

**According studying chemistry answer the following Questions:****Group 1 : Questions from ( 1 – 9 )****(1) Answer (a) or (b): Choose the correct answer:**

A - Molecules which have the minimum amount of energy to start the reaction is:\_\_\_\_\_

- |                        |                        |
|------------------------|------------------------|
| - Large size molecules | - Activated molecules  |
| - Free molecules       | - Small size molecules |

B - Chemical substance of changeable color due to the type of medium is \_\_\_\_\_

( Indicators – Salts – Carbonate – Nitrates )

**(2) Answer (a) or (b):****A - Choose the correct answer:**

To distinguish between sulphate and phosphate salts, we can use \_\_\_\_\_

- |                     |                            |
|---------------------|----------------------------|
| - Sulphuric acid    | - Barium chloride solution |
| - Hydrochloric acid | - Magnesium sulphate       |

**B - Choose the correct answer:**

The color of starch solution changes into yellow when

\_\_\_\_\_ is Passed through it .

- |                         |                 |
|-------------------------|-----------------|
| - Iodine vapor          | - Bromine vapor |
| - Hydrogen chloride gas | - Nitric oxide  |

**(3) Answer (a) or (b):****Choose the suitable scientific concept:**

a- A process of strong heating for iron ore to concentrate the ore and get rid humidity .

( **Reduction – Oxidation – Sintering – Roasting** )

b - Type of alloys formed due to chemical combination of alloy elements.

( **Substitution – Interstitial – Intermetallic – Nature** )

**(4) Give scientific reason** Scandium  $_{21}\text{Sc}$  cannot form compounds have oxidation number ( +4 ) .

**(5) Choose the correct answer:**

The Concentration of hydronium ion in solution of 0.3 mol/L of acetic acid is at  $25^{\circ}\text{C}$ , of ionization constant of  $1.8 \times 10^{-5}$  is \_\_\_\_\_ mol/L

(  $2.3 \times 10^{-3}$  –  $0.0023 \times 10^{-5}$  –  $0.54 \times 10^{-5}$  –  $0.0023 \times 10^{-3}$  )

**(6) Choose the correct answer:**

When carbon dioxide gas is passed in lime water for short time a white ppt. of \_\_\_\_\_ is formed.

- Calcium bicarbonate

- Calcium oxide

- Calcium carbide

- Calcium carbonate

**(7) Choose the correct answer:**

The number of single bonds in  $\text{C}_2\text{H}_6$  ethane is \_\_\_\_\_

( **4 - 6 - 7 - 8** )

**(8) Write the appropriate scientific term:**

Oxide of a transition element that is used in manufacture of sun protection products.

**(9) Complete:** The electrolyte in the lead accumulator is \_\_\_\_\_

**The second group: questions from (10-18)****(10) Answer (a) or (b):****Choose the correct answer:**

A- The scientist who formulated the rule for adding an asymmetric reagent to an asymmetric alkene is \_\_\_\_\_

( Kekule – Bayer – Friedel craft – Markonikoff )

B- An atomic group that does not exist freely and is derived from alkane by removing a hydrogen atom from it and is symbolized by the symbol (R). \_\_\_\_\_

( Alkene – alkyl – Carbonyl – alkyne )

**(11) Choose the correct answer:**

Dilute hydrochloric acid is a reagent for \_\_\_\_\_ ions.

( Sulphate - Nitrate - Phosphate - Sulphide )

**(12)** Arrange the following compounds in ascending order according to their chemical activity: (from lowest to highest activity)

( Alkenes - Alkanes – Alkynes )

1- \_\_\_\_\_ 2- \_\_\_\_\_ 3- \_\_\_\_\_

**(13) Choose the correct answer:** Teflon is used in \_\_\_\_\_

- Surgical threads

- drainage pipes

- floor insulators

- as anti-freeze substance

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**(14) Choose the correct answer:** The most active of the following organic compounds is \_\_\_\_\_  
 (Cyclopropane - normal propane - cyclopentane - normal pentane)

**(15) Choose the correct answer:** The amount of electricity needed to precipitate one mole of silver from silver nitrate solution ( $\text{AgNO}_3$ ) is \_\_\_\_\_

( 0.5 F - 1 F - 54 F - 108 F )

**(16) Write the chemical equation for the catalytic hydration of ethyne.**

**(17) Choose the correct answer:**

The process of dissolving salt in water to produce acid and alkali, from which they are derived from \_\_\_\_\_

( Titration - neutralization - hydrolysis – precipitation )

**(18) Express by a chemical equation that show heating siderite strongly.**

**The third group: Questions from (19-27)**

**(19) Answer (a) or (b):**

**Choose the correct answer:**

a- The German scientist who destroyed vital forces theory is \_\_\_\_\_

( Baeyer – Wohler – Markonikoff – Berzelius )

b. The compound 1,1,1, trichloroethane is used in \_\_\_\_\_

( Freon industry – dry cleaning – anesthesia – surgical threads industry )

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**(20) Answer (a) or (b):**

**a- Complete:** The general formula for alkynes is \_\_\_\_\_

**b - Complete:** The bonds in the organic compound molecule are \_\_\_\_\_ bonds.

**(21) Answer (a) or (b):****- Choose the correct answer:**

a - A radioactive isotope of a transition element is used in the diagnosis and treatment of tumors. \_\_\_\_\_

( Copper Cu - Vanadium V – Cobalt- 60 {Co60} - Manganese Mn )

b - The reaction of bromine with ethene is considered a/an \_\_\_\_\_ reaction.

( Oxidation – substitution – addition – hydrogenation )

**(22) Choose the correct answer:**

The electrode potentials of elements are measured with respect to the potential of standard \_\_\_\_\_ electrode.

( Oxygen – nitrogen – hydrogen – helium )

**(23) Choose the appropriate scientific term:** reactions that go in both forward and backward directions, and the reactants and products resulting from the reaction are continuously present in the reaction medium.

- Complete reactions

- reversible reactions

- instantaneous reactions

- precipitation reactions

**(24) Choose the correct answer:**

The scientist who explained the relationship between the degree of ionization ( $\alpha$ ) and dilution of a weak electrolyte \_\_\_\_\_

( Heisenberg - Le Chatelier - Waage and Goldberg – Ostwald )

**(25) Choose the correct answer:**

the reaction  $C_2H_4 + H_2O + (O) \xrightarrow{KMnO_4/alkaline\ medium} C_2H_4(OH)_2$ , it is a \_\_\_\_\_ reaction

( Reduction – oxidation – endothermic – instant )

**(26) Complete the following table by writing the scientific term:**

<p>1 - A primary galvanic cell that does not consume or store energy because it is supplied by a fuel from external source.</p>	<p>_____</p>
<p>2 - A secondary galvanic cell used as an alternative to the accumulator battery in modern cars.</p>	<p>_____</p>

**(27) Choose the correct answer:**

A chemical analysis aims to estimate the percentage of each component in the substance \_\_\_\_\_

- Qualitative analysis
- Electrolysis
- quantitative analysis
- descriptive analysis

**Fourth group: Questions (28-36)**

**(28) Answer (a) or (b):**

**- Choose the correct answer:**

a. The cell which used in cars as a source of electric current is \_\_\_\_\_ cell.

( Fuel – Mercury – Dry – Lead acid )

b.  $(C_5H_{10})$  is the molecular formula for a compound \_\_\_\_\_

( Pentane – Heptane – Pentene – Toluene )

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**(29) Choose the appropriate scientific term:**

The substance that changes the rate of a chemical reaction without being change or changing its equilibrium position.

( water – air – catalyst – any solid substance )

**(30) Choose the appropriate scientific term:** the process of changing unionized molecules into free ions.

( dissolving – neutralization – oxidation – ionization )

**(31) Choose the correct answer:** When concentrated nitric acid is added to iron, \_\_\_\_\_ is formed.

- iron (II) nitrate and hydrogen
- iron (III) nitrate, water and nitric oxide
- iron (III) nitrate and water
- non-porous oxide layer

**(32) Choose the appropriate chemical compound:** The iron ore which is roasted produces a huge amount of water vapor.

(  $\text{Fe}_2\text{O}_3 \cdot \text{H}_2\text{O}$  –  $2\text{Fe}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$  – Fe O –  $\text{Fe}_3\text{O}_4$  )

**(33) Choose the correct answer:** Iron II oxide can be distinguished from magnetic iron oxide by using \_\_\_\_\_

- concentrated nitric acid
- concentrated sulphuric acid
- dilute hydrochloric acid
- sodium hydroxide

**(34) Answer (a) or (b):****Choose the correct answer:**

a- To precipitate one gram equivalent mass of silver requires an amount of electricity equal \_\_\_\_\_ coulombs.

( 96500 – 1 – 118 – 48250 )

b- The process of dipping steel in molten zinc to prevent steel from corrosion is \_\_\_\_\_

( fuel cell – electroplating – galvanizing – steel purification )

**(35)** Calculate the acid concentration. If 50ml of a 0.1M of  $\text{Ca(OH)}_2$  solution is neutralized with 20ml of nitric acid  $\text{HNO}_3$ .

**(36) Give reasons for the following:**

It is necessary to do qualitative analysis before quantitative analysis.

**Fifth group: questions from (37 - 45)****(37) Answer (a) or (b):****- Write the scientific term**

a - A type of chemical analysis used to identify the components of a substance. \_\_\_\_\_

b- A type of chemical reaction in which one of its products is a precipitate. \_\_\_\_\_

**(38) Choose the correct answer:** The electrode at which the oxidation process occurs in Daniel's cell is \_\_\_\_\_

( zinc – copper – zinc ions – copper ions )



**(39) Choose the correct answer:**

When dilute hydrochloric acid is added to \_\_\_\_\_ salt the evolved gas blackened paper wetted with lead acetate solution.

( Carbonate – Phosphate – Sulphide – Thiosulphate )

**(40) Choose the correct answer:** The monomer name which used to make polypropylene is \_\_\_\_\_.

( Ethene – Propane – Propene – Pentene )

**(41) Choose the correct answer:** Sodium chloride salt in water \_\_\_\_\_

- Turns litmus solution into red
- turns litmus solution into blue
- neutral effect on litmus solution
- it does not dissolve.

**(42) Choose the correct answer:** When a solution of silver nitrate is added to a solution of sodium phosphate  $\text{Na}_3\text{PO}_4$ , a \_\_\_\_\_ precipitate is formed.

- white precipitate of sodium nitrate.
- yellow precipitate silver phosphate
- Black precipitate silver phosphate
- White precipitate of silver phosphate

**(43) Answer (a) or (b):**

**Choose the correct answer:**

a- Ethylene glycol is used in \_\_\_\_\_

- Surgical threads
- drainage pipes
- lining of cooking utensils – anti
- Antifreeze of water

b- The first organic compound prepared in the laboratory is \_\_\_\_\_

( propane – Freon – urea – alcohol )

**(44)** Calculate the quantity of electricity ( in coulombs) required to separate 9.3 grams of iron from a solution of iron III chloride.

If the cathode reaction is :  $\text{Fe}_{(\text{aq})}^{3+} + 3\text{e}^{-} \rightarrow \text{Fe}^{\circ}$  (Fe =55.86)

**(45)** A sample of hydrated calcium chloride  $\text{CaCl}_2 \cdot \text{XH}_2\text{O}$  its mass is 2.94 g, heated strongly until its mass remains constant and became 2.22 g. Calculate the percentage of water molecules of crystallization, then write the molecular formula.

[ Ca = 40 , Cl = 35.5 , H = 1 , O = 16 ]

( انتهت الأسئلة )