

CHEMISTRY (Subjective) GROUP - I

Time: 02:40 Hours

Marks: 68

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

16

- (i) Why anionic radius is greater than parent atom?
- (ii) Diamond is a non-conductor while graphite is a good conductor. Give reason.
- (iii) Complete and balance the equations: (a) $\text{LiNO}_3 \xrightarrow{\text{heat}}$ (b) $\text{NaNO}_3 \xrightarrow{\text{heat}}$
- (iv) Describe two problems during manufacturing of NaOH by diaphragm cell.
- (v) Convert Boric acid into tetra boric acid.
- (vi) Write the reaction of H_3BO_3 with (a) NaOH (b) Na_2CO_3
- (vii) Write any two uses of boric acid.
- (viii) Write two methods for preparation of nitrogen oxide (NO).
- (ix) Write any two reactions of H_2SO_4 as an oxidizing agent.
- (x) How diammonium phosphate is prepared?
- (xi) Define cement.
- (xii) Which types of raw material is used in cement? Give their names.

3. Write short answers to any EIGHT parts.

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- (i) Write equations for the reactions of chlorine with hot and cold NaOH.
- (ii) Give four uses of bleaching powder.
- (iii) Arrange the oxy acids of halogen in increasing order of their acidic strength.
- (iv) What is sacrificial corrosion?
- (v) What are interstitial compounds?
- (vi) Write mechanism for nitration of benzene.
- (vii) Convert benzene into (a) Hexachlorocyclohexane (b) Benzene sulphonic acid.
- (viii) What is Tollen's test?
- (ix) Write general mechanism for the acid catalysed nucleophilic addition reactions of carbonyl compounds.
- (x) Write four uses of acetic acid.
- (xi) Convert acetic acid into (a) Ethane (b) Ethyl alcohol.
- (xii) Write structural formulae of (a) Malonic acid (b) Phthalic acid.

4. Write short answers to any SIX parts.

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- (i) Define heterocyclic compounds and give two examples with names.
- (ii) What is metamerism? Give one example.
- (iii) Write the structural formulas for these compounds. (a) 3-n-propyl-1, 4-pentadiene (b) But-1-en-3-yne
- (iv) How will you convert? (a) Ethene into ethyl alcohol (b) Ethene into ethyne.
- (v) Define Markownikov's rule and give one example.
- (vi) Define allyl halide, which is the best method of preparing allyl halide.
- (vii) Give IUPAC names of following compounds:
(a) $(\text{C}_2\text{H}_5)_2\text{CH}-\text{CH}_2-\underset{\text{Cl}}{\text{CH}}-\text{CH}_3$ (b) $(\text{CH}_3)_2\text{CH}-\text{CH}_2-\text{CH}(\text{C}_2\text{H}_5)\text{CH}_2\text{Cl}$

- (viii) How phenol is prepared from sodium salt of benzene sulphonic acid?
- (ix) Give uses of ethanol. Only four.

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

5. (a) Describe variation of melting point and boiling point in periods and groups of modern periodic table. 04
(b) Describe peculiar behaviour of Be. 04
6. (a) Write preparation and two reactions of HNO_2 . 04
(b) Write a note on these properties of transition elements: (i) Binding energies (ii) Oxidation state 04
7. (a) Explain geometrical isomerism with suitable examples. 04
(b) What is Cannizzaro's reaction? Explain with mechanism. 04
8. (a) Describe any four methods for the preparation of alkenes. 04
(b) What is B-Elimination reaction? Explain E_2 reaction in detail. 04
9. (a) What are Friedel and Craft's reactions? Give one example in each case with mechanism. 04
(b) How will you obtain pure ethanol by fermentation of starch. 04