

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

(Academic Sessions 2020 – 2022 to 2022 – 2024)

CHEMISTRY

224-1st Annual-(INTER PART – II)

Time Allowed : 20 Minutes

Q.PAPER – II (Objective Type)

GROUP – I

Maximum Marks : 17

PAPER CODE = 8487 LHR-1-24

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	Preparation of vegetable ghee involves : (A) Halogenation (B) Dehydrogenation (C) Hydroxylation (D) Hydrogenation
3	One of the following hydrogen halide is the weakest acid in solution : (A) HI (B) HBr (C) HCl (D) HF
4	Which compound shows hydrogen bonding : (A) C ₂ H ₆ (B) C ₂ H ₅ Cl (C) CH ₃ -CH ₂ -CH ₃ (D) C ₂ H ₅ OH
5	One of the following acid can be used as a catalyst in Friedel-Crafts reactions : (A) AlCl ₃ (B) HNO ₃ (C) BeCl ₂ (D) H ₂ SO ₄
6	Down's cell is used to prepare : (A) Sodium carbonate (B) Sodium bicarbonate (C) Sodium metal (D) Sodium hydroxide
7	Newspaper can be recycled again and again by how many times : (A) 2 (B) 3 (C) 4 (D) 5
8	Co-ordination number of Pt in [PtCl(NO ₂)(NH ₃) ₄] is : (A) 6 (B) 4 (C) 1 (D) 2-
9	Acetic acid is manufactured by : (A) Distillation (B) Ozonolysis (C) Fermentation (D) Esterification
10	Select the two normal elements which are present in fourth period : (A) K, Ca (B) Rb, Sr (C) Cs, Ba (D) Fr, Ra
11	When ethylene epoxide ($\begin{array}{c} \diagup \text{O} \diagdown \\ \text{CH}_2 - \text{CH}_2 \end{array}$) is made to react with ethyl magnesium bromide followed by acid hydrolysis the product formed is : (A) 1-propanol (B) 2-propanol (C) 1-butanol (D) 2-butanol
12	One of the following metal used in the thermite process because of its reactivity : (A) Iron (B) Copper (C) Aluminium (D) Zinc
13	Which woody raw material is used for the manufacture of paper pulp : (A) Cotton (B) Bagasse (C) Poplar (D) Rice straw
14	Cannizzaro's reaction is not given by : (A) Formaldehyde (B) Acetaldehyde (C) Benzaldehyde (D) Trimethylacetaldehyde
15	The formation of chloramines prevented in ---- pH : (A) Acidic (B) Alkaline (C) Neutral (D) Low
16	Select from the following one which is alcohol : (A) CH ₃ -O-CH ₃ (B) CH ₃ -CH ₂ -OH (C) CH ₃ COOH (D) CH ₃ -CH ₂ -Br
17	Choose the gas which is obtained by the reaction of phosphorus with thionyl chloride : (A) SO ₂ (B) PH ₃ (C) CO ₂ (D) C ₂ H ₂

no _____ (To be filled in by the candidate)

(Academic Sessions 2020 – 2022 to 2022 – 2024)

CHEMISTRY
PAPER – II (Essay Type)

224-1st Annual-(INTER PART – II)
GROUP – I

Time Allowed : 2.40 hours
Maximum Marks : 68

SECTION – I

LHR-1-24

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

- (i) Why the second value of electron affinity of an element is usually shown with a positive sign? Give example.
- (ii) Prove that ZnO is an amphoteric oxide.
- (iii) Write down the chemical formula of dolomite and asbestos.
- (iv) What is milk of magnesia and where it is used?
- (v) What is anode coating?
- (vi) Why does the compounds of transition elements are coloured?
- (vii) Define nucleophile with two examples.
- (viii) Which is the best method for the preparation of alkyl halide? Give reaction.
- (ix) Define saponification number with an example.
- (x) Write down the structures of acrylic acid and acrylonitrile.
- (xi) Differentiate between copolymer and terpolymer. Give examples.
- (xii) Why nitrogenous fertilizers are supplied to plants?

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

- (i) What is the effect of temperature on N_2O_4 ?
- (ii) How does HNO_3 react with Cu metal?
- (iii) Why iodine has metallic luster?
- (iv) Which halogen is used as an antiseptic?
- (v) Explain the type of bonds and shape of HCHO molecule using hybridization approach.
- (vi) Write the structural formulas of the possible isomers of C_4H_{10} .
- (vii) How 2-Butene will react with following reagents :
(a) O_2 in the presence of Ag (b) Br_2 in CCl_4
- (viii) What is Raney Nickel and give its use?
- (ix) How to test the unsaturation of alkenes? Give reaction.
- (x) What are secondary pollutants?
- (xi) What is meant by term BOD and COD?
- (xii) How does ozone help to protect us?

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

- (i) What are different types of boric acid? Give their names.
- (ii) What are products formed when aluminium reacts with HCl and H_2SO_4 ?
- (iii) Give four common properties of group IVA elements.
- (iv) How is ethyl benzene prepared through Wurtz fitting reaction?
- (v) How are ethyl chloride and ethyl amine prepared from ethanol?

(Turn Over)

(2)

4. (vi) How will you convert ethanol into ethanal?
(vii) Give four uses of acetaldehyde.
(viii) What is Ninhydrin test? Which compounds are detected through this test?
(ix) How would you carry out the following conversions :
(a) Acetic acid into acetamide. (b) Acetic acid into acetone.

SECTION – II

Note : Attempt any THREE questions.

5. (a) Discuss variation of melting and boiling points of elements across the short periods of periodic table. 4
(b) Give any four points to elaborate the peculiar behaviour of beryllium. 4
6. (a) How does fluorine differ from its own family members? 4
(b) What is setting of cement? Discuss the reactions taking place in first 24 hours in setting of cement. 4
7. (a) Define hybridization and describe sp-hybridization of ethyne. 4
(b) Write a note on Beta-Elimination Reactions of alkyl halides. 4
8. (a) How does ethyne reacts with : 4
(i) Halogen acid
(ii) Strong alkaline KMnO_4 solution
(iii) Water in the presence of $\text{HgSO}_4 / \text{H}_2\text{SO}_4$
(iv) Ammonia in the presence of Al_2O_3 .
- (b) Explain haloform reaction by giving four reaction of halogen with : 4
(i) CH_3CHO (ii) CH_3COCH_3 (iii) $\text{CH}_3 - \overset{\text{OH}}{\underset{|}{\text{C}}} - \text{CH}_3$ (iv) $\text{CH}_3\text{CH}_2\text{OH}$
9. (a) Give two reactions in which benzene behave as saturated compounds and two in which benzene behave as unsaturated compound. 2,2
(b) How will you prepare bakelite and picric acid from phenols. 3,1

191-224-I-(Essay Type)-52000

(To be filled in by the candidate)

(Academic Sessions 2020 – 2022 to 2022 – 2024)

CHEMISTRY

224-1st Annual-(INTER PART – II)

Time Allowed : 20 Minutes

Q.PAPER – II (Objective Type)

GROUP – II

Maximum Marks : 17

PAPER CODE = 8484

LHR-2-24

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	Ethers show the phenomenon of : (A) Position isomerism (B) Functional group isomerism (C) Meta merism (D) Cis trans isomerism
2	Molecular formula of white phosphorus is : (A) P_4 (B) P_8 (C) P_3 (D) P_2
3	Which of the following reagents will react with both aldehydes and ketones : (A) Grignard reagent (B) Tollen's reagent (C) Fehling reagent (D) Benedicts reagent
4	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
5	The mineral ($CaSO_4 \cdot 2H_2O$) has a general name : (A) Gypsum (B) Dolomite (C) Calcite (D) Epsom salt
6	A single chloride free radical can destroy how many ozone molecules : (A) 100 (B) 100000 (C) 10000 (D) 10
7	Hydrogen bond is strongest between the molecules of : (A) HF (B) HCl (C) HBr (D) HI
8	Which compound is responsible for ozone depletion : (A) $CHCl_3$ (B) CH_2Cl_2 (C) CFC (D) CCL_4
9	Which one of the nitrogen base is not present in RNA : (A) Cytocine (B) Adenine (C) Thiamine (D) Uracil
10	Benzene cannot undergo : (A) Substitution reaction (B) Addition reaction (C) Oxidation reaction (D) Elimination reaction
11	The chief ore of aluminum is : (A) Na_2AlF_6 (B) $Al_2O_3 \cdot 2H_2O$ (C) Al_2O_3 (D) $Al_2O_3 \cdot H_2O$
12	Which of the following has maximum hydration energy : (A) Li^+ (B) Na^+ (C) K^+ (D) Mg^{+2}
13	Ether linkage is : (A) $\begin{array}{c} & & \\ -C & -N & -C- \\ & & \end{array}$ (B) $\begin{array}{c} & & \\ -C & -O & -C- \\ & & \end{array}$ (C) $\begin{array}{c} & & \\ -C & -S & -C- \\ & & \end{array}$ (D) $\begin{array}{c} & & \\ -C & =N & -C- \\ & & \end{array}$
14	The order of a typical S_N2 reaction is : (A) Zero (B) First (C) Second (D) Third
15	Coordination number of Pt in $[PtCl(NO_2)(NH_3)_4]$ is : (A) 2- (B) 4 (C) 1 (D) 6
16	Which compound is called a universal solvent : (A) H_2O (B) CH_3OH (C) C_2H_5OH (D) CH_3-O-CH_3
17	The solution of which acid is used for seasoning of food : (A) Formic acid (B) Acetic acid (C) Benzoic acid (D) Butanoic acid

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CHEMISTRY

224-1st Annual-(INTER PART – II)

Time Allowed : 2.40 hours

PAPER – II (Essay Type)

GROUP – II

Maximum Marks : 68

SECTION – I

LHR-2-24

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

16

- (i) Why size of cation is smaller than its parent atom? Give example also.
- (ii) Why diamond is a non-conductor while graphite is conductor?
- (iii) What is lime mortar?
- (iv) Write down the chemical formula of Sylvite and Natron.
- (v) Find the value of 'x' in the complex of Fe (II), $[Fe(CN)_6]^{x-}$.
- (vi) Under what conditions does Al corrode?
- (vii) Why R-I is more reactive than R-F?
- (viii) Define leaving group with two examples.
- (ix) Differentiate between homopolymer and terpolymer. Give examples.
- (x) Write down the structures of epichlorohydrin and diphenylol propane.
- (xi) Write down any two characteristics of lipids.
- (xii) Write any four essential qualities of a good fertilizer.

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

16

- (i) Why does aqua regia dissolve platinum?
- (ii) How does NO_2 act as an oxidizing agent?
- (iii) Why HF is weaker acid than HBr?
- (iv) Which halogen is used as an antiseptic?
- (v) What is antiknocking agent and give its disadvantage?
- (vi) What is tautomerism? Give example.
- (vii) How to prepare formaldehyde from ethene?
- (viii) How does propyne react with : (a) 10% H_2SO_4 in the presence of $HgSO_4$
(b) Alkaline $KMnO_4$
- (ix) How to prepared alkane from carbonyl compounds?
- (x) How does acid rain affect our environment?
- (xi) How is ozone layer depleted by CFC_3 ?
- (xii) What are the harmful effects of chlorination of H_2O ?

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

12

- (i) Give four uses of aluminium.
- (ii) What is meant by the term "inert pair"? Give brief description.
- (iii) What is water glass? How is it prepared from sodium carbonate?
- (iv) What happens when benzene is heated with conc. H_2SO_4 at $250^\circ C$?
- (v) Why is the boiling point of ethanol higher than that of diethyl ether?

(Turn Over)

(2)

4. (vi) Write structural formulas of acetophenone and picric acid.
- (vii) How is acetaldehyde prepared from ethylene and acetone from calcium acetate?
- (viii) How is acetic acid prepared from ethanol?
- (ix) What is the difference between acidic and basic amino acids? Give examples.

SECTION – II

Note : Attempt any THREE questions.

5. (a) Mention four improvements made in Mendeleev's periodic table by Moseley. 4
- (b) Describe the commercial preparation of sodium by Down's cell. 4
6. (a) Describe relative reactivities of the halogens as oxidizing agents. 4
- (b) Describe phosphatic fertilizers and potassium fertilizers. 4
7. (a) Explain geometric isomerism with suitable examples and also give necessary condition for compound to show geometric isomerism. 4
- (b) Give four equations with condition for the preparation of alkyl halides from alcohols. 4
8. (a) Discuss catalytic oxidation of methane. 4
- (b) Describe the reaction of ethanal and acetone with following : 2,2
(i) Hydroxyl amine. (ii) Phenyl hydrazine
9. (a) Write down any two reactions in which benzene behaves as if it is a saturated hydrocarbon and two reactions in which it behaves as if it is unsaturated. 2,2
- (b) How will you prepare (i) Bakelite (ii) Phenyl acetate from phenol. 2,2

228-224-II-(Essay Type)-22000