

CHEMISTRY (Subjective) GROUP - I

Time: 02:40 Hours

Marks: 68

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

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- Give two chemical reactions of ZnO which prove its amphoteric character.
- Alkali metals give ionic hydrides. Give justification for the statement.
- What happens when gypsum is strongly heated?
- What is lime mortar?
- Why do K_2CrO_4 and $K_2Cr_2O_7$ show similar properties in aqueous solution?
- Transition elements show variable oxidation state. Give reason.
- What is β -elimination reaction? Give one example.
- How would you prepare n-butane and ethane from ethyl chloride?
- What is thermoplastic polymer? Give two examples.
- What is denaturation of proteins? Give one example.
- Mention two points of difference between DNA and RNA.
- What is requirement for a compound to be used as a fertilizer?

3. Write short answers to any EIGHT parts.

16

- Define the "Ring Test" for the confirmation of the presence of nitrate ions in the solution.
- Why is SO_3 dissolved in H_2SO_4 and not in water?
- Write four uses of bleaching powder.
- Why HF is weaker acid than HCl ?
- Define functional group. Give the functional group of ether and carboxylic acid.
- Define Tauto merism. Give an example.
- How is ethyne prepared on industrial scale?
- How is Raney Nickel prepared? Give its one use.
- Convert ethene into ethyl alcohol.
- How is ozone damaged in stratosphere by chlorofluorocarbons (CFCs)?
- Differentiate between primary and secondary pollutants.
- How does acid rain affect environment?

4. Write short answers to any SIX parts.

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- What are silicates? How sodium silicate is prepared?
- What is boric acid? How it is prepared in laboratory?
- Why are liquid silicones preferred over ordinary organic lubricants?
- Why nitration of toluene is faster than benzene?
- How will you distinguish between methanol and ethanol?
- Describe the term esterification using ethyl alcohol as an example.
- How will you distinguish between acetone and ethyl alcohol?
- How would you convert acetic acid into acetamide?
- What is peptide bond? Write the formula of a dipeptide.

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

- What are metals? Give their properties with examples. 01,03
 - What are two major problems in diaphragm cell? How they are solved? 02,02
- What is disproportionation reaction? Explain reactions of chlorine with cold and hot NaOH. 01,03
 - Describe digestion and pulp washing in neutral sulphite semi-chemical process. 02,02
- Explain the reforming of petroleum with suitable example. 04
 - Differentiate between E_2 and E_1 reactions mechanism. 04
- How can you prepare the following from ethyne:
 - Acetaldehyde
 - Vinyl acetylene
 - Glyoxal
 - Acetonitrile
 01,01,01,01
 - How ethanal can react with following:
 - HCN
 - $NaHSO_3$
 - $I_2/NaOH$
 - $NaBH_4$
 01,01,01,01
- What is resonance and discuss structure of benzene by resonance method? 04
 - Explain following terms using ethyl alcohol as an example:
 - Esterification
 - Ether formation
 - Oxidation
 - Dehydration
 04