

SECTION – I

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

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- (i) Write down the chemistry of borax bead test.
- (ii) Draw the electronic structure of CO and CO₂.
- (iii) How will you convert boric acid into borax?
- (iv) Convert benzene into glyoxal.
- (v) Mention the product when phenol is distilled with Zn dust by giving reaction.
- (vi) Give two uses of silicones.
- (vii) Define saponification number.
- (viii) How polyvinyl acetate is formed? Write its equation.
- (ix) Draw the structure of cholesterol.
- (x) Write down the equation, when suspended impurities are removed in the colloidal form in raw water.
- (xi) Define acid rain.
- (xii) Mention the hazards of chloroform.

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

16

- (i) Give the two reactions for the preparation of N₂O.
- (ii) Write down four uses of HNO₃.
- (iii) Give the reactions of H₂SO₄ with : (a) NaCl (b) KNO₃
- (iv) Convert CH₄ into formaldehyde by catalytic oxidation.
- (v) Define Markownikov's rule. Give an example.
- (vi) Prepare ozonide from ethene.
- (vii) Name two main factors which govern reactivity of R-X bond in alkyl halides.
- (viii) Define nucleophile. Give two examples.
- (ix) What is vital force theory?
- (x) What are heterocyclic organic compounds? Give two examples.
- (xi) Write down four essential qualities of a good fertilizer.
- (xii) Write down two chemical reactions involved in the preparation of urea.

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

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- (i) Complete and balance the following chemical equation :

$$KMnO_4 + FeSO_4 + H_2SO_4 \rightarrow$$
- (ii) Give systematic names of the following :
 (a) K₂[Cu(CN)₄] (b) K₂[PtCl₄]
- (iii) What is meant by "central metal ion"? Explain with one example.
- (iv) How are ethene and diethyl ether produced from ethyl alcohol?
- (v) Explain Lucas test.

(Turn Over)

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4. (vi) Give reactions of phenol with : (a) Bromine water. (b) Conc. H_2SO_4
(vii) What is Benedict's solution test? Give reaction.
(viii) How does hydrazine react with acetone?
(ix) Write reaction between acetic acid and ammonia for the formation of amide.

SECTION – II

Note : Attempt any **THREE** questions.

5. (a) Define hydration energy. Give its trend in the periodic table. 4
(b) Explain peculiar behaviour of Beryllium. 4
6. (a) What happens when bleaching powder reacts with the following reagents : 1,1,1,1
(i) dil. H_2SO_4 (ii) Excess of conc. H_2SO_4 (iii) NH_3 (iv) CO_2
(b) How is urea manufactured in Pakistan? Describe in detail. 4
7. (a) What is orbital hybridization? Explain the geometry of ethyne by sp hybridization. 4
(b) Explain Friedel-Crafts acylation of benzene along with its mechanism. 4
8. (a) How can ethyne be converted into : (i) Oxalic acid. (ii) Acetaldehyde. 2,2
(b) Discuss S_N1 mechanism for nucleophilic substitution reaction of alkyl halide. 4
9. (a) Discuss the oxidation of ketones and aldehydes in detail. 4
(b) How can you prepare the following from ethanoic acid : 1,1,1,1
(i) Ethyl alcohol. (ii) Ethane. (iii) Sodium acetate. (iv) Acetic anhydride.

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