

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 $[PtCl(NO_2)(NH_3)_4]$ 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 nitrogenous 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:- $8 \times 2 = 16$
- (i) Give equation when borax is heated with NH_4Cl (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. SO_3H
(vii) Give the importance of Lipids. (Four points). (viii) Complete the reaction:  + HOH \longrightarrow
(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:- $8 \times 2 = 16$
- (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.
$$\text{Propene} \xrightarrow{\text{Br}_2} \text{D} \xrightarrow[\text{KOH}]{\text{Alcoholic}} \text{E}$$

(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) P_2O_5 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) $(\text{CH}_3)_2\text{CHBr}$ b) CH_2Cl_2
(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:- $6 \times 2 = 12$
- (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. H_2SO_4 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 CH_3COOH react with NaOH and NaHCO_3 ?

Section ----- II

$(8 \times 3 = 24)$

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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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 Kekulé 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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