

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

SECTION-B

2. Write short answers to any Eight parts.

(8 x 2 = 16)

- The oxidation states vary in a period but almost remain constant in a group. Give the reason.
- The hydration energies of ions are in the given order, $Al^{3+} > Mg^{2+} > Na^{+}$. Explain.
- Why KO_2 is used in breathing equipments for mountaineers and space crafts?
- Write down the formulas of: (i) Asbestos (ii) Soap stone (Talc).
- Write down the four uses of silicates.
- How carbon differs from remaining members of group IV-A elements.
- Give the two reactions for the preparation of PCl_5 .
- Write down four uses of H_2SO_4 .

ix. Define Ligand. Give two examples.

x. What is sacrificial corrosion?

xi. Write down four qualities of a good fertilizer.

xii. What are micro nutrients? Give two examples.

3. Write short answers to any Eight parts.

(8 x 2 = 16)

- How I_2O_5 is used for quantitative analysis of CO? Give reaction.
- Name different oxides of chlorine along with their formulas.
- What are antiknock agents? Give their importance.
- What are alicyclic compounds? Give the names and formulas of any two such compounds.
- Discuss the reactivity of π - bond.
- In the following reaction, identify each lettered product:



vii. How does ethyne react with 10% H_2SO_4 in the presence of $HgSO_4$?

viii. What are β - elimination reactions? Support your answer by a reaction.

ix. Give the reaction of ethyl chloride with: (a) Na_4Pb (b) $Na / Ether$

x. Give the importance of Glycogen in human body.

xi. What are epoxy resins? Give their importance.

xii. What are Copolymers? Give an example.

4. Write short answers to any Six parts.

(6 x 2 = 12)

i. How is p-chloronitrobenzene prepared from benzene?

ii. Define monocyclic and polycyclic aromatic hydrocarbons.

iii. Discuss denaturing of alcohol.

iv. How is Bakelite prepared from phenol? Give reaction.

v. Discuss application of Iodoform test.

vi. Write two methods for the preparation of acetic acid.

vii. Write mechanism of formation of amide from acetic acid.

viii. Define oxidizing and reducing smog.

ix. Define primary and secondary pollutants and give examples.

SECTION-C

(EACH QUESTION CARRIES EIGHT (8) MARKS)

5. (a) Discuss position of hydrogen with alkali metals giving any two similarities and dissimilarities. 4

(b) Write down any eight uses of Aluminium. 4

6. (a) What are the problems faced during manufacturing of $NaOH$ by diaphragm cell. How are they solved? 4

(b) Explain the trend of Binding Energies of Transition elements. 4

7. (a) What is vital force theory? How vital force theory was rejected. 4

(b) How ethyl magnesium bromide reacts with 1x4

(i) NH_3 (ii) Alcohol (iii) CO_2 (iv) CH_3COCH_3

8. (a) Describe the preparation of ethane by Kolbe's electrolytic method. 4

(b) Discuss Tollen's test and Fehling's solution test for identification of carbonyl compounds. 4

9. (a) Describe the structure of benzene on the basis of atomic orbital treatment. 4

(b) What is fermentation? How ethyl alcohol can be prepared by fermentation process? 4

CANCELLED