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

(Academic Sessions 2018 – 2020 to 2020 – 2022)

CHEMISTRY 222-(INTER PART – II) Time Allowed : 20 Minutes

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

PAPER CODE = 8485

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 one of the following is not a nucleophile :			
	(A) H_2O	(B) H_2S	(C) BF_3	(D) NH_3
2	Which of following is a typical transition element :			
	(A) Sc	(B) Y	(C) Ra	(D) Co
3	Acetic acid is manufactured by :			
	(A) Distillation	(B) Fermentation	(C) Ozonolysis	(D) Esterification
4	Chile saltpetre has the chemical formula :			
	(A) $NaNO_3$	(B) KNO_3	(C) $Na_2B_4O_7$	(D) Na_2CO_3
5	Ozone layer is present in range of :			
	(A) 0 – 5 km	(B) 10 – 15 km	(C) 15 – 25 km	(D) 25 – 28 km
6	Formula of chloroform is :			
	(A) CH_3Cl	(B) CCl_4	(C) CH_2Cl_2	(D) $CHCl_3$
7	Laughing gas is chemically :			
	(A) NO	(B) N_2O	(C) NO_2	(D) N_2O_4
8	Which among following oxides is amphoteric :			
	(A) Na_2O	(B) MgO	(C) SO_3	(D) ZnO
9	Which compound is called a universal solvent :			
	((A) H_2O	(B) CH_3OH	(C) C_2H_5OH	(D) $CH_3 - O - CH_3$
10	Which is not a calcarious material :			
	(A) Lime	(B) Clay	(C) Marble	(D) Marine shell
11	The electrophile in aromatic sulphonation is :			
	(A) H_2SO_4	(B) HSO_4^-	(C) SO_3	(D) SO_3^+
12	The anhydride of $HClO_4$ is :			
	(A) ClO_3	(B) ClO_2	(C) Cl_2O_5	(D) Cl_2O_7
13	Residence time of NO in atmosphere is :			
	(A) 1 day	(B) 2 days	(C) 3 days	(D) 4 days
14	The state of hybridization of carbon atom in methane is :			
	(A) sp^3	(B) sp^2	(C) sp	(D) dsp^2
15	Tincal is a mineral of :			
	(A) Al	(B) B	(C) Si	(D) C
16	The carbon atom of a carboxyl group is :			
	(A) sp hybridized	(B) sp^2 hybridized		
	(C) sp^3 hybridized	(D) sp^3d^2 hybridized		
17	The reaction between fat and NaOH is called :			
	(A) Esterification	(B) Hydrogenolysis	(C) Fermentation	(D) Saponification

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

(Academic Sessions 2018 – 2020 to 2020 – 2022)

CHEMISTRY 222-(INTER PART – II) Time Allowed : 2.40 hours

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

SECTION – I

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

(i) Lanthanide contraction controls the atomic sizes of elements of 6^{th} and 7^{th} periods. Give reason.

(ii) Explain the variations in melting points along the short periods.

(iii) Why is the aqueous solution of Na_2CO_3 alkaline in nature? Give reaction only.

(iv) What happens when LiOH is heated to red hot? Give reaction.

(v) How does boric acid react with : (a) Ethyl alcohol (b) Na_2CO_3

(vi) Give chemistry of borax-bead test.

(vii) Name the allotropes of phosphorus. How red phosphorus is prepared?

(viii) Give the reaction of phosphorus with : (a) Thionyl chloride (b) $C\ell_2(g)$

(ix) Briefly discuss the property of paramagnetism in transition elements compounds.

(x) What are : (a) Interstitial compounds. (b) Substitutional alloys.

(xi) Briefly discuss the digestion process in paper manufacturing.

(xii) Discuss the reactions taking place in first 24 hours of setting of cement.

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

(i) Why HF is weaker acid than HCℓ?

(ii) What are freons and teflon?

(iii) Discuss carbonization of coal.

(iv) Define functional group. Give one example.

(v) Why is sigma bond inert?

(vi) Discuss hydroxylation of ethene.

(vii) How is water added to propyne? Write reaction.

(viii) How are tetramethyl and tetraethyl lead prepared?

(ix) How can 1-chloropropane be converted to propene?

(x) Define polysaccharides, also give example.

(xi) Differentiate between DNA and RNA.

(xii) What is hardening of oils? Give reaction.

4. Write short answers to any SIX (6) questions : **12**

(i) What is Wurtz-Fitting reaction.

(ii) What are polycyclic aromatic hydrocarbons? Give two examples.

(iii) Convert phenol into : (a) 2, 4, 6 tribromophenol (ii) Cyclohexanol.

(iv) Write equations for the preparation of ethanol by the fermentation of Molasses.

(v) What is iodoform test?

(Turn Over)

4. (vi) Convert acetylene into acetic acid.

(vii) Write down the structural formulas of Glycine and Alanine amino acids.

(viii) How detergents are threat to aquatic animal life?

(ix) Write down the four harmful effects of acid rain.

SECTION – II

Note : Attempt any THREE questions.

5. (a) Write down two points of similarities and two points of differences between hydrogen and halogen (VII A) 4

(b) Give one method for the preparation of H_3BO_3. How does it react with : 4

(i) NaOH (ii) Na_2CO_3 (iii) C_2H_5OH

6. (a) Discuss hard finish plasters and cement plaster. 4

(b) How steel is manufactured by Bessemer process. 4

7. (a) Discuss structure of ethyne on the basis of sp-hybridization. 4

(b) Convert ethyl bromide into : 4

(i) Ethane. (ii) Propane. (iii) Ethyl alcohol (iv) n-Butane

8. (a) Give the reaction of ethene with (i) H_2SO_4 (ii) O_3 (iii) HOX (iv) Br_2 4

(b) Describe the various tests for identification of carboxyl compounds (Any four). 4

9. (a) Write the mechanism of nitration and sulphonation of benzene. 4

(b) Describe the two reactions of alcohol and phenol in which " O – H " bond break. 4