

11th CLASS GUESS PAPER. 2022

CHEMISTRY

CHAPTER NO. 1

BASIC CONCEPT

SHORT QUESTIONS.

1. What are monoisotopic elements? Give name and symbol of such an element.
2. Calculate gram atom. In 0.1 gm of sodium (at mass of sodium =23)?
3. Differentiate between actual yield and theoretical yield.
4. Why theoretical yield of a chemical reaction is greater than the actual yield.
5. How is the efficiency of a reaction expressed?
6. 23 g of sodium and 238 g of uranium have equal number of atoms in them.
7. No individual Neon atom in the sample of the element has a mass of 20.18 amu why?

LONG QUESTIONS.

1. Write detailed note on. i) Avogadro's number ii) Molar volume.
2. Define stoichiometry. Give its assumptions. Mention two important laws which help to perform the stoichiometric calculation.
3. What is a limiting reactant? How does it control the quantity of the product formed.
4. Define yield. How do we calculate the percentage yield of chemical reaction? Also mention the factors which are responsible for low yield of products.

CHAPTER NO. 2

EXPERIMENTAL TECHNIQUES IN CHEMISTRY.

SHORT QUESTIONS.

1. State distribution law.
2. What do you mean by solvent extraction? Which law controls it?
3. Differentiate between stationary and mobile phase used in chromatography.
4. Write down the uses of chromatography.
5. What is chromatography and R_f value?

LONG QUESTIONS.

1. Write down the main characteristics of a solvent selected for crystallization of a compound.
2. Why is there a need to crystallize the crude product?

CHAPTER NO. 3

GASES.

SHORT QUESTIONS.

1. Explain the plot of PV versus P is a straight line at constant temperature and with a fixed number of moles of an ideal gas.
2. Write expression for kinetic equation and root mean square velocity of gases.
3. Why pilots feel uncomfortable berating in unpressurised cabin?
4. Derive Boyle's law from KMT.
5. Write two uses of plasma.

LONG QUESTIONS.

1. What is Kinetic molecular theory of gases? Give its postulates.
2. State and explain Boyle's law and verify this law by an experiment.

CHAPTER NO. 4 LIQUIDS AND SOLIDS.

SHORT QUESTIONS.

1. What are dipole-dipole forces of attraction? Explain with an example.
2. What are Debye forces? Explain.
3. What are dipole-induced dipole forces?
4. Define polarizability. How it effects London dispersion forces?
5. How soaps and detergents do their cleansing action?
6. Why water is liquid at room temperature but H₂S and H₂Se are gases, comments.
7. Give reason for the lowest boiling point of hydride of group IV-A elements.

LONG QUESTIONS.

1. What are ionic solids? Give their properties.
2. What are molecular crystals? Give their properties.

CHAPTER NO. 6 CHEMICAL BONDING.

SHORT QUESTIONS.

1. Define ionic and covalent radii.
2. Define covalent radius with an example.
3. Why cationic radius is smaller than parent atom?
4. Ionization energy is index to the metallic character. Why?
5. How does electron affinity vary in periodic table?
6. Why polar bond is stronger than non-polar bonds?
7. Why the lone pair electrons repel strongly than the bond pair of electrons?

LONG QUESTIONS.

1. What is a chemical bond? Discuss the formation of ionic and covalent bonds.
2. Define bond energy. Explain the various parameters which determine its strength.

CHAPTER NO. 7 THERMOCHEMISTRY

SHORT QUESTIONS.

1. Define 'system' and 'surroundings'.
2. Define heat of solution. Give example.
3. Define standard enthalpy of combustion. Give one example.
4. What is standard enthalpy of solution?

LONG QUESTIONS.

1. Define and explain Hess's law of constant heat summation with examples.
2. Describe bomb-calorimeter method for determination of enthalpy of reaction.

CHAPTER NO. 8 CHEMICAL EQUILIBRIUM.

SHORT QUESTIONS.

1. What are irreversible reactions? Give one example.
2. How does a catalyst affect a reversible reaction?
3. What conditions are required for the best possible yield of SO₂?
4. What is the effect of common ion on solubility?
5. What is acidic buffer? Give one example.
6. Write down Henderson's equation and for which purpose it used.
7. Explain the term Buffer capacity.

LONG QUESTIONS.

1. What is the percentage ionization of acetic acid in a solution in which 0.1 moles of it has been dissolved per dm³ of solution K_a for CH₃COOH = 1.85×10^{-5}

CHAPTER NO. 9 **SOLUTIONS.**

SHORT QUESTIONS.

1. Difference between ideal and non-ideal.
2. Boiling points of liquids are increased when a solute is added to them. Justify it.
3. What are the names of major parts of apparatus used in Landsberg's method for elevation of Boiling point?
4. What are colligative properties? And why they are called so.
5. State different from of Raoult's Law. How this law can help us to understand the ideality of a solution.

LONG QUESTIONS.

1. Define solubility curve. Explain different types of solubility curves with the help of graphs.
2. Describe one method to determine the boiling point of elevation of solutes.
3. Describe Landeberger's method for the measurement of boiling point elevation.

CHAPTER NO. 10 **ELECTRO CHEMISTRY**

SHORT QUESTIONS.

1. Calculate oxidation number of chromium in the following compounds.
(i) CrCl_2 (ii) K_2CrO_4
2. Define oxidation number and calculate the oxidation state of underlined element.
i) H_2PO_4 ii) $\text{Ca}(\text{ClO}_3)_2$
3. What is ionization and electrolysis?
4. What is Anodized Aluminum?
5. What is ionization and electrolysis?
6. Difference between primary and secondary cell giving one example each.
7. What is electrode potential?

LONG QUESTIONS.

1. State rules for assigning oxidation number of element with example.
2. What is electrolysis? Discuss the electrolysis of fused salt PbBr_2 .
3. Write construction and working of voltaic cell.

CHAPTER NO. 11. **REACTION KINETICS**

SHORT QUESTIONS.

1. What is rate of reaction, also give name of four physical methods used to determine the rate of reaction?
2. What is meant by order of reaction? Give an example.
3. What is meant by half-life period? Give one example.
4. The radioactive decay is always a first order reaction.
5. What do you mean by Activation complex of a reaction?

LONG QUESTIONS.

1. What are enzymes? Mention the characteristics of enzyme catalysis.
2. How does Arrhenius equation help us to calculate the energy of activation of a reaction?