

الوزاريات لكافة الفصول بدون حل

CHAPTER1 : ATOMIC STRUCTURE FOR MATTER**Q: DEFINE**

1-Dalton Model 2-Thomsen's model 3-Thomsen's model 4- Modern atomic theory(quantum theory) 5- Bohr model 6-The principle of Offbau 7- Hund's rule 8-Atomic Radius 9- Ionization energy 10- Electron affinity 11- Electronegativity 12- electron cloud.

Q: Give the reason ?

- 1-why failure of the Bohr model in the interpretation of some natural phenomena of many elements?
- 2-Why did the Rutherford model of the atom fail?
- 3-Why the Rutherford model called the planetary model?
- 4-Why is there no antagonism between the electrons in the single orbital?
Or There is no electronic repel in same orbital?
- 5-why Nitrogen ionization energy is (${}_7\text{N}$) higher than oxygen ionization energy (${}_8\text{O}$)?
- 6-why Noble elements are the least elements that have an Electron affinity?
- 7-why at one period the radius decreases as we move from left to right in the periodic table?
- 8-why the physical and chemical properties of the elements in the same group are similar?

Q:Element, atomic number 16-:

- Write the electron configuration and What is the total number of electrons in this atom?
- What is the atomic number?
- How many secondary energy level filled with electrons?
- What is the number of single electron (unpaired electrons)?
- Write Lewis symbol for this atom?
- period and group

Q:An atom,, the electrons of which are ordered as follows $1s^2 2s^2 2p^5$ What is the total number of electrons in this atom ?

- What is the atomic number ?
- How many secondary energy level filled with electrons?

- What is the number of single electron (unpaired electrons)?
- Write Lewis symbol for this atom?
- period and group

Q: The sodium atom has an atomic number of $_{11}\text{Na}$. Answer the following questions:

- Write the electron configuration and What is the total number of electrons in this atom?
- How many secondary energy level filled with electrons?
- What is the number of single electron (unpaired electrons)?
- El Write Lewis symbol for this atom?
- period and group

Q: Write the electron configuration of chlorine $_{17}\text{Cl}$ then indicate the order of secondary energy levels and each primary energy level from lowest to the highest.

Q: Arrange the following elements according to increasing in their atomic radius ? $_{4}\text{Be}$, $_{12}\text{Mg}$, $_{20}\text{Ca}$

Q: Arrange elements by decreasing in their atomic size: $_{2}\text{He}$, $_{10}\text{Ne}$, $_{18}\text{Ar}$

Q: What is the common property between the locations of the following elements in the periodic table? $_{4}\text{Be}$, $_{5}\text{B}$, $_{7}\text{N}$

Q: What are the most important hypotheses of modern atomic theory ?

Q: How does elements blocks in the periodic table are arrange, and what it's position?

Q: Fill THE BLANKS :-

1. Secondary level **S** has **1** Orbital .
2. Secondary level **P** has **.3.** Orbitals
3. Secondary level **d** has **5** Orbitals.
4. Secondary level **f** has **7** Orbitals .
5. The maximum capacity of the orbital only **two electrons**.
6. Orbital symbol in the level of secondary energy by drawin&: **square**
7. The secondary level s is filled with a maximum of **2 electrons**.
8. The secondary level p is filled with a maximum of **6 electrons**
9. The secondary level dis filled with a maximum of **10 electrons**.
10. The secondary level f is filled with a maximum of **14 electrons**.

CHAPTER 2 : GROUPS IA & IIA

Q: DEFINE-:

- 1- Hydrolysis 2- Gypsum Paris (Paris plaster) 3- normal plaster
- 4- hydrated lime

Q: Give the reason?

- 1 -why Ionization energy of the second group elements is higher than the elements of the first group?
- 2 -why Lithium salts are less soluble than the salts of the first group?
- 3 -why the absence of elements of the first and second groups is free in nature?
- 4 -why Elements of group 1A are called "alkaline metals" ?
- 5 -why Elements of group 2A are called "alkaline earth metals" ?
- 6 -why the elements of the first and second groups act as powerful reducers ?
- 7 -why the luster of the newly cut piece of sodium vanishes when exposed to wet air ?
- 8 -why sodium used in mining operations?
- 9 -why keep sodium in bottles containing pure gasoline or white kerosene oil?
- 10 -why sodium is used in some organic reactions?
- 11 -Ordinary table salt is a hydrated substance?
- 12-pure sodium chloride is a dehydrated substance?

Q: What are the General properties of the elements of the first and second groups?

Q: What are the differences in general properties between the first and second groups? And what's the reason?

Q: What are the physical properties of sodium ?

Q: What are the uses of sodium chloride & Sodium hydroxide?

Q: prepare Calcium hydroxide Ca(OH)_2

Q:What is the difference between:

- 1 -normal plaster and Paris plaster?
- 2 -pure salt (NaCl) and impure (NaCl)?

Q:How is s detected(test) in its compounds?

- 1-sodium detected (test) in its compounds?

2-How test CO₂

Q: Complete the following-:

1 -Na + Cl₂→

2 -Na + H₂O→

3 -Sodium +Hydrochloric Acid→

4 -Na + MgO→

5 -Sodium +Aluminum Chloride→

6 -CO₂ + NaOH→

CHAPTER 3: GROUPS IA

Q: DEFINE-:

1-Bauxite 2-Cryolite 3- Hall process 4- Thermite process 5- Amphoteric

Behavior 6- Alum 7- Aluminum Bronze Alloy 8- Duralumin

Q: Explain-:

1-why the elements of group 3A putting in one group?

2 -The ionization energy of the third group elements decreases as their atomic number increases?

3 -why Aluminum foil protects itself?

4 -why use of aluminum in the extraction of some metals from their ores in the form of oxides?

5 -why aluminum reaction is not continued with diluted nitric acid or concentrate?

6 -why use of aluminum alloys in the manufacture of special bottles to keep fluids at a very low temperature, such as oxygen and nitrogen.

7 -why use normal alum in sterilization of some light wounds?

8 -Why is precipitate Al(OH)₃ dissolved when sodium hydroxide NaOH is added to a solution contain aluminum ions ?

Q: What are the general characteristics of the IIIA?

Q: Explain the gradient in acid and base properties in the third group?

Q: How is aluminum extracted?

Q: What are the physical properties of the aluminum?

Q: What is the uses of Aluminum?

Q: How to Test (detect) of Aluminum ions?

Q: Fill THE BLANK

1 -the bauxite formula

- 2 -A salt composed of potassium and aluminum is called.....
- 3 -The number of oxidation of Al.....
- 4 -The percentage of aluminum in nature.....
- 5 -Heavy heating of Aluminum hydroxide gives.....
- 6 -The Aluminum behavior when reacts with acids and bases is called.....

Q:What is the difference between Aluminum Bronze Alloy and Duralumin Alloy?

Q: Complete the following:-

- 1 -Aluminum + iron oxide III→
- 2 -Al + HCl→
- 3 -Al + O₂→
- 5 -Al³⁺ + NaOH→
- 6 -aluminum chloride + sodium hydroxide→

CHAPTER 4

SOLUTIONS AND EXPRESSIONS FOR CONCENTRATION

Q: DEFINE:-

- 1 -Solution 2- saturated solution 3- Super saturated solution
- 4 -unsaturated solution
- 7 -weak electrolyte 8- solubility 9-non electrolytic solution

Q: Give the reason?

- 2 -why Sugar powder dissolves faster than its granules?
- 3 -why dissolve materials in hot solutions faster than cold?
- 4 -why CO₂ gas bubbles rise in the gas drink after opening the lid?
- 5 -Why Hydrochloric acid is a strong electrolyte?
- 6 -Why Hydrofluoric acid is a weak electrolyte?

Q: What are the factors affecting solubility ?

Q: How do you make the following conversions:

- A. Convert unsaturated solution into saturated solution
- B. Converting concentrated solution into diluted solution.

Q: What are the types of solutions?

Q: Fill THE BLANK

- 1-m₁ =20, m₂=40, m_T=.....
- 2 -Convert unsaturated solution into saturated solution By....
- 3 -There are compounds that do not ionize their molecules in the solution and are called solutions such as..... and....
- 4 -factors affecting solubility....
- 5 -Sugar powder dissolvesthan its granules.

6 -A solid solution in a solid example.....

Q:What is the difference between:

1-saturated solution and Super saturated solution?

2-saturated solution and unsaturated solution?

3 -Strong electrolyte and weak electrolyte?

4 -Dilute solution and concentrated solution?

Q: 20g of hydrochloric acid is diluted by 80g of water. What is the mass ratios of acid and water in the solution?

Q: 8g of hydrochloric acid is diluted by 32g of water. What is the mass ratios of acid and water in the solution?

Q: Calculate the percentage of volume for both acetic acid and water in a solution formed by mixing 20 mL of acetic acid and 30 mL of water?

Q: Calculate the percentage of volume for both acetic acid and water in a solution formed by mixing 40 ml of acetic acid and 60 ml. of water?

Q: A sample of vinegar contains 4% of acetic acid by mass. How much Vinegar is required to obtain 20g of acetic acids solution?

Q: What is the volume of ethyl solution expressed in ml that is required to be added into water so that the total volume of the solution would be 50 mL, and its percentage of volume would be 80%

Q: Calculate the mass percentage of methyl solution containing 27.5g of methyl alcohol and 175 mL of water and assume that water density is 1.00g/mL.

Q: DEFINE

1 - Silica gel 2- water glass 3- Silicon oils 4- Silicone rubber

5- Silicones 6 -silicates 7- water glass (Liquid glass)

Q: Give the reason?

1 -explain the reason Most silicon compounds are covalent?

2 -why The elements of the (IVA) group tend to form covalent bonds and the state of oxidation?(4+)

3 -why Elements of the (IVA) group tend to share four electrons?

Q: What are the forms of silicon?

Q: What are the physical properties of silicon?

Q: What are the uses of silicon?

Q: Fill THE BLANK

1 -Silicon oils is.....

2 -Silicones is

- 3 -Silica It occurs in nature as pure silica such as..... and.....
- 4 -Silicon compounds with hydrogen named.....
- 5 -Silicon has two main forms..... &
- 6 -Silicon It constitutes more than one quarter of the earth's crust, approximately

Q:What is the difference between:

- 1- crystallized silicon & Non-crystallized silicon
- 2-Silicon oils and Silicone rubber?

Q: How to prepare Non-crystallized silicon in the laboratory?

Q: Complete the following

- 1-Si + 2Cl₂→
- 1 -SiH₄ + O₂→
- 1 -SiO₂ + NaOH→
- 1- Si F₄ + K→

CHAPTER 6: INTRODUCTION TO ORGANIC CHEMISTRY

Q: DEFINE

- 1- Hydrocarbons 2-Sperto 3-hydrocrbon compound
- 4- saturated hydrocarbon 5-un saturated hydrocarbon

Q: Give the reason?

- 1-Why do atoms in the organic compounds react slowly?
- 2-Sodium acetate is heated at high temperature along with sodium hydroxide or calcium hydroxide. why?
- 3-why there are hundreds of thousands of organic compounds in nature that can be?

Q: What are the general characteristics of organic compounds?

Q: How to prove the presence of carbon in organic compounds?

Q: what is Importance of organic compound:

Q: What are the Physical Properties of 1-Acetylene 2- methane 3-Ethylene?

Q: How to distinguish between ethylene and gaseous methane?

Q: How to distinguish between acetylene and methane gaseous?

Q: what are the uses of 1-Ethanol (Ethyl Alcohol) 2- Benzene

Q: what is the Effect of Ethyl Alcohol on Human Beings ?

Q: what are the uses of Ethanol (Ethyl Alcohol)?

Q:What are importance of benzene?

Q: Compare 1-Acetylene 2- methane 3 -Ethylene gaseous?

Q: How can be produced in laboratory, draw shape of equipment's and write the reaction? 1-Acetylene 2- methane 3 -Ethylene

Q: Complete the following-:

1 - $C_2H_4 + H_2O \rightarrow$

2 - $CaC_2 + H_2O \rightarrow$

3-sodium acetate + sodium hydroxide \rightarrow

4 - $CH_4 + O_2 \rightarrow$

Q: Give example about following terms:

1- Branched butane (isobutane)

2-(unbranched chain butane)

3-Cyclohexane

4-Organic compound with (single covalent bond)

5- Acetylene

CHAPTER 7: VA group

Q: Define:

1-Catalyst 2-Haber process 3-Ostwald process 4- super-phosphate fertilizer 5-apatite 6-Ammonia water

Q: what are the Physical Properties of Nitrogen?

Q: what are the Uses of Nitrogen?

Q: How to prove that ammonia is very soluble in water ?

Q: The top of the stick is covered by a paste made of

Q: How ignites Matchstick ?

Q: Explain :

1-triple super-phosphate which is far much better than ordinary phosphate?

2-Why matches are treated with ammonium phosphate solution?

Q: Compare White Phosphorus and Red Phosphorus?

Q: How Test (detected) of Ammonia?

Q: How to prepare Nitrogen in the laboratory?

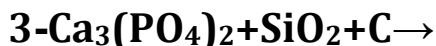
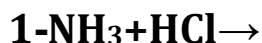
Q: How to Prepare Ammonia in the Laboratory ?

Q: How to Preparation of Nitric Acid artificially (industrial)?

Q: How to Preparation of Nitrogen artificially (industrial)?

Q: How to Preparation of Ammonia? artificially (industrial)?

Q: Complete the following-:



CHAPTER 8: Sixth group

Q:Define:

1 -Rhombic sulfur 2- contact process 3- Sulfates 4- Frasch Process.

Q: what are the Uses of 1- Sulfuric Acid 2-Sulfur. 3- Sulfuric Acid?

Q:How to Extraction of Sulfur ?

Q: What are the forms of sulfur? Or sulfur has two main allotropes ?

Q:Explaine:

1-Sulfuric acid is used as a drying agent?

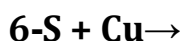
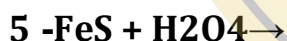
2-Crystalline sulfur called the prismatic?

Q: Compare White Crystalline sulfur and non-crystalline sulfur?

Q: How sulfur dioxide is prepared in the laboratory?

Q: How to prepare sulfuric acid synthetically with chemical formula writing?

Q: Complete the following-:



Q: How hydrogen sulfide gas is detected?

Q: How is sulfate ion detected?

CHAPTER 9: VIIA group

0:Define:

1 -Halogens 2- atomic oxygen 3- Calcium hypochlorite 4- Chlorides.

Q: what are the general properties of Group 7A (Halogens)?

Q:what are the Physical properties of Chlorine gas?

Q: what are the uses of Chlorine gas?

Q: Explain an experiment showing that hydrogen chloride gas is very soluble in water?

Q: What the most important reactions of Chlorine gas?

Q: What are chlorides? write down necessary reactions to obtain magnesium Chlorides and ammonium Chloride?

Q:Explaine-:

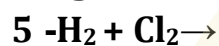
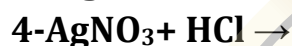
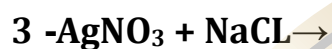
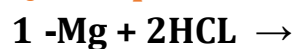
1 -Electron configuration show that Chlorine atom tends to gain one Electron?

Q: How to Preparation of Chlorine in the Laboratory?

Q: How to Preparation of Chlorine in industrially?

Q: How to Preparation of Hydrogen Chloride Gas in the Laboratory?

Q: Complete the following-:



Q:How can you test (detect) the chlorides?

Q: How to Test (detect) the Hydrochloric Acid?

ملاحظة بالإضافة الى جميع أسئلة الفصول أيضا مهمة

آلاء كاظم
مدرسة الكيمياء