

SGD-12-1-23

1223 Warning:- Please write your Roll No. in the space provided and sign. Roll No.....
(Inter Part - II) (Session 2019-21 to 2021-23) Sig. of Student

Chemistry (Objective)

Group - I

Paper (II)

PAPER CODE 4483

Maximum Marks:- 17

Time Allowed:- 20 minutes

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) Vinyl acetylene combines with HCl to form:
(A) Polyacetylene (B) Benzene (C) Chloroprene (D) Divinyl acetylene
- 2) Which statement is correct?
(A) Metallic Character increases down the group (B) Metallic character increases from left to right along a period (C) Metallic character remains the same from left to right along a period (D) Metallic character remains the same down the group
- 3) Which of the following is not soluble in water:
(A) Sodium Sulphate (B) Potassium Sulphate (C) Zinc Sulphate (D) Barium Sulphate
- 4) Boric acid cannot be used:
(A) As antiseptic in medicine (B) For washing eyes (C) In soda bottles (D) For enamels and glazes
- 5) SO_3 is not absorbed in water directly to form H_2SO_4 because:
(A) The reaction does not go to completion (B) The reaction is quite slow (C) The reaction is highly exothermic (D) SO_3 is insoluble in water
- 6) Bleaching powder may be produced by passing chlorine over:
(A) Calcium carbonate (B) Hydrated calcium sulphate (C) Anhydrous calcium sulphate (D) Calcium hydroxide.
- 7) Coordination number of Pt in $[Pt Cl (NO_2) (NH_3)_4]$ is:
(A) 2 (B) 4 (C) 1 (D) 6
- 8) Absolute alcohol can be obtained by redistillation of rectified spirit in the presence of:
(A) Na_2O (B) CuO (C) Ag_2O (D) CaO
- 9) Aromatic compounds burn with sooty flame because:
(A) They have high percentage of hydrogen (B) They have a ring structure (C) They have high percentage of carbon (D) They resist reaction with air.
- 10) The rate of E1 reaction depends upon:
(A) The concentration of substrate (B) The concentration of nucleophile (C) The concentration of substrate as well as Nucleophile (D) The concentration of eliminated group
- 11) Linear shape is associated with which set of hybrid orbital?
(A) sp (B) sp^2 (C) sp^3 (D) dsp^2
- 12) Which compound shows maximum hydrogen bonding with water:
(A) CH_3OH (B) $C_5H_{11}OH$ (C) CH_3-O-CH_3 (D) C_6H_5OH
- 13) Iodoform is prepared by the reaction of Iodine with:
(A) Acetic acid (B) Formic acid (C) Acetone (D) Diethyl ether
- 14) Methyl Magnesium bromide combine with CO_2 to form
(A) Ethyl alcohol (B) Diethyl ether (C) Acetic acid (D) Acetone
- 15) Oils are glycerol esters which contain higher proportion of:
(A) Unsaturated hydro carbons components (B) Saturated hydro carbons components (C) Unsaturated fatty acid components (D) Saturated fatty acid components
- 16) Urea is a high quality nitrogeous fertilizer. It contains about:
(A) 60% Nitrogen (B) 70% Nitrogen (C) 46% Nitrogen (D) 20% Nitrogen
- 17) Methane has a mean residence time of about years in the atmosphere:
(A) 2-5 years (B) 1-2 years (C) 3-7 years (D) 4-6 years

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1223 (Inter Part - II) (Session 2019-21 to 2021-23)

Chemistry (Subjective)

(Group I)

Paper (II)

Time Allowed: 2.40 hours

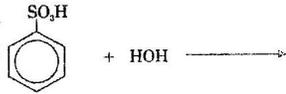
SGD-12-1-23

Maximum Marks: 68

Section ----- I

2. Answer briefly any Eight parts from the followings:-

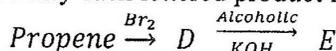
8 × 2 = 16

- (i) Give equation when borax is heated with NH₄Cl (ii) What is COD? Give its significance.
(iii) Give any four uses of Aluminium. (iv) Give the names and formulas of acids of Boron.
(v) What is Wurtz-Fittig reaction? (vi) Convert toluene into benzoic acid.
(vii) Give the importance of Lipids. (Four points). (viii) Complete the reaction:  + HOH →
(ix) What are isomerase enzymes? Give one example.
(x) Differentiate between DNA and RNA. (Two points). (xi) How water is purified by aeration? Discuss.
(xii) Give the role of atmosphere gases for sustaining life on earth.

3. Answer briefly any Eight parts from the followings:-

8 × 2 = 16

- (i) Why there is no free rotation around a double bond and a free rotation around a single bond?
(ii) How wood is transformed into coal? (iii) Identify each lettered product in the following reaction.



- (iv) Write the test to check unsaturation in the unsaturated hydrocarbons.
(v) Give two uses of ethyne. (vi) Why does aqua regia dissolve gold?
(vii) P₂O₅ is a powerful dehydrating agent. Prove it giving two examples.
(viii) Describe "Ring test" for the confirmation of presence of nitrate ions in solution.
(ix) What is β-elimination reaction? Give example.
(x) Give IUPAC names of the following compounds: a) (CH₃)₂CHBr b) CH₂Cl₂
(xi) Name three principle methods of chemical pulping of paper.
(xii) Write names of four argillaceous raw materials used in manufacture of cement?

4. Answer briefly any Six parts from the followings:-

6 × 2 = 12

- (i) Describe chromyl chloride test. Write its equation.
(ii) Why does damaged tin plated iron get rusted quickly?
(iii) What are chelates? Give an example. (iv) Convert acetaldehyde into lactic acid.
(v) Ethanol gives different products with Conc. H₂SO₄ under different conditions. Write equations.
(vi) How is Bakelite prepared? Give its equation.
(vii) Write two reactions of ethanol involving the cleavage of O-H bond.
(viii) What is Fehling's solution test? Write its chemical equation.
(ix) How does CH₃COOH react with NaOH and NaHCO₃?

Section ----- II

(8 × 3 = 24)

Note: Attempt any three questions.

5. (a) What are Halides? Name their types by giving two properties of each type.
(b) How do carbonates and nitrates of Li differ from those of other Alkali metals.
6. (a) Write down the construction and working of Beckmann's method for manufacturing of bleaching powder.
(b) What is meant by "setting of cement". Describe the reactions involved in setting of cement during 1 to 7 days.
7. (a) What is hybridization? Describe the hybridization to explain the structure of alkynes in detail.
(b) Describe the mechanism of: (i) Halogenation of benzene. (ii) Sulphonation of benzene
8. (a) Describe the mechanism of Kolbe's electrolytic method for the preparation of alkyne.
(b) By using Grignard reagent prepare:
(i) Primary alcohol (ii) Secondary alcohol (iii) Ter. alcohol (iv) Alkane
9. (a) Explain the mechanism of the reaction of phenylhydrazine with acetone.
(b) Write down the mechanism of acetic acid and ammonia.

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(Inter Part – II)

(Session 2019-21 to 2021-23)

Sig. of Student -----

Chemistry (Objective) *SGD-12-2-23* Group – II

Paper (II)

Time Allowed:- 20 minutes

PAPER CODE 4488

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) An element that has a high ionization energy and tends to be chemically inactive would most likely to be:
(A) An alkali metal (B) A transition element (C) A noble gas (D) A halogen
- 2) Group VI-B transition elements contains:
(A) Zn, Cd, Hg (B) Fe, Ru, Os (C) Cr, Mo, W (D) Mn, Te, Re
- 3) In t-butyl alcohol, the tertiary carbon is bonded to:
(A) Two hydrogen atoms (B) Three hydrogen atoms (C) One hydrogen atom (D) No hydrogen atom
- 4) Keeping in view the size of atoms, which order is the correct one?
(A) Mg > Sr (B) Ba > Mg (C) Lu > Ce (D) Cl > I
- 5) Which ion will have the maximum value of heat of hydration?
(A) Na⁺ (B) Cs⁺ (C) Ba²⁺ (D) Mg²⁺
- 6) Which element belongs to Group IV-A of the periodic table?
(A) Barium (B) Iodine (C) Lead (D) Oxygen
- 7) Laughing gas is chemically.
(A) NO (B) N₂O (C) NO₂ (D) N₂O₄
- 8) Formula of chloroform is:
(A) CH₃Cl (B) CCl₄ (C) CH₂Cl₂ (D) CHCl₃
- 9) Select the one which is a copolymer?
(A) Polythene (B) Polystyrene (C) Polyvinyl acetate (D) Nylon-6,6
- 10) Which one is frequently used to disinfect water?
(A) Sodium chloride (B) Hydrochloric acid (C) Chlorine (D) Sodium hydroxide
- 11) Diammonium phosphate fertilizer contains how much percentage of nitrogen?
(A) 48% (B) 16% (C) 75% (D) 46%
- 12) During nitration of benzene, the active nitrating agent is:
(A) NO₃ (B) NO₂⁺ (C) NO₂ (D) HNO₃
- 13) The rate of E1 reaction depends upon:
(A) The concentration of substrate (B) The concentration of nucleophile (C) The concentration of substrate as well as nucleophile (D) None of the above
- 14) Rectified spirit contains ethyl alcohol about
(A) 80% (B) 85% (C) 90% (D) 95%
- 15) Which one is not an alcohol?
(A) CH₃OH (B) CH₃CH₂OH (C) CH₃CH₂CH₂OH (D) CH₃COOH
- 16) Primary alcohols are formed when Grignard's reagent reacts with:
(A) Formaldehyde (B) Acetaldehyde (C) Acetone (D) Water
- 17) Acetic acid exists as _____ in benzene:
(A) A dimer (B) A trimer (C) A monomer (D) A tetramer

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1223 (Inter Part - II) (Session 2019-21 to 2021-23)

Chemistry (Subjective)

(Group II)

Paper (II)

Time Allowed: 2.40 hours

Section ----- I

Maximum Marks: 68

2. Answer briefly any Eight parts from the followings:-

8 × 2 = 16

- (i) Give any two points of differences of carbon from its family members.
- (ii) Give chemistry of Borax bead test. (iii) What is chemical garden?
- (iv) Why -CH₃ group direct the incoming substituent at ortho and para position in toluene.
- (v) What is Wurtz-Fittig reaction for preparation of Alkyl aromatic Hydrocarbon.
- (vi) How did Kekule support his theory about structure of benzene? Give two points.
- (vii) What are thermo setting polymers? Give two examples.
- (viii) What do you mean by hydrolysis? Support your answer with hydrolysis of lipids.
- (ix) What are carbohydrates? Name their types. (x) What are conditions for formation of smog?
- (xi) Mention two natural sources for release of methane in air.
- (xii) Give difference between primary and secondary pollutants with one example in each case.

3. Answer briefly any Eight parts from the followings:-

8 × 2 = 16

- (i) What are heterocyclic compounds? Give two examples. (ii) Why are organic reactions slow?
- (iii) What is Markownikov's rule? Give one example (iv) How is acetaldehyde produced from ethyne?
- (v) Why are alkanes called as paraffins? (vi) What is Ring test?
- (vii) Write down any four similarities between oxygen and sulphur. (viii) Write down any four uses of HNO₂
- (ix) How are anti-knocking agents produced from alkyl halides?
- (x) Differentiate between nucleophile and electrophile.
- (xi) Differentiate between micro-nutrients and macro-nutrients?
- (xii) Enlist different stages for manufacturing of cement by wet process?

4. Answer briefly any Six parts from the followings:-

6 × 2 = 12

- (i) How are chromate ions converted into dichromate ions?
- (ii) What will happen when potassium dichromate react with (a) KI (b) FeSO₄
- (iii) Define the co-ordination sphere with one example.
- (iv) Write the two reactions of alcohol in which 'O-H' bond is broken.
- (v) What do you know about Williamson's synthesis?
- (vi) How will you convert methanol into ethanol.
- (vii) Starting from aldehyde prepare Metaformaldehyde and Paraldehyde.
- (viii) Write the Fehling solution test. (ix) Write down the mechanism of the reaction of acetic acid and ammonia.

Section ----- II

(8 × 3 = 24)

Note: Attempt any three questions.

5. (a) What are hydrides? Discuss their classification.
(b) Explain the peculiar behaviour of Lithium (Give eight points).
6. (a) Write down the reactions of chlorine with cold and hot NaOH
(b) What are fertilizers? Write any four essential qualities of good fertilizer.
7. (a) Define orbital hybridization. Explain sp² hybridization with the structure of ethene.
(b) What is Friedal Crafts acylation? Explain its mechanism.
8. (a) Write structural formulae of the following compounds.
(i) 3-Ethylpentane. (ii) 2,2,3,4- tetramethyl pentane.
(iii) 2,2-Dimethylbutane. (iv) 4-Ethyl-3,4-dimethylpentane.
(b) Draw eight possible structures that have the molecular formula C₆H₁₃Cl and also classify them.
9. (a) Write a detailed note on Cannizzaro's reaction.
(b) Give the reaction of CH₃COOH with SOCl₂. Also give mechanism.

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1222 (Inter Part - II)

(Session 2018-20 to 2020-22)

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Chemistry (Subjective)

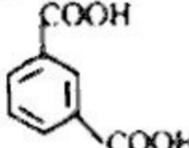
(Group I)

Paper (II)

Time Allowed: 2.40 hours

Maximum Marks: 68

Section ----- I

2. Answer briefly any Eight parts from the followings:- 8 × 2 = 16
- Why d and f block elements are called transition elements?
 - Why metallic character increases from top to bottom in group of metals?
 - What happens when (a) Beryllium is treated with sodium hydroxide. (b) Lithium hydride is treated with water.
 - BeO is Amphoteric oxide. Justify with two reactions.
 - Write down any four uses of Aluminium. (vi) Write down any two uses of boric acid.
 - Write down the reaction of HNO₃ with (a) CaO (b) Na₂CO₃
 - H₂SO₄ act as oxidizing agent. Justify with two reactions.
 - What are Chelates. Give one example. (x) What are substitutional alloys. Give one example.
 - Write down the name of Non-woody raw materials.
 - 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
- Why iodine exists in solid state among the halogen.
 - Give four uses of Noble gases. (iii) What is vital force theory? How it was rejected.
 - Why there is restricted rotation about the double bond.
 - What is ozonolysis. Give reaction. (vi) Alkene is more reactive than alkane. Give reason.
 - What are Monohaloalkane. Give example. (viii) Define β - elimination with example.
 - Define degree of Polymerization with example.
 - How Nylon 6,6 is prepared? (xi) What is denaturation of protein.
 - Give any four uses of Ethene.
4. Answer briefly any Six parts from the followings:- 6 × 2 = 12
- How n-hexane and n-heptane can give Benzene and Toluene respectively?
 - How will you prepare m-chloronitrobenzene from benzene in two steps.
 - Why absolute alcohol can not be prepared by fermentation process.
 - Convert Ethanol into methanol.
 - How does formaldehyde reacts with? (a) Tollen's Reagent. (b) Fehling Solution.
 - Name the following by IUPAC System.
 - HCOO CH₂.CH₂.CH₃
 - 
 - How will you convert. $CH_3COOH \longrightarrow CH_4$
 - Describe the term chemical oxygen demand (COD).
 - How leather Tanneries are polluting water?

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Section ----- II

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(8 × 3 = 24)

Note: Attempt any three questions.

- Discuss two similarities and two differences of hydrogen with group IV-A elements.
 - Discuss four prints regarding the peculiar behaviour of boron.
- Describe with diagram the manufacture of sodium by Down's Cell.
 - Explain the following properties of transition elements.
 - Binding energy
 - Oxidation state
- Define hybridization. Discuss the structure of Ethyne on the basis of 'sp' hybridization.
 - Write a note on mechanism of Bi molecular substitution reaction (S_N2).
- How does acetylene react with following (i) HBr (ii) NH₃ (iii) HCN (iv) O₂
 - Write reactions of formaldehyde with following compounds.
 - HCN^{UF} (ii) conc. NaOH (iii) NaHSO₃ (iv) K₂Cr₂O₇/H₂SO₄
- Straight Chain structure of Benzene is ruled out. Give the reasons.
 - Give the two methods for the preparation of Phenol.

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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.

www.FGSTUDY.com Q.1

- The most non-metallic element of the periodic table is
(A) Nitrogen (B) Fluorine (C) Oxygen (D) Carbon
- The mineral ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) has the general name.
(A) Gypsum (B) Dolomite (C) Calcite (D) Epsom Salt
- Which metal is used in thermite process because of its reactivity?
(A) Iron (B) Copper (C) Aluminium (D) Zinc
- Laughing gas is chemically.
(A) NO (B) N_2O_4 (C) N_2O_3 (D) N_2O
- Which halogen occurs naturally in a positive oxidation state?
(A) Fluorine (B) Chlorine (C) Bromine (D) Iodine
- Coordination number of Ni in $[\text{Ni}(\text{CO})_4]$ is
(A) 2 (B) 4 (C) Zero (D) 6
- The chemist who synthesized Urea from ammonium cyanate was
(A) Wohler (B) Kolbe (C) Berzelius (D) Lavoisier
- Which of the following gases is used for artificial ripening of fruits?
(A) Ethane (B) Methane (C) Ethene (D) Propene
- Benzene cannot undergo reactions.
(A) Substitution (B) Addition (C) Oxidation (D) Elimination
- Which one of the following is not a nucleophile?
(A) BF_3 (B) H_2O (C) H_2S (D) NH_3
- Rectified spirit contains ethyl alcohol about
(A) 80% (B) 85% (C) 90% (D) 95%
- 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
- Acetic acid is manufactured by
(A) Distillation (B) Fermentation (C) Hydrolysis (D) Esterification
- Which of the following polymers is a synthetic polymer?
(A) Animal Fat (B) Starch (C) Polyester (D) Cellulose
- Micro-nutrients are required in quantity ranging from
(A) 6-200 g (B) 6-200 Kg (C) 4-40 g (D) 4-40 Kg
- Newspaper can be recycled again and again by how many times?
(A) 03 (B) 04 (C) 05 (D) 06
- Pesticides used to Kill the undesired plants are called
(A) Fungicides (B) Herbicides (C) Insecticides (D) Biocides

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1222 (Inter Part - II)

(Session 2018-20 to 2020-22)

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Chemistry (Subjective)

(Group II)

Paper (II)

Time Allowed: 2.40 hours

SCD-92-22 Maximum Marks: 68

Section ----- I

2. Answer briefly any Eight parts from the followings:- $8 \times 2 = 16$
- Why diamond is a non-conductor and graphite is fairly a good conductor?
 - Why d and f-block elements are called transition elements.
 - How is gypsum converted into plaster of paris? (iv) Why is 2% gypsum added in the Cement?
 - Give the names and the formulas of different acids of boron.
 - How does borax serve as a water softening agent? (vii) Write any four uses of nitric acid.
 - P_2O_5 is a powerful dehydrating agent prove it giving example.
 - Under what conditions does aluminium corrode? (x) What are interstitial compounds?
 - Write down the essential qualities of a good fertilizer?
 - What are Macronutrients? Give example.
3. Answer briefly any Eight parts from the followings:- $8 \times 2 = 16$
- Name the two oxides of Xenon and fluoride of Xenon. (ii) What is iodized salt?
 - Write the name and general formula of the carbonyl containing functional groups. Give two examples.
 - Write the name and formula of any two fused ring aromatic compounds.
 - Differentiate between Clemmensen and Wolf Kishner reduction.
 - How acetylene is converted to divinyl acetylene? (vii) What is Lindlar catalyst? For which purpose it is used?
 - How Grignard reagent react with propanone? (ix) What type of reactions shown by the alkyl Halides?
 - What is condensation polymerization? (xi) What are the Lipids? Write two Characteristics.
 - How will you prepare soap?
4. Answer briefly any Six parts from the followings:- $6 \times 2 = 12$
- Define resonance and resonance energy.
 - What is Wurtz Fittig reaction.
 - How does diethyl ether react with (a) HI (b) PCl_5
 - Prepare ethanol by fermentation of molasses.
 - Define aldol condensation, give an example.
 - Write names of four neutral amino acids.
 - Write names of esters having following flavour (a) Banana (b) Jasmine
 - Write two reactions for formation of acid rain.
 - How does Livestock waste cause water pollution.

Section ----- II

- Note: Attempt any three questions. $(8 \times 3 = 24)$
- (a) Define heat of hydration. Explain with one example. Also mention the factor affecting it.
(b) Write down eight uses of Aluminium.
 - (a) Give the role of Gypsum in industries.
(b) How Wrought Iron is manufactured from Cast Iron by Puddling? Explain.
 - (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
 - (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.
 - (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

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Chemistry (Objective)

Paper (II)

Time Allowed:- 20 minutes

PAPER CODE 4481

Note:- You have four choices for each objective type question as A, B, C and D. The correct choice is indicated by a circle in front of that question number. Use marker or pen to fill the circles. Cutting or scribbling in that question. Write PAPER CODE, which is printed on this question Answer Sheet and fill bubbles accordingly, otherwise the student will be responsible for any error. Use of white correcting fluid is not allowed.

Maximum Marks:- 17

For each question, mark the correct choice which you think is correct; fill the circle in front of the choice. Marking or filling two or more circles will result in zero mark in that question. Use of Ink Remover or white correcting fluid is not allowed.

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1) Mark the correct statement.

- (A) Na^+ is smaller than Na atom (B) Na^+ is larger than Na atom (C) Cl^- is smaller than Cl atom (D) Cl^- (ion) and Cl (atom) are equal in size

2) Which ion will have the maximum value of heat of hydration.

- (A) Na^+ (B) Cs^+ (C) Ba^{2+} (D) Mg^{2+}

3) Which metal is used in the thermite process because of its reactivity.

- (A) Iron (B) Copper (C) Aluminium (D) Zinc

4) Out of all the elements of group VA the highest ionization energy is possessed by

- (A) N (B) P (C) Sb (D) Bi

5) Which of the following hydrogen halide is the weakest acid in solution

- (A) HF (B) HBr (C) HI (D) HCl

6) Bleaching powder on treatment with dil. H_2SO_4 produces the acid

- (A) HClO (B) HClO_2 (C) HClO_3 (D) HClO_4

7) Which of the following is a non-typical transition element.

- (A) Cr (B) Mn (C) Zn (D) Fe

8) Linear shape is associated with which set of hybrid orbitals.

- (A) sp (B) sp^2 (C) sp^3 (D) dsp^2

9) Preparation of vegetable ghee involves.

- (A) Halogenation (B) Hydrogenation (C) Hydroxylation (D) Dehydrogenation

10) During nitration of Benzene, the active nitrating agent is

- (A) NO_3 (B) NO_2^+ (C) NO_2 (D) HNO_3

11) Elimination bimolecular reaction involves

- (A) First order kinetics (B) Second order kinetics (C) Third order kinetics (D) Zero order kinetics

12) Which compound shows hydrogen bonding

- (A) C_2H_6 (B) $\text{C}_2\text{H}_5\text{Cl}$ (C) $\text{CH}_3\text{-O-CH}_3$ (D) $\text{C}_2\text{H}_5\text{OH}$

13) Cannizzaro's reaction is not given by

- (D) Trimethylacetaldehyde

14) Which of the following compound give Iodoform test.

- (A) Methanal (B) Ethanol (C) 3-pentanone (D) 3-Hexanone

15) Acetic acid is manufactured by

- (A) Distillation (B) Fermentation (C) Ozonolysis (D) Esterification

16) The flavor of amylacetate is

- (A) Orange (B) Apricot (C) Banana (D) Pineapple

17) Which three elements are needed for the healthy growth of plants.

- (A) N,S,P (B) N,Ca,P (C) N,P,K (D) N,K,C

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Q.1

- 1) Which of the following derivative cannot be prepared directly from acetic acid.
(A) Acetamide (B) Acetylchloride (C) Ethylacetate (D) Acetic anhydride
- 2) For which crop ammonium nitrate fertilizer is not used
(A) Cotton (B) Wheat (C) Sugar cane (D) Paddy rice
- 3) Mark the correct statement.
(A) Metallic character increases down the group (B) Metallic character increases from left to right in a period (C) Metallic character remains the same down the group (D) Metallic character remains the same from left to right in a period
- 4) Down's cell is used to prepare
(A) Sodium carbonate (B) Sodium metal (C) Sodium bicarbonate (D) Sodium hydroxide
- 5) Which element forms ion with charge +3
(A) Be (B) Al (C) Si (D) C
- 6) Among group VA elements, the most electronegative element is
(A) Sb (B) N (C) P (D) AS
- 7) Which is the strongest acid in aqueous solution
(A) HClO (B) HClO₃ (C) HClO₂ (D) HClO₄
- 8) The anhydride of HClO₄ is
(A) ClO₂ (B) ClO₃ (C) Cl₂O₃ (D) Cl₂O₇
- 9) Which of the following is a non typical transition element
(A) Cr (B) Mn (C) Zn (D) Fe
- 10) Select from the following the one which is alcohol?
(A) CH₃-CH₂-Br (B) CH₃-CH₂-OH (C) H₃C-O-CH₃ (D) H₃C-COOH
- 11) β, β' - dichloroethyl sulphide is commonly known as
(A) Mustard gas (B) Laughing gas (C) Phosgene gas (D) Bio-gas
- 12) Which one of the following groups is meta director
(A) -OH (B) -NH₂ (C) -NO₂ (D) -OCH₃
- 13) Which one of the following is not a nucleophile?
(A) H₂O (B) H₂S (C) BF₃ (D) NH₃
- 14) Methyl alcohol is not used as
(A) A solvent (B) An anti-freezing agent (C) A substitute for petrol (D) Denaturing agent
- 15) Formalin is
(A) 10 % solution of formaldehyde in water (B) 20 % solution of formaldehyde in water (C) 40 % solution of formaldehyde in water (D) 60 % solution of formaldehyde in water
- 16) Acetone reacts with HCN to form a cyanohydrin is an example of
(A) Electrophilic addition reaction (B) Electrophilic substitution reaction (C) Nucleophilic addition reaction (D) Nucleophilic substitution reaction
- 17) Which acid is used in the manufacture of synthetic fibre.
(A) Malonic acid (B) Acetic acid (C) Oxalic acid (D) Phthalic acid

1279 -- 1221 ALP -- 18000 (3)

6025

Warning:- Please, do not write anything on this question paper except your Roll No.
1221 (Inter Part - II) (Session 2017-19 to 2019-21)

Chemistry (Subjective)
Time Allowed: 2.40 hours

(Group I)
540-I-21

Paper (II)
Maximum Marks: 68

Section ----- I

2. Answer briefly any Eight parts from the followings:- $8 \times 2 = 16$
- The hydration energies of the ions are in the following order. Why? $Al^{+3} > Mg^{+2} > Na^{+1}$
 - Lanthanide contraction controls the atomic sizes of elements of 6th and 7th periods.
 - What is the effect of heat on $CaSO_4 \cdot 2H_2O$?
 - The reaction of alkali metal oxide with water is an acid-base reaction and not an oxidation reduction reaction, why?
 - How carbon differs from remaining members of group IV-A elements.
 - What are the common properties of group IV-A elements. (vii) Give two uses of Boric acid.
 - Give two reactions for the preparation of Dinitrogen oxide (N_2O).
 - Give equation to describe the reaction of NO_2 with H_2S and KI .
 - What is meant by prilling? (xi) Describe the composition of a good portland cement.
 - What are essential nutrient elements and why these are needed for plant growth?
3. Answer briefly any Eight parts from the followings:- $8 \times 2 = 16$
- Why HF is weaker acid than HCl? (ii) Draw Structural formula of OF_2 and O_2F_2 .
 - What is the oxidation state of chlorine in $HClO_4$ and $HClO$?
 - What is Paramagnetism? Give example. (v) Discuss Cathode Coating.
 - Draw resonance Structures of Benzene. (vii) Convert n-Hexane into Benzene.
 - What is the composition of formalin? (ix) How would you differentiate between methanol and Ethanol?
 - How Acetic Acid is prepared from Acetylene?
 - Name the Esters which produce Jasmine and Pineapple flavours.
 - "Boiling point of Carboxylic Acid is relatively high" Justify.
4. Answer briefly any Six parts from the followings:- $6 \times 2 = 12$
- Define functional group, Give one example.
 - Differentiate between catalytic and steam cracking.
 - Discuss reactivity of π - bond.
 - Give mechanism of bromination of ethene.
 - Write industrial preparation of ethyne.
 - Write any four differences between E_1 and E_2 reactions.
 - Define electrophile and nucleophile.
 - Discuss the denaturing of alcohol.
 - How is Bakelite prepared? Give reaction.

Section ----- II

Note: Attempt any three questions.

$(8 \times 3 = 24)$

- (a) Define ionization energy, on what factors it depends. Give its periodic trend.
(b) Describe Commercial preparation of sodium metal by Down's Cell.
- (a) H_2SO_4 is a dehydrating agent and oxidizing agent, prove this truth by giving two examples of each.
(b) Describe following general characteristics of transition elements.
(i) Melting and boiling point. (ii) Covalent and ionic radii
- (a) Explain the Structures of Ethane and ethyne based on hybridization.
(b) What is Cannizarro's reaction? Give its mechanism.
- (a) Give any two methods of preparation of alkene (ethene) and also give two oxidation reactions of ethene.
(b) Differentiate between S_N1 and S_N2 reactions.
- (a) Explain the comparison of reactivities of Alkanes, Alkenes & Benzene.
(b) How will you convert phenol into
(i) Benzene (ii) Picric Acid (iii) Cyclohexanol (iv) Bakelite

1280 -- 1221 ALP -- 18000

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2

Time Allowed:- 20 minutes

PAPER CODE 4488

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) Which reagent is used to reduce a carboxylic group to an alcohol.
(A) H_2/Ni (B) H_2/Pt (C) $NaBH_4$ (D) $LiAlH_4$
- 2) An aqueous solution of an organic compound reacts with Na_2CO_3 to produce CO_2 gas. Which one of the following could be organic compound
(A) $CH_2=CH-C_6H_5$ (B) CH_3CH_2COOH (C) CH_3COCH_3 (D) CH_3CHO
- 3) Phosphorous helps the growth of
(A) Root (B) Leave (C) Stem (D) Seed
- 4) Mark the correct statement.
(A) Cl^- (ion) and Cl (atom) are equal in size
(B) Cl^- ion is smaller than Cl atom
(C) Na^+ is larger than Na -atom
(D) Na^+ is smaller than Na -atom
- 5) The mineral $CaSO_4 \cdot 2H_2O$ has the general name.
(A) Dolomite (B) Calcite (C) Epsom (D) Gypsum.
- 6) The Chief ore of Aluminium is
(A) Na_3AlF_6 (B) $Al_2O_3 \cdot H_2O$ (C) Al_2O_3 (D) $Al_2O_3 \cdot 2H_2O$
- 7) Which of the following species has the maximum number of unpaired electrons.
(A) O_2 (B) O_2^{+2} (C) O_2^{+1} (D) O_2^{-2}
- 8) Which is the strongest acid.
(A) $HClO_3$ (B) $HClO_2$ (C) $HClO_4$ (D) $HClO$
- 9) Which halogen occurs naturally in a positive oxidation state.
(A) Bromine (B) Iodine (C) Chlorine (D) Fluorine
- 10) The colour of transition metal complexes is due to
(A) d – d transition of electrons
(B) Paramagnetic nature of transition of elements
(C) Ionization
(D) Loss of s-electrons
- 11) Linear shape is associated with which set of hybrid orbitals
(A) dsp^2 (B) sp^3 (C) sp (D) sp^2
- 12) Vinyl acetylene combines with HCl to form
(A) Phenyl acetylene (B) Benzene (C) Chloroprene (D) Divinyl acetylene
- 13) Benzene cannot undergo
(A) Substitution reactions
(B) Addition reactions
(C) Oxidation reactions
(D) Elimination reactions
- 14) For which mechanism, the first step involved is same.
(A) $E1$ & $E2$ (B) $E2$ & S_N2 (C) S_N1 and $E2$ (D) $E1$ & S_N1
- 15) Which compound is called a universal solvent.
(A) H_2O (B) CH_3OH (C) C_2H_5OH (D) CH_3-O-CH_3
- 16) Which of the following will have the highest boiling point.
(A) Methanal (B) Ethanal (C) 2-Hexanone (D) Propanal
- 17) Acetone reacts with HCN to form a cyanohydrin. It is an example of
(A) Electrophilic addition
(B) Electrophilic substitution
(C) Nucleophilic addition
(D) Nucleophilic substitution

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

221 (Inter Part - II)

(Session 2017-19 to 2019-21)

Chemistry (Subjective)

(Group II)

Paper (II)

Time Allowed: 2.40 hours

SGD-II-21

Maximum Marks: 68

Section ----- I

2. Answer briefly any Eight parts from the followings:- 8 × 2 = 16
- (i) Why Second ionization Energy is higher than First Ionization Energy?
 - (ii) Define Hydration Energy. Give example also.
 - (iii) Give chemical formula of Carnallite and Barite.
 - (iv) What is Plaster of Paris? (v) Give two Points regarding Peculiar behaviour of Boron.
 - (vi) Give two important uses of Boric Acid. (vii) "Boric Acid is a weak Acid". Justify.
 - (viii) What do you know about Ring Test?
 - (ix) How H_2SO_4 acts as oxidizing Agent? Give two reactions.
 - (x) How would you prepare Diammonium Phosphate fertilizer?
 - (xi) What do you know about Slurry? (xii) Write down two qualities of a good fertilizer.
3. Answer briefly any Eight parts from the followings:- 8 × 2 = 16
- (i) Why HF is weaker acid than HCl? (ii) What are disproportionation reactions? Give one example
 - (iii) What is meant by available chlorine? (iv) Define interstitial alloys.
 - (v) A damaged tin plated iron get rusted quickly comment.
 - (vi) Define resonance energy. Give one example. (vii) Describe Wurtz-Fitting reaction with one example.
 - (viii) Give the use of Tollen's test. (ix) How $NaHSO_3$ is added to acetone, give mechanism.
 - (x) Write any two methods of preparation of Acetic acid.
 - (xi) Give reactions of acetic acid with (a) PCl_5 (b) $NaOH$
 - (xii) Explain oxidative cleavage of alkene briefly.
4. Answer briefly any Six parts from the followings:- 6 × 2 = 12
- (i) How octane number of alkanes can be improved.
 - (ii) Define tautomerism by giving one example.
 - (iii) Why alkanes are called paraffins?
 - (iv) Give the formation of formic acid by catalytic oxidation of alkane.
 - (v) Define electrophile. Give examples.
 - (vi) What is β - Elimination reaction? Give an example of β - E2 elimination reaction.
 - (vii) What is meant by denaturing of Alcohol?
 - (viii) Why Absolute Alcohol cannot be prepared by fermentation method?
 - (ix) How acetaldehyde can be prepared from an alkyne?

Section ----- II

Note: Attempt any three questions.

(8 × 3 = 24)

5. (a) Define oxidation state. Give its trend in the Periodic Table.
(b) How Down's Cell is used to prepare pure Sodium metal?
6. (a) Describe the chemistry of the industrial preparation of sulphuric acid from sulphur by the contact process
(b) Give any Four properties of Transition Elements.
7. (a) Discuss in detail cis-Trans Isomerism.
(b) Describe with mechanism Aldol condensation reaction. Why Formaldehyde does not give this reaction?
8. (a) Give Kolbe's Electrolytic Method for the preparation of Alkanes with Mechanism.
(b) Write a detailed note on S_N2 reactions of alkyl halides.
9. (a) Explain the structure of Benzene by Resonance Method.
(b) Write the reaction of phenol with following.
(i) $NaOH$ (ii) CH_3COCl (iii) Zn (iv) Br_2

1282 -- 1221 ALP -- 12000