Roll No. _____

CHEMISTRY (Subjective) GROUP - II

Time: 02:40 Hours Marks: 68

SECTION – I

2. **Write short answers to any EIGHT parts.** 16
   (i) Why metallic character increases from top to bottom in a group of metals?
   (ii) What are polymeric halides? Give example.
   (iii) How is lime mortar prepared?
   (iv) Why is the aqueous solution of Na_2CO_3 alkaline in nature?
   (v) How will you convert boric acid into borax and vice versa?
   (vi) Why CO_2 is non-polar in nature?
   (vii) What is meant by Fuming nitric acid?
   (viii) NO_2 is a strong oxidizing agent. Prove the truth of this statement giving examples.
   (ix) Why does damaged tin plated iron get rusted quickly?
   (x) What are chelates? Give example.
   (xi) Describe prilling of urea.
   (xii) What do you mean by setting of cement?

3. **Write short answers to any EIGHT parts.** 16
   (i) How $C\ell O_2$ is prepared? Give its reaction.
   (ii) What are freons and teflons? Give their importance.
   (iii) Define homologous series. Also give two examples.
   (iv) Why do ethers and ketones show metamerism? Justify.
   (v) Write structural formula of (a) vinyl bromide (b) 3-n-propyl-1, 4-pentadiene.
   (vi) How will you prepare propene from isopropyl chloride?
   (vii) Identify "A and B" : $CH_3CH_2CH_2OH \xrightarrow{PC\ell_5} A \xrightarrow{Na/Ether} B$
   (viii) Convert methane into methanol.
   (ix) Discuss the reactivity of alkyl halides.
   (x) What is saponification number? Give saponification number of tripalmitate.
   (xi) Explain the classes of enzymes with one example in each (a) isomerase (b) lyases.
   (xii) Discuss the specificity of enzymes.

4. **Write short answers to any SIX parts.** 12
   (i) How is m-chloronitrobenzene prepared from benzene?
   (ii) Define resonance. Give one example.
   (iii) How ethanol reacts with Conc $\cdot H_2SO_4$ at different temperatures?
   (iv) Write note on Lucas test.
   (v) How will you distinguish between butanone and 3-pentanone?
   (vi) Write four uses of acetic acid.
   (vii) Define essential and non-essential amino acids.
   (viii) What are leachates?
   (ix) Define oxidizing and reducing smog.

SECTION – II Attempt any THREE questions. Each question carries 08 marks.

5. (a) What is ionization energy? Give an example. How does it vary in group and periods? 04
   (b) Write eight uses of borax. 04

6. (a) Compare the chemical behaviour of lithium with magnesium. (any four points) 04
   (b) Describe the following properties of transition metals (i) Alloy formation (ii) Paramagnetism. 04

7. (a) Define sp-hybridization. Explain the structure of ethyne on the basis of sp-hybridization. 04
   (b) Explain nucleophilic substitution bimolecular reaction. (S_N2) 04

8. (a) Explain the acidic character of alkynes with two examples. 04
   (b) What is Cannizzaro's reaction? Explain with mechanism. 04

9. (a) Explain the terms with reference to alcohols: (i) Dehydration (ii) Oxidation 04
   (b) Explain the rules for nomenclature of monocyclic aromatic hydrocarbons and their derivatives. (any four) 04