1222 **Warning:- Please write your Roll No. in the space provided and sign. Roll No----------**

(Inter Part – II) **(Session 2018-20 to 2020-22)** **Sig. of Student ----------**

Chemistry (Objective) **Group – I** SGD-41-22 **Paper (II)**

Time Allowed:- 20 minutes **PAPER CODE 4485** **Maximum Marks:- 17**

Note:- You have four choices for each objective type question as A, B, C and D. The choice which you think is correct; fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question. Write **PAPER CODE, which is printed on this question paper,** on the both sides of the Answer Sheet and fill bubbles accordingly, otherwise the student will be responsible for the situation. Use of Ink Remover or white correcting fluid is not allowed.

Q.1

1) Major source of acid deposition in atmosphere is
   (A) SO (B) SO_2 (C) SO_3 (D) N_2O
2) Residence time of NO in atmosphere is
   (A) 1 day (B) 2 days (C) 3 days (D) 4 days
3) Which among the following has highest value of heat of hydration
   (A) Li^+ (B) K^+ (C) Mg^{2+} (D) Al^{3+}
4) Down's cell is used to prepare
   (A) Sodium carbonate (B) Sodium bicarbonate (C) Sodium metal (D) Sodium hydroxide
5) Which element forms an ion with charge +3
   (A) Be (B) Al (C) C (D) Si
6) Oxidation of NO in air produces
   (A) N_2O (B) N_2O_3 (C) N_2O_4 (D) N_2O_5
7) Which is the strongest Acid?
   (A) HClO (B) $HClO_2$ (C) $HClO_3$ (D) $HClO_4$
8) Which of following is a typical transition metal?
   (A) Sc (B) Y (C) Ra (D) Co
9) Which set of hybrid orbitals have planar triangular shape
   (A) sp^3 (B) sp^2 (C) sp (D) dsp^2
10) $\beta - \beta'$ – dichloroethyl sulphide is commonly known as
   (A) Mustard gas (B) Laughing gas (C) Phosgene gas (D) Bio-gas
11) Aromatic hydrocarbons are derivatives of
   (A) Normal series of paraffins (B) Alkene (C) Benzene (D) Cyclohexane
12) Which one of following is not a nucleophile.
   (A) H_2O (B) H_2S (C) BF_3 (D) NH_3
13) Rectified spirit contains ethyl alcohol about.
   (A) 80% (B) 85% (C) 90% (D) 95%
14) The Carbon atom of carbonyl group is
   (A) sp hybridized (B) sp^2 hybridized (C) sp^3 hybridized (D) dsp^2 hybridized
15) The solution of which acid is used for seasoning of food
   (A) HCOOH (B) CH_3COOH (C) C_6H_5COOH (D) $CH_3CH_2CH_2COOH$
16) Which is synthetic polymer?
   (A) Animal fat (B) Starch (C) Cellulose (D) Polyester
17) For which crop ammonium nitrate fertilizer is not used?
   (A) Cotton (B) Wheat (C) Sugar Cane (D) Paddy rice

Warning:- Please, do not write anything on this question paper except your Roll No.

1222 (Inter Part - II) **(Session 2018-20 to 2020-22)**

Chemistry (Subjective) **(Group I)** **Paper (II)**

Time Allowed: 2.40 hours **Maximum Marks: 68**

Section ---------- I SGD - G1-22

2. Answer briefly any Eight parts from the followings:- **8 × 2 = 16**

(i) Why d and f block elements are called transition elements?

(ii) Why metallic character increases from top to bottom in group of metals?

(iii) What happens when **(a)** Beryllium is treated with sodium hydroxide. **(b)** Lithium hydride is treated with water.

(iv) BeO is Amphoteric oxide. Justify with two reactions.

(v) Write down any four uses of Aluminium. **(vi)** Write down any two uses of boric acid.

(vii) Write down the reaction of HNO_3 with **(a)** CaO **(b)** Na_2CO_3

(viii) H_2SO_4 act as oxidizing agent. Justify with two reactions.

(ix) What are Chelates. Give one example. **(x)** What are substitutional alloys. Give one example.

(xi) Write down the name of Non-woody raw materials.

(xii) Write down the reactions taking place in first 24-hours during setting of cement.

3. Answer briefly any Eight parts from the followings:- **8 × 2 = 16**

(i) Why iodine exists in solid state among the halogen.

(ii) Give four uses of Noble gases. **(iii)** What is vital force theory. How it was rejected.

(iv) Why there is restricted rotation about the double bond.

(v) What is ozonolysis. Give reaction. **(vi)** Alkene is more reactive than alkane. Give reason.

(vii) What are Monohaloalkane. Give example. **(viii)** Define β – elimination with example.

(ix) Define degree of Polymerization with example.

(x) How Nylon 6,6 is prepared? **(xi)** What is denaturation of protein.

(xii) Give any four uses of Ethene.

4. Answer briefly any Six parts from the followings:- **6 × 2 = 12**

(i) How n-hexane and n-heptane can give Benzene and Toluene respectively?

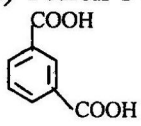
(ii) How will you prepare m-chloronitrobenzene from benzene in two steps.

(iii) Why absolute alcohol can not be prepared by fermentation process.

(iv) Convert Ethanol into methanol.

(v) How does formaldehyde reacts with? (a) Tollen's Reagent. (b) Fehling Solution.

(vi) Name the following by IUPAC System.

(a) $HCOO\,CH_2.CH_2.CH_3$ (b) 

(vii) How will you convert. $CH_3COOH \longrightarrow CH_4$

(viii) Describe the term chemical oxygen demand (COD).

(ix) How leather Tanneries are polluting water?

Section ---------- II

Note: Attempt any three questions. **(8 × 3 = 24)**

5. (a) Discuss two similarities and two differences of hydrogen with group IV-A elements.

(b) Discuss four prints regarding the peculiar behaviour of boron.

6. (a) Describe with diagram the manufacture of sodium by Down's Cell.

(b) Explain the following properties of transition elements.
(i) Binding energy (ii) Oxidation state

7. (a) Define hybridization. Discuss the structure of Ethyne on the basis of 'sp' hybridization.

(b) Write a note on mechanism of Bi molecular substitution reaction (S_N2).

8. (a) How does acetylene react with following (i) HBr (ii) NH_3 (iii) HCN (iv) O_2

(b) Write reactions of formaldehyde with following compounds.
(i) HCN (ii) conc. NaOH (iii) $NaHSO_3$ (iv) $K_2Cr_2O_7/H_2SO_4$

9. (a) Straight Chain structure of Benzene is ruled out. Give the reasons.

(b) Give the two methods for the preparation of Phenol.

1222 **Warning:- Please write your Roll No. in the space provided and sign. Roll No----------**

(Inter Part – II) **(Session 2018-20 to 2020-22)** **Sig. of Student ----------**

Chemistry (Objective) **Group – II** 540-42-22 **Paper (II)**

Time Allowed:- 20 minutes **PAPER CODE 4482** **Maximum Marks:- 17**

Note:- You have four choices for each objective type question as A, B, C and D. The choice which you think is correct; fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question. Write **PAPER CODE, which is printed on this question paper,** on the both sides of the Answer Sheet and fill bubbles accordingly, otherwise the student will be responsible for the situation. Use of Ink Remover or white correcting fluid is not allowed.

Q.1

1) The most non-metallic element of the periodic table is
(A) Nitrogen (B) Fluorine (C) Oxygen (D) Carbon

2) The mineral ($CaSO_4.2H_2O$) has the general name.
(A) Gypsum (B) Dolomite (C) Calcite (D) Epsom Salt

3) Which metal is used in thermite process because of its reactivity?
(A) Iron (B) Copper (C) Aluminium (D) Zinc

4) Laughing gas is chemically.
(A) NO (B) N_2O_4 (C) N_2O_3 (D) N_2O

5) Which halogen occurs naturally in a positive oxidation state?
(A) Fluorine (B) Chlorine (C) Bromine (D) Iodine

6) Coordination number of Ni in $[Ni(CO)_4]$ is
(A) 2 (B) 4 (C) Zero (D) 6

7) The chemist who synthesized Urea from ammonium cyanate was
(A) Wholer (B) Kolbe (C) Berzelius (D) Lavoisier

8) Which of the following gases is used for artificial ripening of fruits?
(A) Ethane (B) Methane (C) Ethene (D) Propene

9) Benzene cannot undergo reactions.
(A) Substitution (B) Addition (C) Oxidation (D) Elimination

10) Which one of the following is not a nucleophile?
(A) BF_3 (B) H_2O (C) H_2S (D) NH_3

11) Rectified spirit contains ethyl alcohol about
(A) 80% (B) 85% (C) 90% (D) 95%

12) Which of the following reagents will react with both aldehydes and Ketones?
(A) Grignard reagent (B) Tollen's reagent (C) Fehling's reagent (D) Benedict's reagent

13) Acetic acid is manufactured by
(A) Distillation (B) Fermentation (C) Hydrolysis (D) Esterification

14) Which of the following polymers is a synthetic polymer?
(A) Animal Fat (B) Starch (C) Polyester (D) Cellulose

15) Micro-nutrients are required in quantity ranging from
(A) 6-200 g (B) 6-200 Kg (C) 4-40 g (D) 4-40 Kg

16) Newspaper can be recycled again and again by how many times?
(A) 03 (B) 04 (C) 05 (D) 06

17) Pesticides used to Kill the undesired plants are called
(A) Fungicides (B) Herbicides (C) Insecticides (D) Biocides

BLANK

Warning:- Please, do not write anything on this question paper except your Roll No.

1222 (Inter Part - II) **(Session 2018-20 to 2020-22)**

Chemistry (Subjective) **(Group II)** **Paper (II)**

Time Allowed: 2.40 hours SGD-92-22 **Maximum Marks: 68**

Section ---------- I

2. Answer briefly any Eight parts from the followings:- **8 × 2 = 16**

(i) Why diamond is a non-conductor and graphite is fairly a good conductor?
(ii) Why d and f-block elements are called transition elements.
(iii) How is gypsum converted into plaster of paris? **(iv)** Why is 2% gypsum added in the Cement?
(v) Give the names and the formulas of different acids of boron.
(vi) How does borax serve as a water softening agent? **(vii)** Write any four uses of nitric acid.
(viii) P_2O_5 is a powerful dehydrating agent prove it giving example.
(ix) Under what conditions does aluminium corrode? **(x)** What are interstitial compounds?
(xi) Write down the essential qualities of a good fertilizer?
(xii) What are Macronutrients? Give example.

3. Answer briefly any Eight parts from the followings:- **8 × 2 = 16**

(i) Name the two oxides of Xenon and fluoride of Xenon. **(ii)** What is iodized salt?
(iii) Write the name and general formula of the carbonyl containg functional groups. Give two examples.
(iv) Write the name and formula of any two fused ring aromatic compounds.
(v) Differentiate between Clemmensen and Wolf Kishner reduction.
(vi) How acetylene is converted to divinyl acetylene? **(vii)** What is Lindlar catalyst? For which purpose it is used?
(viii) How Grignard reagent react with propanone? **(ix)** What type of reactions shown by the alkyl Halides?
(x) What is condensation polymerization? **(xi)** What are the Lipids? Write two Characteristics.
(xii) How will you prepare soap?

4. Answer briefly any Six parts from the followings:- **6 × 2 = 12**

(i) Define resonance and resonance energy.
(ii) What is Wurtz Fittig reaction.
(iii) How does diethyl ether react with (a) HI (b) PCl_5
(iv) Prepare ethanol by fermentation of molasses.
(v) Define aldol condensation, give an example.
(vi) Write names of four neutral amino acids.
(vii) Write names of esters having following flavour (a) Banana (b) Jasmine
(viii) Write two reactions for formation of acid rain.
(ix) How does Livestock waste cause water pollution.

Section ---------- II

Note: Attempt any three questions. **(8 × 3 = 24)**

5. (a) Define heat of hydration. Explain with one example. Also mention the factor affecting it.
(b) Write down eight uses of Aluminium.

6. (a) Give the role of Gypsum in industries.
(b) How Wrought Iron is manufactured from Cast Iron by Puddling? Explain.

7. (a) Write note on Reforming of Gasoline.
(b) Write reactions of Grignard's reagent with following (i) H_3CCH_2OH (ii) CO_2 (iii) ClCN (iv) H_2O

8. (a) Describe the Kolbe's Electrolytic method for the preparation of ethyne along with mechanism.
(b) Write down the reaction of Acetaldehyde with hydrogen cyanide (HCN) along with Mechanism.

9. (a) Explain the structure of Benzene on the basis of atomic orbital Treatment.
(b) Write down the reactions of ethanol with following
(i) $SOCl_2$ (ii) NH_3 (iii) CH_3COOH (iv) Na

1222 -- 1222-- 17000