

SECTION – I

2. Write short answers to any EIGHT (8) questions :

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- (i) How does orthoboric acid react with : (a) NaOH (b) C_2H_5OH
- (ii) Why are aluminium sheets said to be free from corrosion?
- (iii) What is water glass? How is it prepared? Give reaction.
- (iv) How is ethyl benzene obtained from bromobenzene? Give reaction.
- (v) How is maleic acid obtained from benzene? Give reaction.
- (vi) Why is nitro group meta-directing?
- (vii) What is meant by addition polymerization? Give an example.
- (viii) Give structures of the monomers of polyvinyl chloride and polystyrene.
- (ix) What is the difference between oligosaccharides and polysaccharides?
- (x) How is quality of raw water improved by aeration process?
- (xi) Why is ozone layer depleting?
- (xii) How is plastic recycled by depolymerization?

3. Write short answers to any EIGHT (8) questions :

16

- (i) What is catalytic cracking? Give its importance.
- (ii) What are alicyclic compounds? Give example.
- (iii) Convert ethyne into acrylonitrile.
- (iv) What are epoxides? How these are prepared from alkene?
- (v) Give nitration reaction of methane.
- (vi) How does conc. H_2SO_4 reacts with “C and S”?
- (vii) Give the effect of heat on H_3PO_4 .
- (viii) What is laughing gas? How is it prepared?
- (ix) Define leaving group. Give some examples.
- (x) Convert C_2H_5MgBr into ethane.
- (xi) What are fertilizers? Why they are needed?
- (xii) Mention raw materials used for cement.

4. Write short answers to any SIX (6) questions :

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- (i) Define the terms : (a) Coordination sphere. (b) Ligand.
- (ii) Give the systematic names to following complexes :
(a) $[Fe(H_2O)_6]^{2+}$ (b) $Na_3[CoF_6]$
- (iii) What is sacrificial corrosion?
- (iv) How will you distinguish between alcohol and phenol?
- (v) How will you convert methanol into ethanol?

(2)

4. (vi) Why ethanol has higher boiling point than diethyl ether?
(vii) How are ketones oxidized by $K_2Cr_2O_7 / H_2SO_4$?
(viii) Give the mechanism of addition of HCN to acetone.
(ix) What is the strecker's synthesis?

SECTION – II

Note : Attempt any **THREE** questions.

5. (a) Describe the metallic and non-metallic character of elements in the modern periodic table. 4
(b) How is sodium metal prepared by Down's cell? Explain it. 4
6. (a) Give any four applications of noble gases. 4
(b) What is setting of cement? Give the reaction taking place in 1st 24 hours. 1,3
7. (a) What is functional group? Give three examples of oxygen containing functional groups. 4
(b) Explain Friedel-Crafts alkylation of benzene alongwith its mechanism. 4
8. (a) What is polymerization? Describe the linear and cyclic polymerization of alkynes. 1,3
(b) By using Grignard reagent prepare : (i) Primary alcohol. (ii) Carboxylic acids. 2,2
9. (a) Describe mechanism of reaction of aldehyde (having no α -hydrogen) in which both oxidation and reduction takes place simultaneously. 4
(b) Write the mechanism of ester formation by using carboxylic acid and ethanol. 4

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