

Chemistry (Subjective)

(For All Sessions)

Marks : 68

Rwp-12-2-23

(GROUP-II)

SECTION-I

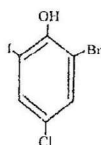
Time: 2:40 hours

2. Write short answers of any eight parts from the following:

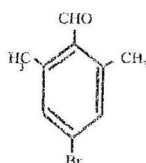
(8x2=16)

- How does Orthoboric acid react with: a) NaOH b) Ethylalcohol
- Why are silicones preferred over ordinary organic lubricants?
- What is water glass? Give its two uses.
- Write IUPAC names of the following molecules:

a)



b)



v. What happens when?

- Benzene is burnt in free supply of air
- Chlorine is passed through benzene in sunlight.

- Give the two characteristics of aromatic hydrocarbons.
- What is addition polymerization? Give example.
- Draw the cyclic structure of glucose and fructose.
- What is the chemical composition of fats and oils?
- How suspended impurities can be coagulated from water with alum?
- What are conditions for formation of smog?
- What is COD? How is it measured?

3. Write short answers of any eight parts from the following:

(8x2=16)

- Describe any two features of organic compound.
- How is octane number of gasoline improved?
- Write common names of $H_2C = CH_2$ and $H_3C - CH = CH_2$
- What is Sabatier-Sendern's reaction? Give an example.
- How will you convert methane into ethane?
- Write down four similarities between oxygen & sulphur.
- NO_2 is a strong oxidizing agent. Prove it by two reactions.
- Write four dissimilarities between oxygen and sulphur.
- Prepare two anti-knocking agents which are used in gasoline.
- Write a reaction of CH_3CH_2MgBr with ethylene oxide.
- Define cement. Name its two calcareous raw materials.
- Mention four essential qualities of a good fertilizer.

4. Write short answers of any six parts from the following:

(6x2=12)

- Why are d & f block elements called transition elements?
- What is d-d transition?
- What are diamagnetic substances? Give one example.
- Write down structural formula for lactic acid & tartaric acid.
- What is Williamson's synthesis?
- Give one confirmatory test for phenol.
- How is propanone prepared by dry distillation method?
- How is acetic acid reduced by $LiAlH_4$?
- How will you differentiate between methanal and ethanal by iodoform test?

SECTION-II

Note Attempt any three questions. Each question carries equal marks:

(8x3=24)

- Write down the similarities and dissimilarities of hydrogen with group IVA elements.
 - How is sodium metal produced by Dow's cell?
- What are the halogen's? On what factors oxidizing power of halogen depends? Give their order of oxidizing power.
 - How is urea manufactured? Describe in detail.
- Explain geometric isomerism and also discuss necessary condition to exhibit geometric isomerism.
 - Explain stability of benzene with the help of resonance energy.
- Explain Kolbe's electrolytic method for the preparation of ethyne along with mechanism.
 - Write a detail note on nucleophilic substitution bimolecular (S_N2) reactions.
- Write down eight uses of formaldehyde.
 - Give the mechanism of reaction between acetic acid and thionyl chloride.