

Chemistry**HSSC (11th) 2nd Annual 2022**

Time : 2:40 Hours

Marks : 68

Paper : I

Subjective

Note:- Section B is compulsory. Attempt any 3 questions from Section C.

SECTION-B**(8 x 2 = 16)****2. Write short answers to any Eight parts.**

i. Define Yield. How do we calculate the percentage yield of a chemical reaction?

ii. Write down steps to identify a limiting reactant.

iii. Define Relative Atomic Mass. Give two examples.

iv. Differentiate between mobile and stationary phase.

v. Write two disadvantages of drying crystals in the folds of a filter paper.

vi. How chemical characterization of a compound is done?

vii. Give two reasons for deviation of real gases from ideal behaviour.

viii. Derive Charles's Law by kinetic equation of gases.

ix. Define Absolute Zero. What is its value?

x. Write down optimum conditions of temperature and pressure in the manufacture of Ammonia by Haber's process.

xi. How we can check extent of reaction with the help of K_c?

xii. What is meant by ionic product of water? Write down its value.

(8 x 2 = 16)**3. Write short answers to any Eight parts.**

i. What is transition temperature? Give its example.

ii. What is allotropy? Give an example.

iii. Define Lattice Energy.

iv. Give types of covalent solids.

v. What is Paul's exclusion principle?

vi. What is importance of Moseley's Law?

vii. Define Heisenberg's Uncertainty Principle. Give equation.

viii. Define Orbital and Orbit.

ix. Define Enthalpy of Solution. Give example.

x. What are hydrates? Give examples.

xi. What is heterogeneous catalysis? Give an example.

xii. Define half-life period. Give example.

(6 x 2 = 12)**4. Write short answers to any Six parts.**

i. Define Dipole Moment with an example.

ii. Differentiate between bonding and antibonding molecular orbital.

iii. Define Electronegativity with an example.

iv. No bond in Chemistry is 100% ionic. Justify it.

v. State First Law of Thermodynamics.

vi. Define Enthalpy of Formation with an example.

vii. Differentiate between system and surrounding.

viii. Define Oxidation Number with an example.

ix. What is the function of salt bridge?

SECTION-C**(EACH QUESTION CARRIES EIGHT (8) MARKS)**

5. (a) Define Empirical Formula. Write steps for its calculation. (4)

(b) What is de-Broglie's hypothesis? Derive $\lambda = \frac{h}{mv}$ (4)6. (a) A mixture of H_2 , He and CH_4 occupying a vessel of volume 13 dm^3 at 37°C and 1 atm pressure, the masses of H_2 and He are 0.8 g and 0.12 g respectively. Find out partial pressure of each gas in a mixture. (4)

(b) Define Electrode Potential. How can you measure electrode potential of Zinc? (4)

7. (a) Draw shapes of following molecules by using VSEPR Theory.

i. H_2O ii. NH_3 iii. SO_3 iv. BF_3

(1x4)

(b) State Hesse's Law of Constant Heat Summation. Also give two examples. (2+2)

8. (a) Define Hydrogen Bonding. Give its three applications. (4)

(b) $Ca(OH)_2$ is a sparingly soluble compound. Its solubility product is 6.5×10^{-6} . Calculate the solubility of $Ca(OH)_2$. (4)

9. (a) How is lowering in vapour pressure as colligative property, used to find out the molecular mass of solutes? (2+2)

(b) Define Catalysis and explain its types with one example of each. (1+1.5+1.5)

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CANCELLED