Roll No. _____ (To be filled in by the candidate)

(Academic Sessions 2019 – 2021 to 2021 – 2023)

CHEMISTRY 223-1st Annual-(INTER PART – II) Time Allowed : 20 Minutes

Q.PAPER – II (Objective Type) GROUP – I Maximum Marks : 17

PAPER CODE = 8487 LHR-12-1-23

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	Which of these polymers is an addition polymer : (A) Nylon – 6,6 (B) Polystyrene (C) Terylene (D) Epoxy resin
2	Vinyl acetylene combines with $HC\ell$ to form : (A) Polyacetylene (B) Benzene (C) Chloroprene (D) Divinyl acetylene
3	The anhydride of $HC\ell O_4$ is : (A) $C\ell O_3$ (B) $C\ell O_2$ (C) $C\ell_2O_5$ (D) $C\ell_2O_7$
4	According to Lewis concept ethers behave as : (A) Acid (B) Base (C) Acid as well as base (D) None of these
5	Benzene can not undergo : (A) Substitution reaction (B) Addition reaction (C) Oxidation reaction (D) Elimination reaction
6	Which of the following sulphate is not soluble in water : (A) Sodium sulphate (B) Potassium sulphate (C) Zinc sulphate (D) Barium sulphate
7	Phenol-formaldehyde resin is called : (A) Bakelite (B) Teflon (C) Orlon (D) Terylene
8	The state of hybridization of carbon atom in methane is : (A) sp^3 (B) sp^2 (C) sp (D) dsp^2
9	Which test is applied to detect amino acids : (A) Fehling's test (B) Iodoform test (C) Ninhydrin test (D) Sodium nitroprusside test
10	The oxides of metals are : (A) Acidic (B) Basic (C) Amphoteric (D) Neutral
11	Which one of the following is not nucleophile : (A) H_2O (B) H_2S (C) BF_3 (D) NH_3
12	Tincal is a mineral of : (A) Aℓ (B) B (C) Si (D) C
13	Which is not a calcarious material : (A) Lime (B) Clay (C) Marble (D) Marine shell
14	The carbon atom of a carboxyl group is : (A) sp - hybridized (B) sp^2 - hybridized (C) sp^3 - hybridized (D) None of these
15	The residence time of NO in atmosphere is : (A) One day (B) Two days (C) Three days (D) Four days
16	A double bond consists of : (A) Two sigma bonds (B) One sigma and one pi bond (C) One sigma and two pi bonds (D) Two pi bonds
17	Laughing gas is chemically : (A) NO (B) N_2O (C) NO_2 (D) N_2O_4

Roll No _____ (To be filled in by the candidate)

(Academic Sessions 2019 – 2021 to 2021 – 2023)

CHEMISTRY 223-1st Annual-(INTER PART – II) Time Allowed : 2.40 hours

PAPER – II (Essay Type) GROUP – I Maximum Marks : 68

SECTION – I L HR-12-1-23

2. Write short answers to any EIGHT (8) questions : **16**

(i) Write down the chemistry of borax bead test.

(ii) Draw the electronic structure of CO and CO_2.

(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 N_2O.

(ii) Write down four uses of HNO_3.

(iii) Give the reactions of H_2SO_4 with : (a) $NaC\ell$ (b) KNO_3

(iv) Convert CH_4 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 : **12**

(i) Complete and balance the following chemical equation :
$KMnO_4 + FeSO_4 + H_2SO_4 \rightarrow$

(ii) Give systematic names of the following :
(a) $K_2[Cu(CN)_4]$ (b) $K_2[PtC\ell_4]$

(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.

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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.