

CHEMISTRY (Subjective) GROUP - II

Time: 02:40 Hours Marks: 68

SECTION – I**Write short answers to any EIGHT parts.**

16

- (i) What is the difference between acidic and basic oxides? Give one example of each.
- (ii) Carbon and hydrogen possess reducing properties. Show with equations.
- (iii) Decomposition of lithium nitrate gives different products than the nitrates of other alkali metals. Why? Give reaction.
- (iv) Give brief description of alkali and alkaline earth metal sulphates solubility in water.
- (v) How is K_2CrO_4 converted into $K_2Cr_2O_7$? Show with reaction.
- (vi) How is chromyl chloride obtained from potassium dichromate? Give reaction.
- (vii) How is ethene prepared by E_2 elimination reaction?
- (viii) Give reaction for the preparation of 1-Butanol from Grignard reagent.
- (ix) What is the difference between isomerases and ligases?
- (x) Give reaction for the formation of soap from triglyceride.
- (xi) Give brief description of the rancidity of fats.
- (xii) Give names of the nitrogenous fertilizers.

3. Write short answers to any EIGHT parts.

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- (i) How does PCl_5 react with water?
- (ii) Write names and formulas of any two sulphide ores of Sulphur.
- (iii) Give chemical reactions of H_2SO_4 with $NaCl$ and $NaBr$.
- (iv) What is available chlorine?
- (v) Define isomerism. Write two isomers of butane.
- (vi) How was coal formed from wood under the Earth?
- (vii) Write common name and structural formula of 1-methyl propene.
- (viii) What is incomplete oxidation of CH_4 ?
- (ix) Give structural formulae of the compounds: (i) Potassium maleate (ii) Disodium succinate
- (x) How is mustard gas prepared from ethene?
- (xi) What are primary pollutants? Give two examples.
- (xii) What is leachate?

4. Write short answers to any SIX parts.

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- (i) How is H_3BO_3 prepared from (i) Borax (ii) Colemanite
- (ii) Write four uses of borax.
- (iii) Why are the liquid silicones preferred over the ordinary organic lubricants?
- (iv) How is ethyl benzene prepared by Wurtz-Fitting reaction?
- (v) How are the phenols prepared by Dow's method?
- (vi) Describe the term esterification using ethyl alcohol as an example.
- (vii) Define silver mirror test. Give the reaction involved.
- (viii) How is acetic acid converted into (i) Methane (ii) Acetic anhydride
- (ix) What is Zwitter ion? Give its structural formula.

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

5. (a) Discuss position of hydrogen at the top of IA group. Give similarities and dissimilarities. 04
(b) Describe the manufacture of NaOH by diaphragm cell. 04
6. (a) What are disproportionation reaction? How does NaOH react with Cl_2 in hot and cold state? 01, 03
(b) What is meant by setting of cement? Explain the reaction taking place in first 24 hours of setting of cement. 01, 03
7. (a) Write notes on: (i) Catalytic cracking (ii) Steam cracking 02, 02
(b) What do you understand by the term β -elimination reaction? Explain E-1 mechanism in detail. 01, 03
8. (a) How will you synthesize the following compounds starting from ethyne?
(i) Acrylonitrile (ii) Acetaldehyde (iii) Glyoxal (iv) Methyl nitrile 04
(b) What is Cannizzaro's reaction? Describe its mechanism and prepare methanol and formic acid by this reaction. 04
9. (a) Discuss atomic orbital treatment of benzene in detail. 04
(b) Describe two reactions of each in which C-O and O-H bonds of alcohol are broken. 02, 02