to the solution (2).

Stirr the mixture in ice bath for about (20 min.). After filtration and drying, the weight of BaO_2 was (1 g). Calculate the percentage of BaO_2 ?

Atomic Weight: Ba: 137.3, C: 12, Cl: 35.45, O: 16

5- (5 g) of NaCl (crude salt) dissolved in (15 ml) distil water. Add a few drops of BaCl_2 solution (2 %), then filtrate. To the filtrate add (5%) Na_2CO_3 solution then filtered. To neutralize the solution (0.2M HCl) was added. The weight of sodium chloride was (2 g) after evaporated the solution in weighted beaker. Calculate the percentage of pure and impure salt?

6- (6 g) of Aluminium sulphate. Octadeca hydrate dissolved in (20 ml) warm water then (2 g) of potassium sulphate dissolved in (15 ml) warm water was added. After

several days the crystal of alum was formed. The weight of crystal after drying was (4 g). Calculate the percentage of Alum?

Atomic Weight: Al: 26.9, S: 32.06, H: 1, O: 16, K: 39.09

7- (0.3 g) of SnI_4 dissolved in (10 ml) CCl_4 and (15 ml) concentrated HCl was added. This solution was titrated with a standard Potassium iodate (0.0025 M). (20 ml) of potassium iodate was need to get the yellow colour (end point). Calculate the practical percentage of Iodide in SnI_4 .

Atomic Weight: I: 126.9

8- (4 g) of ammonium thiocyanate and (8 g) of barium hydroxide are dissolved in (50 ml) of distilled water. Heat the solution for (10 minutes) to liberate ammonia gas then add phenolphaline indicator to indicate that the solution is basic. In order to remove the insoluble salt, filter the solution and take the filtrate. Acidify the medium of the solution by adding a few drops of (6 N) sulfuric acid. (4 g) of barium thiocyanate salt was formed after filtration and drying of the precipitate.

Atomic Weight: Ba:137.34 N:14 C:12 H:1 S:32.06

9- Place (0.2 g) SnI_4 in to a conical flask. Then (25 ml) of concentrated HCl and (10 ml) of CCl_4 were added. The resultant mixture was titrated with a standard solution of Potassium iodate (0.025 N). (25 ml) of potassium iodate was need to get the yellow color of (ICl). Calculate the theoretical percentage of Iodide ion in SnI_4 salt.

Atomic Weight: Sn: 118.71 I: 126.9

10-Stannic iodide salt in the laboratory was prepared by reaction between (2 g) Tin foil and (4 g) iodine by using an equal volume (15 ml) of acetic acid and acetic anhydride solvents. The resultant mixture was refluxed for about (40 min.). The formed precipitate after filtration and drying was (3 g). The iodide ion in this salt can be quantitatively determined by redox titration between a solution of (0.4 g) of SnI_4 salt in (15 ml) of concentrated hydrochloric acid and (10 ml) of carbon tetrachloride

with potassium iodate (0.025N). (20 ml) of potassium iodate was need to get the yellow color of (ICl). Calculate the theoretical and practical percentage of iodide ion in stannic iodide salt.

Atomic Weight: Sn: 118.71 I: 126.9

11-Stannic iodide salt in the laboratory was prepared by reaction between (3 g) Tin foil and (6 g) iodine by using an equal volume (30 ml) of acetic acid and acetic anhydride solvents. The resultant mixture was refluxed for about (40 min.). The formed precipitate after filtration and drying was (4 g). Take (0.4 g) of the formed salt, then (20 ml) of concentrated hydrochloric acid and (10 ml) of carbon tetrachloride solvent were added. The resultant mixture was titrated with a standard solution of Potassium iodate (0.025 N). (20 ml) of reagent was need to get the yellow color of (ICl). Calculate the practical percentage of Iodide in stannic iodide.

Atomic Weight: Sn: 118.P71 I: 126.9

12- (3 g) of double sulphate salt was formed practically by reaction of (5 g) of aluminium sulphate. octadeca hydrate salt that dissolved in (20 ml) warm water and (15 ml) warm water solution of potassium sulphate (1 g). Calculate the percentage of Alum?

Atomic Weight: Al: 26.9, S: 32.06, H: 1, O: 16, K: 39.09

13-Sodium chloride (crude salt) (7 g) dissolved in (15 ml) distil water, then to this solution add a few drops of barium chloride solution (2 %), then filtrate. To the filtrate add (5%) sodium carbonate solution then filtered. To neutralize the solution (0.2M HCl) was added. The weight of sodium chloride was (3 g) after evaporated the solution in weighted beaker. Calculate the percentage of pure and impure salt?

14-Alum salt was formed by the reaction of (6 g) of aluminium sulphate. octadeca hydrate salt that dissolved in (20 ml) warm water and (2 g) of potassium sulphate in

(15 ml) warm water. After several days the crystal of alum was formed. The weight of crystal after drying was (4 g). Calculate the percentage of Alum?

Atomic Weight: Al: 26.9, S: 32.06, H: 1, O: 16, K: 39.09

15- Barium chloride solution that prepared by dissolving (5 g) of barium carbonate in (20 ml) HCl (1:1) was added drop wise to a solution of (10 ml) Hydrogen peroxide to (5 ml) ammonium hydroxide solution (1:2). The resultant mixture was stirred in ice bath for about (20 min.). After filtration and drying, the weight of BaO_2 was (3 g).

Calculate the percentage of BaO_2 salt?

Atomic Weight: Ba: 137.3, C: 12, Cl: 35.45, O: 16

16- (5 g) of NaCl (crude salt) dissolved in (15 ml) distil water. Add a few drops of BaCl_2 solution (2 %), and then filtrate. To the filtrate add (5%) Na_2CO_3 solution then filtered. To neutralize the solution (0.2M HCl) was added. After evaporate the solution in weighted beaker the weight of sodium chloride was (3 g). Calculate the percentage of pure and impure salt?

17-(0.2 g) of SnI_4 dissolved in (5 ml) CCl_4 and (15 ml) concentrated HCl was added. This solution was titrated with a standard Potassium iodate (0.025 M). (15 ml) of potassium iodate was need to get the yellow colour (end point). Calculate the practical percentage of Iodide in SnI_4 .

Atomic Weight: I= 126.9

18-Weight (0.25 g) SnI_4 and put in to a stoppered conical flask. Then (30 ml) of concentrated HCl and (10 ml) of CCl_4 were added. This solution was titrated with a standard Potassium iodate (0.025 M). (30 ml) of potassium iodate was need to get the yellow color (end point). Calculate the practical percentage of Iodide in SnI_4 .

Atomic Weight: I: 126.9

19-Weight (0.25 g) SnI_4 and put in to a stoppered conical flask. Then (30 ml) of concentrated HCl and (10 ml) of CCl_4 were added. This solution was titrated with a standard Potassium iodate (0.025 M). (30 ml) of potassium iodate was need to get the yellow color of (ICl). Calculate the practical percentage of Iodide in SnI_4 .

Atomic Weight: I: 126.9

20-Place in a small round bottom flask (10 ml) acetic acid and (10 ml) aceticanhydride. Add (0.5 g) of tin foil and (1 g) of iodine. Attach the flask to a reflux condenser and heat the solutions for about (1 h.) until the violet vapour of iodine can no longer be seen. On cooling stannic iodide separates as an orange crystal and filter the solution. After drying the weight of precipitate was (1 g). Calculate the percentage of stannic iodide.

Atomic Weight: Sn: 118.7, I: 126.9

21-4 g) of NH_4SCN and (8 g) of $\text{Ba}(\text{OH})_2 \cdot 8\text{H}_2\text{O}$ are placed in a beaker, then (50 ml) distilled water was added. The solution is boiled until ammonia gas is no longer evolved. The mixture must be alkaline to phenolphthalein. Filter the solution to separate the precipitate from the solution. Take the filtrate and add (6 N) H_2SO_4 solution dropwise until the solution become neutral. After that, heat the solution for the second time to remove barium bicarbonate. The formed precipitate was separated by filtration process and after drying the weight of precipitate was (4 g). Calculate the percentage of barium thiocyanate.

Atomic Weight: N:14, C:12, H:1, S:32.06, Ba:137.32

22-(0.6 g) of SnI_4 dissolved in (15 ml) CCl_4 and (20 ml) concentrated HCl was added. This solution was titrated with a standard Potassium iodate (0.0025 M). (28 ml) of potassium iodate was need to get the yellow colour (end point). Calculate the practical percentage of Iodide in SnI_4 .

Atomic Weight: I: 126.9

23- (2 g) of barium carbonate dissolved in (10 ml) HCl (1:1) and boiling it to liberate CO₂ gas (1).

Add (8 ml) Hydrogen peroxide to (4 ml) ammonium hydroxide solution (1:2) cool the mixture in ice bath (2). Then barium chloride solution that prepared in solution (1) was added drop wise to the solution (2).

Stirr the mixture in ice bath for about (20 min.). After filtration and drying, the weight of BaO₂ was (1 g). Calculate the percentage of BaO₂?

Atomic Weight: Ba: 137.3, **C:** 12, **Cl:** 35.45, **O:** 16

24-(5 g) of NaCl (crude salt) dissolved in (15 ml) distil water. Add a few drops of BaCl₂ solution (2 %), then filtrate. To the filtrate add (5%) Na₂CO₃ solution then filtered. To neutralize the solution (0.2M HCl) was added. The weight of sodium chloride was (2 g) after evaporated the solution in weighted beaker. Calculate the percentage of pure and impure salt?

25-(6 g) of Aluminium sulphate. Octadeca hydrate dissolved in (20 ml) warm water then (2 g) of potassium sulphate dissolved in (15 ml) warm water was added. After several days the crystal of alum was formed. The weight of crystal after drying was (4 g). Calculate the percentage of Alum?

Atomic Weight: Al: 26.9, **S:** 32.06, **H:** 1, **O:** 16, **K:** 39.09

26-(0.3 g) of SnI₄ dissolved in (10 ml) CCl₄ and (15 ml) concentrated HCl was added. This solution was titrated with a standard Potassium iodate (0.0025 M). (20 ml) of potassium iodate was need to get the yellow colour (end point). Calculate the practical percentage of Iodide in SnI₄.

Atomic Weight: I: 126.9

27- (4 g) of ammonium thiocyanate and (8 g) of barium hydroxide are dissolved in (50 ml) of distilled water. Heat the solution for (10 minutes) to liberate ammonia gas

then add phenolphthalein indicator to indicate that the solution is basic. In order to remove the insoluble salt, filter the solution and take the filtrate. Acidify the medium of the solution by adding a few drops of (6 N) sulfuric acid. (4 g) of barium thiocyanate salt was formed after filtration and drying of the precipitate.

Atomic Weight: Ba:137.34 N:14 C:12 H:1 S:32.06

28- Place (0.2 g) SnI_4 in to a conical flask. Then (25 ml) of concentrated HCl and (10 ml) of CCl_4 were added. The resultant mixture was titrated with a standard solution of Potassium iodate (0.025 N). (25 ml) of potassium iodate was need to get the yellow color of (ICl). Calculate the theoretical percentage of Iodide ion in SnI_4 salt.

Atomic Weight: Sn: 118.71 I: 126.9

29-Stannic iodide salt in the laboratory was prepared by reaction between (2 g) Tin foil and (4 g) iodine by using an equal volume (15 ml) of acetic acid and acetic anhydride solvents. The resultant mixture was refluxed for about (40 min.). The formed precipitate after filtration and drying was (3 g). The iodide ion in this salt can be quantitatively determined by redox titration between a solution of (0.4 g) of SnI_4 salt in (15 ml) of concentrated hydrochloric acid and (10 ml) of carbon tetrachloride with potassium iodate (0.025N). (20 ml) of potassium iodate was need to get the yellow color of (ICl). Calculate the theoretical and practical percentage of iodide ion in stannic iodide salt.

Atomic Weight: Sn: 118.71 I: 126.9

30- Stannic iodide salt in the laboratory was prepared by reaction between (3 g) Tin foil and (6 g) iodine by using an equal volume (30 ml) of acetic acid and acetic anhydride solvents. The resultant mixture was refluxed for about (40 min.). The formed precipitate after filtration and drying was (4 g). Take (0.4 g) of the formed salt, then (20 ml) of concentrated hydrochloric acid and (10 ml) of carbon tetrachloride solvent were added. The resultant mixture was titrated with a standard

solution of Potassium iodate (0.025 N). (20 ml) of reagent was need to get the yellow color of (ICl). Calculate the practical percentage of Iodide in stannic iodide.

Atomic Weight: Sn: 118.P71 I: 126.9

31- (3 g) of double sulphate salt was formed practically by reaction of (5 g) of aluminium sulphate. octadeca hydrate salt that dissolved in (20 ml) warm water and (15 ml) warm water solution of potassium sulphate (1 g). Calculate the percentage of Alum?

Atomic Weight: Al: 26.9, S: 32.06, H: 1, O: 16, K: 39.09

32- Sodium chloride (crude salt) (7 g) dissolved in (15 ml) distil water, then to this solution add a few drops of barium chloride solution (2 %), then filtrate. To the filtrate add (5%) sodium carbonate solution then filtered. To neutralize the solution (0.2M HCl) was added. The weight of sodium chloride was (3 g) after evaporated the solution in weighted beaker. Calculate the percentage of pure and impure salt?

33- Alum salt was formed by the reaction of (6 g) of aluminium sulphate. octadeca hydrate salt that dissolved in (20 ml) warm water and (2 g) of potassium sulphate in (15 ml) warm water. After several days the crystal of alum was formed. The weight of crystal after drying was (4 g). Calculate the percentage of Alum?

Atomic Weight: Al: 26.9, S: 32.06, H: 1, O: 16, K: 39.09

34- Barium chloride solution that prepared by dissolving (5 g) of barium carbonate in (20 ml) HCl (1:1) was added drop wise to a solution of (10 ml) Hydrogen peroxide to (5 ml) ammonium hydroxide solution (1:2). The resultant mixture was stirred in ice bath for about (20 min.). After filtration and drying, the weight of BaO₂ was (3 g). Calculate the percentage of BaO₂ salt?

Atomic Weight: Ba: 137.3, C: 12, Cl: 35.45, O: 16

B. Determine the location (period, group and block) of these atoms in periodic table according to electron configuration: (8 M)

1- Sulfur 2- Oxygen 3- Nitrogen 4- Carbon