

CHEMISTRY (Subjective) GROUP - I

Time: 02:40 Hours

Marks: 68

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

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- (i) Why the size of cation is smaller than that of parent atom?
- (ii) ZnO oxide is amphoteric oxide. Justify with two reactions.
- (iii) Write any two uses of gypsum in industry.
- (iv) Write two major problems during manufacturing of NaOH in diaphragm cell.
- (v) Write four uses of borax.
- (vi) Why are liquid silicones preferred over ordinary organic lubricants?
- (vii) Write any four uses of H_2SO_4 .
- (viii) Write four similarities of oxygen and sulphur.
- (ix) Why does damaged tin plated iron get rusted quickly?
- (x) What is sacrificial corrosion?
- (xi) What are fertilizers? Why they are needed?
- (xii) Write any four essential qualities of good fertilizer.

3. Write short answers to any EIGHT parts.

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- (i) Why iodine has metallic luster?
- (ii) Give any four uses of bleaching powder.
- (iii) Define functional group and give two examples.
- (iv) What is metamerism? Give example.
- (v) What is Clemmensen reduction? Give one example.
- (vi) How is mustard gas prepared? Give its use.
- (vii) How does ethyne react with water in the presence of $HgSO_4/H_2SO_4$
- (viii) Write a method for preparation of ethyl magnesium bromide in laboratory.
- (ix) What are β -eliminations reactions?
- (x) Differentiate between conjugated and derived proteins.
- (xi) Write structure of cholesterol.
- (xii) Give two difference between DNA and RNA.

4. Write short answers to any SIX parts.

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- (i) What happens when Cl_2 is passed through benzene in sunlight?
- (ii) Convert benzene into glyoxal.
- (iii) Give IUPAC name: (a) $CH_3 - CH(OH)COOH$ (b) $CH_2(OH) - CH_2(OH)$
- (iv) Define fermentation. Give its necessary conditions.
- (v) Convert ethanal into ethanol.
- (vi) What are Zwitter ions? Give example.
- (vii) What is glacial acetic acid? Why is it called so?
- (viii) How acid rain affects our environment? Briefly discuss.
- (ix) What are leachates? Briefly explain.

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

5. (a) Discuss the position of hydrogen on top of group IA. (four similarities and four differences) 04
(b) Write applications of aluminium. (any eight) 04
6. (a) Write the formulas of these minerals: (i) Dolomite (ii) Asbestos (iii) Epsom salt (iv) Sylvite 04
(b) Define corrosion. Explain electrochemical theory of corrosion. 04
7. (a) What is orbital hybridization? Explain structure of ethane on the basis of sp^3 -hybridization? 04
(b) Explain mechanism of S_N1 reactions with a suitable example. 04
8. (a) Describe the Kolbe's electrolytic method for the preparation of alkenes along with mechanism. 04
(b) Explain Cannizzaro's reaction with the help of mechanism of formaldehyde. 04
9. (a) What are Friedel craft alkylation reaction? Give its mechanism. 04
(b) Give the reaction of phenol with: (i) HNO_3 (ii) H_2SO_4 (iii) CH_3COCl (iv) Br_2 water 04