**CHEMISTRY** **(Intermediate Part-II , Class 12th ) 422** **Paper II** **(Group – II )**

**Time: 2:40 Hours** **SUBJECTIVE** **Marks: 68**

**Note: Section I is compulsory. Attempt any THREE (3) questions from Section**

## (SECTION – I)

**2. Write short answers to any EIGHT questions.** **(2 x 8 = 16)**

i. Why the second value of electron affinity of an element is usually shown with a positive sign?

ii. Lanthanide contraction controls the atomic sizes of elements of $6^{th}$ and $7^{th}$ periods. Give reason briefly.

iii. $KO_2$ is used in breathing equipments for mountaineers and in space crafts, why?

iv. Aqueous solution of $Na_2CO_3$ is alkaline in nature. How it can be justified?

v. What is the structure of $CO_2$ and $SiO_2$ and why they differ from each other?

vi. How boric acid is prepared on commercial scale from colemanite?

vii. How moderately dilute and conc. $HNO_3$ reacts with zinc?

viii. Why is $SO_3$ dissolved in $H_2SO_4$ and not in water?

ix. What is chromyl chloride test?

x. What is sacrificial corrosion?

xi. How digestion process is carried out in paper industry?

xii. What reactions take place in the setting of cement from 01 to 07 days?

**3. Write short answers to any EIGHT questions.** **(2 x 8 = 16)**

i. What is Teflon? Write down its formula and uses.

ii. Bleaching powder acts as an oxidizing agent. Explain.

iii. Define metamerism. Give an example.

iv. What are heterocyclic compounds? Give two examples.

v. How methane and ethane can be prepared from sodium acetate?

vi. Write down any two uses of ethyne.

vii. State and explain Markownikov's rule with an example.

viii. What is Grignard's reagent? How it can be prepared?

ix. Define nucleophile by giving its two examples.

x. How is polystyrene prepared? Give its two uses.

xi. What is meant by denaturation of proteins?

xii. Write down names of nitrogenous bases present in DNA.

**4. Write short answers to any SIX questions.** **(2 x 6 = 12)**

i. How can you prepare m-chloronitrobenzene from benzene?

ii. Draw the structure of anthracene and phenanthrene.

iii. What is Dow's method?

iv. What do you mean by denaturing of alcohol?

**(Turn Over)**

v. Write down four uses of formaldehyde.

vi. What are essential and non-essential amino acids?

vii. Why the boiling points of carboxylic acids are relatively high?

viii. How is oil spillage affecting the marine life?

ix. What is biological oxygen demand (BOD)?

## (SECTION - II)

**Note: Attempt any THREE (3) questions from Section II**

**5. (a)** Explain periodic trends in the following physical properties: **(4)**

i) Ionization energy ii) Metallic character

**(b)** Discuss the importance of oxides of lead in paints. **(4)**

**6. (a)** Write down names and formulas of four minerals of sodium. **1x4 (4)**

**(b)** Give systematic names to following complexes. **1x4 (4)**

i) $Na_3[CoF_6]$ ii) $K_2[PtCl_6]$

iii) $[Cr(OH)_3(H_2O)_3]$ iv) $[Co(NH_3)_6]Cl_3$

**7. (a)** Define hybridization. Explain SP hybridization with the formation of ethyne. **(4)**

**(b)** Compare $S_N1$ reactions with $S_N2$ reactions by four points. **(4)**

**8. (a)** Give the mechanism of the following reactions: **2+2 (4)**

i) Ethene with $Br_2$ ii) Ethene with ozone

**(b)** What are condensation reactions? Explain the mechanism of Aldol condensation. **1+3 (4)**

**9. (a)** Write down four methods of preparation of benzene. **(4)**

**(b)** Write down reactions of phenol in which benzene ring is used. **(4)**