

CHEMISTRY (Subjective) GROUP - II

Time: 02:40 Hours

Marks: 68

SECTION – I**2. Write short answers to any EIGHT parts.**

16

- (i) Why CO_2 is gas but SiO_2 is a solid?
- (ii) Write four uses of borax.
- (iii) What is meant by chemical garden?
- (iv) Prepare glyoxal from benzene.
- (v) Give the structural formulae of (a) Benzoic acid (b) Acetophenone
- (vi) Write objections to Kekule formula of benzene.
- (vii) What are thermoplastic polymers? Give two examples.
- (viii) Give two points of difference between RNA and DNA.
- (ix) How is PVC prepared? Give its uses.
- (x) What are primary and secondary pollutants?
- (xi) How is water pollution caused by the detergents?
- (xii) What is dissolved oxygen?

3. Write short answers to any EIGHT parts.

16

- (i) Explain reforming of petroleum with the help of a suitable example.
- (ii) Define functional group. Give two examples of oxygen containing functional groups.
- (iii) Write structural formulae of these compounds: (a) 2,5-heptadiene (b) 1,3-pentadiene
- (iv) How can you chemically distinguish between propene and propyne?
- (v) Write the structural formula of the product formed when 1-butene reacts with Br_2 in CCl_4 .
- (vi) Give reactions of HNO_3 with reducing agents (a) FeSO_4 (b) H_2S
- (vii) How does concentrated H_2SO_4 react with (a) Copper (b) Ag. Give reactions.
- (viii) How does NO react with H_2S and H_2SO_3 ?
- (ix) Write reaction of ethyl magnesium chloride with cyanogen chloride.
- (x) Give preparation of Grignard reagent in the presence of dry ether.
- (xi) How is potassium nitrate prepared on industrial scale?
- (xii) What products are formed in the pre-heating zone and decomposition zone of rotary kiln in cement industry?

4. Write short answers to any SIX parts.

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- (i) KMnO_4 acts as oxidizing agents. Give reaction.
- (ii) Why does damaged tin plated iron get rusted quickly?
- (iii) Under what conditions does aluminium corrode?
- (iv) Give IUPAC names: (i) $\begin{array}{c} \text{H}_2\text{C}-\text{CH}_2 \\ | \quad | \\ \text{HO} \quad \text{OH} \end{array}$ (ii) $\begin{array}{c} \text{OH} \\ | \\ \text{CH}_3-\text{CH}-\text{COOH} \end{array}$
- (v) Why and how alcohol is denatured?
- (vi) How are ethers prepared by Williamson's synthesis?
- (vii) How will you distinguish between methanal and ethanal by chemical reaction?
- (viii) Give reaction of HCHO with NaBH_4
- (ix) What is ninhydrin test?

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

5. (a) What are oxides? Discuss their classification on the basis of acidic and basic character. 01,03
(b) What is the role of gypsum in industry? 04
6. (a) Write any eight applications of noble gases. 04
(b) What is neutral sulphite semi-chemical process? Explain its bleaching unit. 04
7. (a) What is cracking? Discuss its types. 01,03
(b) Discuss Friedel-Craft's alkylation reaction of benzene with mechanism. 04
8. (a) Write any four methods for preparation of alkanes. 04
(b) Write any four methods for preparation of alkyl halides from alcohols. 04
9. (a) Starting from aldehyde prepare: (i) Oxime (ii) Hydrazone (iii) Iodoform (iv) Cyanohydrin 04
(b) What types of reactions are shown by carboxylic acids? Describe any three reactions involving hydrogen atom of carboxylic acid group. 04