Board Papers 2023

SAHIWAL BOARD

Chemistry (New Scheme) (Inter Part-II Class 12th) **Time: 20**
Session (2023) **(Group-I) Objective** **Marks: 17**

Note: You have 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 with marker or pen. Cutting or filling two or more circles will result in zero mark in that question.

Q.1: Answer all the following Multiple Choice Questions.

1. Which of these polymers is a natural polymers?
(a) DNA (b) Polyester (c) PVC (d) Rayon fibre

2. Which compound is used as coagulant for latex in rubber industry?
(a) Formic acid (b) Acetic acid (c) Benzoic acid (d) Butanoic acid

3. Which of the given compound will give iodoform test on treatment with I_2/NaOH?
(a) Formaldehyde (b) Benzaldehyde (c) 2-butanone (d) 3-pentanone

4. Which compound will have the maximum repulsion with H_2O?
(a) C_6H_6 (b) C_2H_5OH (c) $CH_3CH_2CH_2OH$ (d) CH_3OCH_3

5. Which compound is called universal solvent?
(a) H_2O (b) CH_3OH (c) C_2H_5OH (d) CH_3OCH_3

6. S_N2 reaction can be beat carried out with:
(a) Primary alkyl halides (b) Secondary alkyl halides
(c) Tertiary alkyl halides (d) Tertiary and primary alkyl halides

7. Vinylacetylene combines with HCl to form:
(a) Polyacetylene (b) Benzene (c) Chloroprene (d) Divinylacetylene

8. The electrophile in aromatic sulphonation is:
(a) H_2SO_4 (b) HSO_4 (c) SO_3 (d) SO_3^+

9. Ethers shows the phenomenon of:
(a) Position isomerism (b) Cis-traus isomerism
(c) Metamerism (d) Functional group isomerism

10. The total number of transition element is:
(a) 10 (b) 14 (c) 40 (d) 68

11. Chlorine heptaoxide (Cl_2O_7) reacts with water to form:
(a) Hypochlorous acid (b) Chloric acid
(c) Perchloric acid (d) Chlorine and oxygen

12. Laughing gas is chemically:
(a) NO (b) N_2O (c) NO_2 (d) N_2O_4

13. Aluminium oxide is:
(a) Acidic oxide (b) Basic oxide (c) Amphoteric oxide (d) Non-metallic oxide

14. The element cesium bears resemblance with:
(a) Ca (b) Cr (c) Cl (d) None of these

15. Which is the correct statement?
(a) All lanthanides are present in the same group
(b) All halogens are present in the same period
(c) All the alkali metals are present in the same group
(d) All the noble gases are present in the same period

16. The normal amount of overhead ozone in the atmosphere is about:
(a) 35 DU (b)53 DU (c)350 DU (d) 51 DU

17. Phosphorous helps the growth of:
(a) Root (b) Stem (c) Leaves (d) Seed

SAHIWAL BOARD

Chemistry (New Scheme) **(Inter Part-II Class 12th)** **Time: 2:40 Hours**
Session (2023) **(Group-I) Subjective** **Marks: 68**
Note: Section I is compulsory, Attempt any 3 questions from Section II.

Section-I

Q.2: Write short answers to any eight parts. **(8 × 2 = 16)**

i. Write the chemistry of borax bead test.
ii. Write two uses of aluminium.
iii. What is soapstone? Give its uses.
iv. Which informations are obtained by the X-rays studies of benzene structure?
v. How will you prepare benzene from sodium benzoate?
vi. Describe a chemical test for conformation of tolu
vii. What is terpolymer? Name its monomers.
viii. Draw the structure of $\alpha - D$ Glucose and $\beta - D$ Glucose.
ix. What are derived proteins?
x. Describe carbon monoxide as a pollutant.
xi. What are leachates?
xii. What do you mean by chemical oxygen demand (COD)?

Q.3: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. What is Aqua Regia? Give its composition.
ii. Give two reactions in which HNO_2 acts as oxidizing agent.
iii. Give any four similarities between sulphur and oxygen.
iv. What is vital force theory? Who rejected this theory?
v. Why 2-butene shows the geometric isomerism?
vi. Why alkanes are non-reactive towards addition reaction?
vii. Give reaction between HCl and 1-propene. Write the name of rule to be followed.
viii. What is Raney nickel? How is it prepared?
ix. What is excellent method for preparation of alkyl iodides?
x. Give two rules for IUPAC nomenclature of alkyl halides.
xi. Why are potassium fertilizers important for plants?
xii. Write down names of three methods for the production of paper pulp.

Q.4: Write short answers to any Six parts. **(2 × 6 = 12)**

i. How is $KMnO_4$ produced by Stadeler's Process?
ii. Why does damaged tin plated iron get rusted quickly?
iii. What are substitutional alloys?
iv. How is ethanol produced from starch?
v. What is Lucas test?
vi. How is picric acid produced from phenol?
vii. Write down the general mechanism for base catalyzed Nucleophilic addition reactions of carbonyl compound.
viii. Why does formaldehyde not undergo aldol condensation?
ix. Differentiate between essential and non-essential amino acids.

Section-II

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

5. (a) Write down two points of similarities and two points of dissimilarities between hydrogen and alkali metals.
(b) Describe any eight points of peculiar behaviour of lithium.
6. (a) What are commercial uses of fluorine, chlorine and their compounds?
(b) How is Urea manufactured in Pakistan? Explain it.
7. (a) Explain reforming of petroleum with the help of suitable example.
(b) Detail out two reactions in which benzene behaves as if it is a saturated hydrocarbons and two unsaturated hydrocarbons.
8. (a) What is cyclic polymerization of Alkynes? How will you prepare synthetic rubber from ethyne?
(b) Give the reactions of Ethyl Magnesium Bromide with:
(i) NH_3 (ii) HCHO (iii) CH_3CHO (iv) CH_3CH_2------OH
9. (a) What is holoform reaction? Give its importance by any three reactions.
(b) Give the mechanism of formation of amide. Give its overall reaction also.

BAHAWALPUR BOARD

Chemistry (New Scheme) (Group – I – Class 12th) **Time : 20 Minutes**

Session (2023) **Objective** **Marks : 17**

Note: You have 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 with marker or pen. Cutting or filling two or more circles will result in zero mark in that question.

Q.1: Answer all the following Multiple Choice Questions.

1. Mark the Correct Statement :

(A) All Lanthanides are present in the same group

(B) All Halogens are present in the same period

(C) All the Alkali Metals are present in the same group ●

(D) All the noble gases are present in the same period

2. Oxidation of NO in air produces :

(A) N_2O (B) N_2O_3 (C) N_2O_4 ● (D) N_2O_5

3. Tincal is a Mineral of :

(A) Al (B) B ● (C) Si (D) C

4. Chile Saltpetre has the Chemical Formula :

(A) $NaNO_3$ ● (B) KNO_3 (C) $Na_2B_4O_7$ (D) $Na_2CO_3.H_2O$

5. Which Halogen occurs naturally in a positive Oxidation state :

(A) Fluorine (B) Chlorine (C) Bromine (D) Iodine ●

6. Preparation of Vegetable Ghee involves :

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

7. Linear Shape is associated with which set of Hybrid Orbitals :

(A) sp ● (B) sp^2 (C) sp^3 (D) dsp^2

8. The strength of binding energy of transition elements depends upon:

(A) Number of Electron pairs (B) Number of Unpaired Electrons ●

(C) Number of Neutrons (D) Number of Protons

9. The Electrophile in Aromatic Sulphonation is :

(A) H_2SO_4 (B) HSO^-_4 (C) SO^-_3 ● (D) SO^+_3

10. The other name of Phenol is :

(A) Carbonic Acid ● (B) Carbolic Acid (C) Carboxylic Acid (D) Adipic Acid

11. Methyl Alcohol is not used :

(A) As a Solvent (B) As an Anti-freezing Agent

(C) As a substitute for Petrol ● (D) For Denaturing of Ethyl Alcohol

12. Elimination Bimolecular reactions involve :

(A) First Order Kinetics (B) Second Order Kinetics

(C) Third Order Kinetics (D) Zero Order Kinetics

13. Which One will not give Silver Mirror Test:

(A) Formaldehyde (B) Acetaldehyde (C) Acetone ● (D) Propionaldehyde

14. The number of Peptide Bonds in a Dipeptide is :

(A) 1 (B) 2 ● (C) 3 (D)4

15. Ozone Layer is present in which region of Atmosphere

(A) Troposphere (B) Stratosphere ● (C) Thermosphere (D) Ionosphere

16. Ammonia contains how much percentage of Nitrogen :

(A) 50% (B) 82 % ● (C) 46 % (D) 100%

17. Select the Monomers of Nylon – 6, 6 :

(A) Adipic Acid and Ethylene Glycol (B) Acetic Acid and Hexamethylene Diamine

● (C) Adipic Acid and Hexamethylene Diamine (D) Acetic Acid and Ethylene Glycol

BAHAWALPUR BOARD

Chemistry (New Scheme) **(Group - I, Class 12th)** **Time : 2:40 Hours**

Session (2023) **Subjective** **Marks : 68**

Note: Section I is compulsory, Attempt any 3 questions from Section II.

SECTION - I

Q.2: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. Write any two points in which Boron is different from its family members.
ii. Why is increase in Atomic Size not regular in case of Group III - A elements?
iii. What are Silicones? Give their any two properties.
iv. What are Fused Membered Polycyclic Compounds? Draw structure of two compounds.
v. What do you mean by Side Chain Oxidation of Toluene ?
vi. How did Kekule support his theory about structure of Benzene? Give any two points.
vii. What are Thermoplastic Polymers? Give one example.
viii. What are Polysaccharides ? Give two examples.
ix. What is Saponification Number? Give one example.
x. Which human activities are responsible for the release of Hydrocarbons in air?
xi. How do the Detergents cause the Water Pollution?
xii. How is Acid Rain harmful for Aquatic Animals?

Q.3: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. What is meant by Hybridization?
ii. Write down the structures of Isomers having Molecular Formula C_4H_{10}.
iii. How is Ethyne Polymerized to Neoprene?
iv. How can you differentiate between Saturated and Unsaturated Hydrocarbons?
v. How is Ethane produced from Ethyl Magnesium Bromide?
vi. Why is SO_3 dissolved in H_2SO_4 and not in water?
vii. Write down the reaction of Cu with : (a) dil. HNO_3 (b) Conc. HNO_3
viii. How is H_3PO_3 produced from PCl_5 ?
ix. Write any two methods for the preparation of Alkyl Halides from Alcohol.
x. Write down the reaction of Ammonia with Ethyl Bromide.
xi. What are Essential Qualities for a Good Fertilizer ? (Any Four)
xii. Write down any four Non - Woody Raw Materials for Paper Manufacturing.

Q.4: Write short answers to any Six parts. **(2 × 6 = 12)**

i. Define Paramagnetism and Diamagnetism.
ii. What will happen when $KMnO_4$ reacts with : (a) Oxalic Acid (b) KOH
iii. What are the Substitutional Alloys?
iv. How can we distinguish between Ethanol and Methanol?
v. What will happen when Diethyl Ether react with HI?
vi. Write structural formula of Glycol and Glycerol.
vii. What product would you obtain when Acetaldehyde reacts with 2,4 - DNPH ?
viii. Write the Silver Mirror Test.
ix. Write down reaction of Acetic Acid with. (a) Thionyl Chloride (b) PCl_5

Section-II

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

5. (a) Explain the position of Hydrogen in 1-A and VII-A Groups.
(b) What is the role of Gypsum in Agriculture?

6. (a) Discuss the Beckmann's Method for the preparation of Bleaching Powder.
(b) Write down the Bleaching Step involved in the manufacturing of Paper Process.

7. (a) Why there is no free rotation around a double bond and a free rotation around a single bond? Discuss Cis- trans Isomerism.

(b) What happens when:
(a) Benzene is heated with Conc. H_2SO_4 at 250°C.
(b) Chlorine is passed through Benzene in Sunlight.
(c) A mixture of Benzene vapours and air are passed over heated Vanadium Pentoxide.
(d) Benzene is burnt in free supply of Air.

8. (a) How will you Synthesize the following compounds starting from Ethyne:
(a) Benzene (b) Ethane (c) Oxalic Acid (d) Methyl Cyanide
(b) Discuss S_N1 reactions in detail.

9. (a) How Carbonyl Compounds are reduced by $NaBH_4$? Give the Mechanism also
(b) How will you prepare Carboxylic Acids from :
(i) Hydrolysis of Esters (ii) Oxidative cleavage of Alkenes
(iii) Alkane Nitrile (iv) Alcohols

D.G.KHAN BOARD

Chemistry (New Scheme) (Group – I – Class 12th) **Time : 20 Minutes**

Session (2023) **Objective** **Marks : 17**

Note: You have 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 with marker or pen. Cutting or filling two or more circles will result in zero mark in that question.

Q.1: Answer all the following Multiple Choice Questions.

1. Primary, Secondary and tertiary alcohols can be identified by test.

(A) Bromine water Test (B) Lucas Test (C) Silver mirror Test (D) 2, 4 – DNPH Test

2. Amino acids reacts with ninhydrin to form intensely coloured..... product.

(A) Reddish green (B) Bluish violet (C) Yellowish (D) Pinkish

3 Nylon is polyamide made by hexamethylene diamine with.

(A) Adipic acid (B) Picric Acid (C) Oxalic Acid (D) Acetic Acid

4. Urea is high quality

(A) Potassium fertilizers (B) Phosphatic fertilizers

(C) Nitrogenous fertilizers (D) Calcarious fertilizers

5. Ozone is a gas having oxygen atom.

(A) Three (B) Two (C) One (D) Four

6. 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

7. Which one of the following does not belong to alkaline - earth metals?

(A) Be (B) Ra (C) Ba (D) Rn

8. Which element forms an ion with charge +3?

(A) Beryllium (B) Aluminium (C) Carbon (D) Silicon

9. Laughing gas is chemically.

(A) NO (B) N_2O (C) NO_2 (D) N_2O_4

10. Which of the following hydrogen halide is the weakest acid in solution?

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

11. Total number of transition elements are

(A) 10 (B) 14 (C) 40 (D) 68

12. A double bond consists of

(A) Two sigma bonds (B) One sigma and one pi bond

(C) One sigma and two pi bonds (D) Two pi bonds

13. Synthetic rubber is made by polymerization of

(A) Chloroform (B) Acetylene (C) Divinylacetylene (D) Chloroprene

14. Aromatic hydrocarbons are the derivates of

(A) Normal series of paraffins (B) Alkene

(C) Benzene (D) Cyclohexane

15. In primary alkyl halides, the halogen atom is attached to a carbon which is further attached to how many carbon atoms.

(A) Two (B) Three (C) One (D) Four

16. Ethanol can be converted into ethanoic acid by

(A) Hydrogenation (B) Hydration (C) Oxidation (D) Fermentation

17. Which test is given by Formaldehyde with Tollen's reagent?

(A) Silver Mirror Test (B) Sodium Bisulphite Test

(C) 2, 4 – DNPH Test (D) Bromine water Test

D.G.KHAN BOARD

Chemistry (New Scheme) **(Group - I, Class 12th)** **Time : 2:40 Hours**

Session (2023) **Subjective** **Marks : 68**

Note: Section I is compulsory, Attempt any 3 questions from Section II.

SECTION - I

Q.2: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. What is effect of strong heating on orthoboric acid?
ii. Justify that Aluminum is amphoteric. Give an examples.
iii. What are semiconductors and give effect of temperature on semiconductors?
iv. Why the straight chain structures of benzene have been ruled out? Give two reasons.
v. Write mechanism for the halogenation of benzene in the presence of catalyst.
vi. How does sulphonation of benzene take place? Give its reaction.
vii. Write cyclic structures of glucose and fructose.
viii. Explain denaturation of proteins.
ix. What are steroids? Write structure of steroid nucleus.
x. What is the effect of CO on human health?
xi. What is meant by hydrosphere ?
xii. What is meant by recycling of waste?

Q.3: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. Draw the structure of ethene according to sp^2-hybridization.
ii. Define heterocyclic compounds. Give one example.
iii. Convert 1-propanol to $CH_3 — CH_2 — CH_2 — Cl$
iv. How is ethane formed by the reaction of Grignard reagent?
v. Write down any two uses of ethene.
vi. What is laughing gas?
vii. Draw the structure of white phosphorus and red phosphorus.
viii. P_2O_5 is a powerful dehydrating agent. Prove it giving two examples.
ix. How will you convert $CH_3 — CH_2 — B_2 —$ → $(CH_3 — CH_2)_4 N^+ Br^-$
x. Prepare 1-propanol by using methanal.
xi. Write down any four qualities of a good fertilizer.
xii. Mention non woody raw materials for the manufacturing of paper (any four)

Q.4: Write short answers to any Six parts. **(2 × 6 = 12)**

i. What are paramagnetic and diamagnetic substances?
ii. Write two uses of $KMnO_4$
iii. Define coordination number and coordination sphere.
iv. Give the reactions of Ethanol with (i) $SOCl_2$ (ii) PCl_5
v. Why is phenol acidic in nature?
vi. Give the iodoform test to distinguish between methanol and ethanol.
vii. Convert acetaldehyde into lactic acid.
viii. Describe Benedict's solution test.
ix. Convert ethanol into ethanoic acid.

Section-II

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

5. (a) How do you justify the position of hydrogen at the top of I-A and VII-A groups?
(b) Mention the properties of berylljum in which it differs from its own family members.
6. (a) Write a brief note on:
(i) Disproportionation reactions of Chlorine. (ii) I_2O_5 preparation and one reaction.
(b) Define paper. Explain the digestion process in detail.
7. (a) What is isomerism? Discuss any three types of structured isomerism.
(b) Discuss the atomic orbital treatment to explain the structure of benzene.
8. (a) Write reaction of HC = CH with
(i) H_2O in the presence of $H_2SO_4/HgSO_4$
(ii) Strong alkaline $KMnO_4$
(b) Discuss in detail the mechanism of nucleophilic substitution unimolecular (S_N1)
9. (a) Explain Cannizzaro's reaction with mechanism. Which aldehydes give this reaction?
(b) How are carbonylic acids prepared from esters and alkenes?

SARGODHA BOARD

Chemistry (New Scheme) (Group – I – Class 12th) **Time : 20 Minutes**

Session (2023) **Objective** **Marks : 17**

Note: You have 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 with marker or pen. Cutting or filling two or more circles will result in zero mark in that question.

Q.1: Answer all the following Multiple Choice Questions.

1. Coordination number of Pt in $[Pt\ Cl\ (NO_2)\ (NH_3)_4]$ is:

(A) 2 (B) 4 (C) 1 (D) 6 ●

2. Vinyl acetylene combines with HCl to form:

(A) Polyacetylene (B) Benzene (C) Chloroprene ● (D) Divinyl acetylene

3. 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

4. Which of the following is not soluble in water:

(A) Sodium Sulphate (B) Potassium Sulphate (C) Zinc Sulphate (D) Barium Sulphate ●

5. Boric acid cannot be used:

(A) As antiseptic in medicine (B) For washing eyes

(C) In soda bottles ● (D) For enamels and glazes

6. 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

7. Bleaching powder may be produced by passing chlorine over:

(B) Calcium carbonate (B) Hydrated calcium sulphate

(C) Anhydrous calcium Sulphate (D) Clacium Hydroxide ●

8. 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

9. Absolute alcohol can be obtained by redistillation of rectified spirit in the presence of:

(A) Na_2O (B) CuO (C) Ag_2O (D) CaO ●

10. 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.

11. The rate of El 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

12. Linear shape is associated with which set of hybrid orbital?

(A) sp ● (B) sp^2 (C) sp^3 (D) dsp^2

13. 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

14. Iodoform is prepared by the reaction of fodine with:

(A) Acetic acid (B) Formic acid (C) Ethyl alcohol ● (D) Diethyl ether

15. Methyl Magnesium bromide combine with CO2 to form

(A) Ethyle alcohol (B) Diethyl Ether (C) Acetic Acid ● (D) Acetone

16. Oils are glycerol esters which contain higher proportion of:

(A) Unsaturated hydro carbons components (B) Saturated hydro carbons components

(C) Unsaturated fatty carbons components ● (D) Saturated fatty acid components

17. Urea is a high quality nitrogeneous fertilizer. It contains about:

(A) 60% Nitroge (B) 70% Nitrogen (C) 46% Nitrogen ● (D) 20% Nitrogen

SARGODHA BOARD

Chemistry (New Scheme) **(Group - I, Class 12th)** **Time : 2:40 Hours**

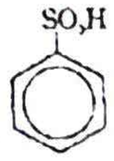
Session (2023) **Subjective** **Marks : 68**

Note: Section I is compulsory, Attempt any 3 questions from Section II.

SECTION - I

Q.2: Write short answers to any Eight parts. **(8 × 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.
vii. Give the importance of Lipids. (Four points).

vii. 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.

Q.3: Write short answers to any Eight parts. **(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.

$$\text{Propene} \xrightarrow{Br_2} D \xrightarrow[KOH]{Alcoholic} E$$

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) $(CH_3)_2\ CHBr$ b) $CH_2\ Cl_2$
xi. Name three principle methods of chemical pulping of paper.
x. Write names of four argillaceous raw materials used in manufacture of cement?

Q.4: Write short answers to any Six parts. **(2 × 6 = 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

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

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.

LAHORE BOARD

Chemistry (New Scheme) (Group – I – Class 12th) **Time : 20 Minutes**

Session (2023) **Objective** **Marks : 17**

Note: You have 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 with marker or pen. Cutting or filling two or more circles will result in zero mark in that question.

Q.1: Answer all the following Multiple Choice Questions.

1. The anhydride of $HClO_4$ is:

(A) ClO_3 (B) ClO_2 (C) Cl_2O_5 (D) Cl_2O_7 ●

2. Benzene can not undergo :

(A) Substitution reaction (B) Addition reaction (C) Oxidation reaction (D) Elimination reaction ●

3. Which of these polymers is an addition polymer

A) Nylon - 6,6 (B) Polystyrene (C) Terylene (D) Epoxy resin

4. Phenol-formaldehyde resin is called :

(A) Bakelite ● (B) Teflon (C) Orlon (D) Terylene

5. The oxides of metals are:

(A) Acidic (B) Basic ● (C) Amphoteric (D) Neutral

6. The carbon atom of a carboxyl group is:

(A) sp – hybridized (B) sp^2 – hybridized ● (C) sp^3- hybridized (D) None of these

7. Tincal is a mineral of :

A) Al (B) B ● (C) Si (D) C

8. According to Lewis concept ethers behave as :

(A) Acid (B) Base ● (C) Acid as well as base (D) None of these

9. The residence time of NO in atmosphere is

(A) One day (B) Two days (C) Three days (D) Four days ●

10. A double bond consists of:

(A) Two sigma bonds (B) One sigma and one pi bond ●

(C) One sigma and two pi bonds (D) Two pi bonds

11. Which of the following sulphate is not soluble in water :

(A) Sodium sulphate (B) Zinc sulphate (C) Potassium sulphate (D) Barium sulphate ●

12. Vinyl acetylene combines with HCL to form :

(A) Polyacetylene (B) Benzene (C) Chloroprene ● (D) Divinyl acetylene

13. The state of hybridization of carbon atom in methane is :

(A) sp^3 ● (B) sp^2 (C) sp (D) dsp^2

14. Which one of the following is not nucleophile :

(A) H_2O (B) H_2S (C) BF_3 ● (D) NH_3

15. Laughing gas is chemically:

(A) NO (B) N_2O ● (C) NO_2 (D) N_2O_4

16. Which test is applied to detect amino acids :

(A) Fehling's test (B) Iodoform test

(C) Ninhydrin test ● (D) Sodium nitroprusside test

17. Which is not a calcarious material :

(A) Lime (B) Clay ● (C) Marble (D) Marine shell

LAHORE BOARD

Chemistry (New Scheme) **(Group - I, Class 12th)** **Time : 2:40 Hours**

Session (2023) **Subjective** **Marks : 68**

Note: Section I is compulsory, Attempt any 3 questions from Section II.

SECTION - I

Q.2: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. Write down the chemistry of borax bead test.
ii. Draw the electronic structure of CO and CO_2.
iii. How will you convert boric acid into borax?
iv. Convert benzene into glyoxal.
v. Mention the product when phenol is distilled with Zn dust by giving reaction.
vi. Give two uses of silicones.
vii. Define saponification number.
viii. How polyvinyl acetate is formed? Write its equation.
ix. Draw the structure of cholesterol.
x. Write down the equation, when suspended impurities are removed in the colloidal form in raw water.
xi. Define acid rain.
xii. Mention the hazards of chloroform.

Q.3: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. Give the two reactions for the preparation of N_2O.
ii. Write down four uses of HNO_3.
iii. Give the reactions of H_2SO_4 with : (a) $NaCl$ (b) KNO_3
iv. Convert CH_4 into formaldehyde by catalytic oxidation.
v. Define Markownikov's rule. Give an example.
vi. Prepare ozonide from ethene.
vii. Name two main factors which govern reactivity of R-X bond in alkyl halides.
viii. Define nucleophile. Give two examples.
ix. What is vital force theory?
x. What are heterocyclic organic compounds? Give two examples.
xi. Write down four essential qualities of a good fertilizer.
xii. Write down two chemical reactions involved in the preparation of urea.

Q.4: Write short answers to any Six parts. **(2 × 6 = 12)**

i. Complete and balance the following chemical equation :

$$KMnO_4 + FeSO_4 + H_2SO_4 \rightarrow$$

ii. Give systematic names of the following: (a) $K_2[Cu(CN)_4]$ (b) $K_2[PtCl_4]$
iii. What is meant by " central metal ion"? Explain with one example.
iv. How are ethene and diethyl ether produced from ethyl alcohol?
v. Explain Lucas test.
vi. Give reactions of phenol with: (a) Bromine water. (b) Conc. H_2SO_4
vii. What is Benedict's solution test? Give reaction.
viii. How does hydrazine react with acetone?
ix. Write reaction between acetic acid and ammonia for the formation of amide.

Section-II

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

5. (a) Define hydration energy. Give its trend in the periodic table.
(b) Explain peculiar behaviour of Beryllium.
6. (a) What happens when bleaching powder reacts with the following reagents :
(i) dil. H_2SO_4 (ii) Excess of conc. H_2SO_4 (iii) NH_3 (iv) CO_2
(b) How is urea manufactured in Pakistan? Describe in detail.
7. (a) What is orbital hybridization? Explain the geometry of ethyne by sp hybridization.
(b) Explain Friedel-Crafts acylation of benzene along with its mechanism.
8. (a) How can ethyne be converted into: (i) Oxalic acid. (ii) Acetaldehyde.
(b) Discuss S_N1 mechanism for nucleophilic substitution reaction of alkyl halide.
9. (a) Discuss the oxidation of ketones and aldehydes in detail.
(b) How can you prepare the following from ethanoic acid :
(i) Ethyl alcohol (ii) Ethane (iii) Sodium acetate (iv) Acetic anhydride

FAISALABAD BOARD

Chemistry (New Scheme) (Group – I – Class 12th) **Time : 20 Minutes**

Session (2023) **Objective** **Marks : 17**

Note: You have 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 with marker or pen. Cutting or filling two or more circles will result in zero mark in that question.

Q.1: Answer all the following Multiple Choice Questions.

1. The electrophile in aromatic sulphonation is:

(A) H_2SO_4 (B) HSO_4^{-1} (C) SO_3 ● (D) SO_3^+

2. Which is not a nucleophile?

(A) H_2O (B) H_2S (C) BF_3 ● (D) NH_3

3. Carbolic acid has another name of:

(A) Alcohol (B) Phenol ● (C) Ether (D) Carboxylic acid

4. Which enzyme is not involved in fermentation of starch?

(A) Diastase (B) Zymase (C) Urease ● (D) Maltase

5. During reduction of aldehyde with $NaBH_4$, H ion act as:

(A) Electrophile (B) Nucleophile ● (C) Acid (D) Base

6. Compounds having C = N group are called

(A) Nitro compound (B) Amino acid (C) Alkane nitriles ● (D) Amide

7. Polyamide resins are:

(A) Homopolymer (B) Copolymer ● (C) Terpolymer (D) Addition polymer

8. Urea contains:

(A) 36% nitrogen (B) 46% nitrogen ● (C) 56% nitrogen (D) 66% nitrogen

9. The main water pollutant chromium-VI is discharged by:

(A) Plastic industry (B) Paper industry (C) Leather industry ● (D) Cement industry

10. Melting point of halogens:

(A) Decrease down the group (B) Increase down the group ●

(C) Remains same in group (D) First increase and then down the group

11. The mineral $CaSO_4\ 2H_2O$ has the general name:

(A) Gypsum ● (B) Dolomite (C) Calcite (D) Epsom salt

12. The chief ore of aluminum is:

(A) Na_3AlF_6 (B) $Al_2O_3 \cdot 2H_2O$ ● (C) Al_2O_3 (D) $Al_2O_3 \cdot H_2O$

13. Catalyst used in contact process is:

(A) Fe_2O_3 (B) V_2O_5 ● (C) SO_3 (D) Ag_2O

14. Bleaching powder is prepared by passing chlorine over:

(A) Calcium carbonate (B) Calcium sulphate

(C) Calcium hydroxide ● (D) Magnesium hydroxide

15. The colour of transition metal complexes is due to:

(A) d-d transition of electrons ● (B) Ionization

(C) Loss of s-electron (D) Gain of s-electron

16. A double bond consists of:

(A) Two sigma bonds (B) One sigma and one pi bond ●

(C) One sigma and two pi bond (D) Two pi bond

17. $\beta - \beta'$-dichloroethyl sulphide is known as:

(A) Mustard gas ● (B) Laughing gas (C) Phosgene gas (D) Bio gas

FAISALABAD BOARD

Chemistry (New Scheme) **(Group - I, Class 12th)** **Time : 2:40 Hours**

Session (2023) **Subjective** **Marks : 68**

Note: Section I is compulsory, Attempt any 3 questions from Section II.

SECTION - I

Q.2: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. How will you convert boric acid into borax and vice versa?
ii. Write the chemical formula of these minerals: (a) borax (b) Colemanite
iii. What are the common properties of group IVA elements? (any four)
iv. What is Wurtz-fitting reaction?
v. How is glyoxal produced from benzene?
vi. Define aromatic compounds with two examples.
vii. What is condensation polymerization?
viii. How can you differentiate between glucose and fructose?
ix. Write any four uses of lipids?
x. What is dissolved oxygen?
xi. How do CO_2 and SO_2 cause acid rain?
xii. How do pesticides affect living organism?

Q.3: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. Write the functional group of alkanone andalan acid with one example in each case.
ii. What do you know about functional group isomerism? Give one example.
iii. Give structural formula of alkene expected to be formed by dehydrohalogenation of 1-chloropentane.
iv. Starting from ethene prepare ethyne.
v. How is acetylene converted into chloroprene?
vi. How does Grignard reagent react with methanal?
vii. Starting from ethyl chloride prepare (a) n-butane (b) ethane.
viii. Write the names of woody raw materials of paper industry.
ix. What are the four essential qualities of a good fertilizer?
x. Write the allotropic forms of phosphorus.
xi. Write reaction taking place in contact tower for the manufacturing sulphuric acid.
xii. Write the ring test for the confirmation of nitrate ion in solution.

Q.4: Write short answers to any Six parts. **(2 × 6 = 12)**

i. What are ligands? Give one example.
ii. Draw the geometry of PCl_5.
iii. What is chromyl chloride test?
iv. Define fermentation. Give one example.
v. What is Lucas Test?
vi. Why phenol is acidic but alcohol is not?
vii. Give mechanism of addition of NH_3 with acetone.
viii. What is iodoform test? Give its use.
ix. What are amino acids? Give their general formula.

Section-II

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

5. (a) Discuss the position of hydrogen with group I-A elements.
(b) Write a detailed note on the commercial preparation of sodium by Down's cell.
6. (a) Write eight applications of noble gases.
(b) Describe the process of digestion in paper industry.
7. (a) Explain any four features of organic compounds.
(b) Explain the structure of benzene on the basis of molecular orbital treatment.
8. (a) Convert: (i) Ethyne into oxalic acid (ii) Propyne into acetone
(b) What are alkyl halides? How alkyl halides are prepared from alcohol by three different reactions.
9. (a) How does acetaldehyde react with the following reagents?
(i) C_2H,MgI (ii) HCN (iii) $NaHSO_3$ (iv) dil NaOH
(b) Discuss two methods of preparation of a-amino acids.

GUJRANWALA BOARD

Chemistry (New Scheme) (Group – I – Class 12th) **Time : 20 Minutes**

Session (2023) **Objective** **Marks : 17**

Note: You have 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 with marker or pen. Cutting or filling two or more circles will result in zero mark in that question.

Q.1: Answer all the following Multiple Choice Questions.

1. Laughing gas is chemically

(A) NO (B) N_2O ● (C) N_2O_4 (D) NO_2

2. Histidine is an amino acid

(A) acidic (B) basic ● (C) amphoteric (D) neutral

3. Ozone layer is present in

(A) troposphere (B) thermosphere (C) stratosphere ● (D) mesosphere

4. Which of the following is a typical transition metal?

(A) Sc (B) Y (C) Ra (D) Co ●

5. The % age of nitrogen in NH_3 is

(A) 82 ● (B) 81 (C) 80 (D) 88

5. 40% aqueous solution of formaldehyde is called as

(A) formalin ● (B) Tollen's Reagent (C) paraldehyde (D) wood spirit

7. Formula of chloroform is

(A) CH_3Cl (B) CCl_4 (C) $CHC\ell_3$ ● (D) $CH_2C\ell_2$

8. The ethanol can be converted into ethanoic acid by

(A) Hydrogenation (B) Hydration (C) Oxidation ● (D) Fermentation

9. PVC is a polymer

(A) thermosetting (B) thermoplastic ● (C) autosetting (D) wet setting

10. The element belongs to group IV-A of the periodic table

(A) Barium (B) Iodine (C) Lead ● (D) Oxygen

11. Keeping in view atomic and ionic radii, mark the correct statement

(A) $Na^+ < Na$ ● (B) $Cl < Cl$ (C) $Cl^- = Cl$ (D) $Na^+ > Na$

12. The anhydride of $HClO_4$ is

(A) $C\ell O_3$ (B) $C\ell O_2$ (C) $C\ell_2O_5$ (D) C_2O_7 ●

13. Which one of the following is not a nucleophile?

(A) H_2O (B) BF_3 ● (C) NH_3 (D) H_2S

14. Carbolic acid is the other name of

(A) phenol ● (B) toluene (C) nitrobenzene (D) aniline

15. The electrophile in aromatic sulphonation is

(A) H_2SO_4 (B) HSO_4^{-1} (C) SO_3 ● (D) SO_3^+

16. A double bond consists of

(A) two sigma bonds (B) one sigma and one pi bond

(C) two pi bond ● (D) one sigma and two pi bonds

17. Chile Saltpeter has the chemical formula

(A) KNO_2 (B) Na NO_3 ● (C) $Na_2B_4O_7$ (D) $Na_2CO_3 . H_2O$

GUJRANWALA BOARD

Chemistry (New Scheme) **(Group - I, Class 12th)** **Time : 2:40 Hours**

Session (2023) **Subjective** **Marks : 68**

Note: Section I is compulsory, Attempt any 3 questions from Section II.

SECTION - I

Q.2: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. Why CO_2 is gas at room temperature while SiO_2 solid?
ii. Give any four uses of boric acid.
iii. Give reaction of H_3BO_3 with C_2H_5OH.
iv. Convert benzene into toluene.
v. Give x-ray structure of benzene.
vi. What are polyester resins? Give uses.
vii. Convert sodium benzoate into benzene.
viii. How protein is denatured? Give one example.
ix. Give hydrolysis reaction of triglycerides.
x. How is oil spillage affecting the marine life?
xi. What is ozone hole? Give comments.
xii. What are primary and secondary pollutants? Give examples.

Q.3: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. Write down the structural formulas of two possible isomers of C_4H_{10}.
ii. What are heterocyclic compounds? Give one example.
iii. Identify each lettered product of the reaction. Ethylalcohol $\xrightarrow{\text{conc } H_2SO_4} A \xrightarrow{Br_2} B$
iv. Why alkenes are more reactive than alkanes?
v. What is Raney nickel? How is it prepared?
vi. What is the effect of heat on solid N_2O_4?
vii. Why the elements of group VI-A other than Oxygen show more than two oxidation states
viii. Complete and balance the following equations $P + NO \rightarrow ?$ $HNO_2 + CO(NH_2)_2 \rightarrow ?$
ix. How will you carry out the following conversion? $CH_3 - CH_3 \rightarrow (CH_3 - CH_2)_4 \; N^+Br^-$
x. Differentiate between nucleophile and electrophile.
xi. What are common bleaching agents used in paper industry?
xii. What are fertilizers?

Q.4: Write short answers to any Six parts. **(2 × 6 = 12)**

i. What is co-ordination number? Give its example.
ii. Fe^{3+} shows maximum paramagnetic behavior. Justify it.
iii. Ethanol has higher boiling point than diethyl ether. Give reason.
iv. How is ethanol prepared from molasses?
v. Write down mechanism of reaction between $C_2H_5OC_2H_5$ and HI
vi. Write down names and formulas of two ores of iron.
vii. Write down two tests to differentiate between carbonyl and non-carbonyl compounds.
viii. Show the dry distillation of a mixture of calcium salts of formic acid and acetic acid.
ix. Draw structures of phthalic acid and malonic acid.

Section-II

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

5. (a) Define oxidation state. Write down its variation trends in modern periodic table.
(b) Describe the peculiar behaviour of beryllium.
6. (a) What happens when bleaching powder reacts with
(i) dil.H_2SO_4 (ii) Conc.H_2SO_4 (iii) NH_3 (iv) HCl
(b) Write essential qualities of good fertilizer.
7. (a) Define cracking of petroleum. Also discuss catalytic and steam cracking.
(b) Write down a note on stability of benzene.
8. (a) How does ethyne react with
(i) Halogen acid (iii) Ammonical cuprous Chloride
(ii) Alkaline $KMnO_4$ (iv) 10% H_2SO_4 in the presence of $HgSO_4$
(b) Define nucleophilic substitution reactions? Explain SN_1 mechanism in detail.
9. (a) Write down a note on aldol condensation in detail.
(b) Write down a note on peptides and proteins in detail.

RAWALPINDI BOARD

Chemistry (New Scheme) (Group – I – Class 12th) **Time : 20 Minutes**

Session (2023) **Objective** **Marks : 17**

Note: You have 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 with marker or pen. Cutting or filling two or more circles will result in zero mark in that question.

Q.1: Answer all the following Multiple Choice Questions.

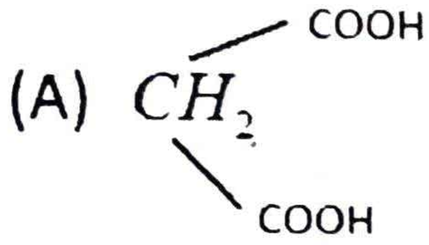
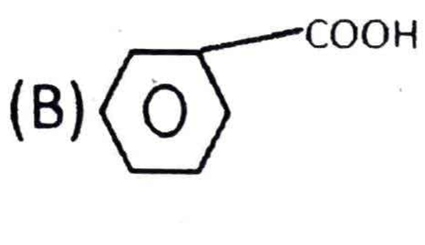
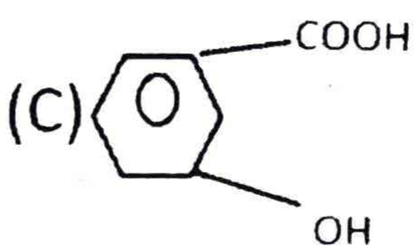
1. Which enzymes are involved in the fermentation of starch?

(A) Urease (B) Maltase (C) Diastase (D) Both (B) & (C) ●

2. Aldehyde and small methyl Keytones give _____ test:

(A) Fehling solution (B) Silver mirror (C) Benedict's solution (D) Sodium Bisulphite ●

3. Formula for oxalic acid :

(A)  (B)  (C)  (D) ●

4. Nylon-6,6 is replaced by the reaction of hexamethylene diamine and _____ acid:

(A) Methanoic (B) Acetic (C) Adipic ● (D) Benzoic

5. Micronutrients required for plant growth is in the range of _____ per acre.

(A) 5 Kg to 200 Kg ● (B) 6 Kg to 200 Kg (C) 6 Kg to 250 Kg (D) 7 Kg to 250 Kg

6. The yellow colour in photochemical smog is due to:

(A) NO (B) NO_2 ● (C) N_2O (D) N_2O_5

7. Mendeleev in his periodic table arranged the elements according to their:

(A) Atomic number (B) Atomic mass ● (C) Proton number (D) None of these

8. Which one of the following does not belong to alkaline earth metals;

(A) Be (B) Rà (C) Ba (D) Rn ●

9. Chemical formula for colemanite is :

(A) $Ca_2B_6Q_{11}.5H_2O$ ● (B) $CaB_4O_7.4H_2O$ (C) $Na_2B_4O_7.4H_2O$ (D) $CaNaBO_2$

10. Oxidation of NO in air produces :

(A) N_2O (B) N_2O_3 (C) N_2O_4 ● (D) N_2O_5

11. Correct electronic configuration of zero group elements is:

(A) S^2P^2 (B) S^2P^4 (C) S^2P^5 (D) S^2P^6 ●

12. f-block elements are also called _____ transition elements.

(A) Non- typical (B) Outer (C) Normal (D) Inner ●

13. The state of Hybridization in methane is:

(A) Sp (B) Sp_2 (C) Sp_3 ● (D) Sp_4

14. Chemical formula of chloroform is:

(A) CH_3Cl (B) CCl_4 (C) CH_2Cl_2 (D) $CHCl_3$ ●

15. Which of the following acid acts as catalyst in Friedel-crafts reactions.

(A) AlC_3 ● (B) HNO_3 (C) $BeCl_2$ (D) NaCl

16. Grignard reagent is reactive due to presence of _____.

(A) Halogen atom (B) Mg-atom (C) Polarity of C-Mg bond ● (D) Carbon atom

17. Ethanol can be converted into ethanoic acid by:

(A) Hydrogenation (B) Hyderation (C) Oxidation ● (D) Fermentation

RAWALPINDI BOARD

Chemistry (New Scheme) **(Group - I, Class 12th)** **Time : 2:40 Hours**

Session (2023) **Subjective** **Marks : 68**

Note: Section I is compulsory, Attempt any 3 questions from Section II.

SECTION - I

Q.2: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. Why is CO_2 a gas while SiO_2 is a solid at room temperature?
ii. What is chemical Garden?
iii. How does borax ionize in water?
iv. How can you prepare the m-chloronitrobenzene in two steps from benzene?
v. Differentiate between isolated and fused aromatic hydrocarbon?
vi. Write down the structures of following compounds: a) Benzoic Acid b) Benzaldehyde
vii. Differentiate between thermosetting and thermoplastic polymers.
viii. What is saponification number?
ix. Discuss the effect of temperature on enzymes.
x. What is Chemical Oxygen Demand (COD)?
xi. How is oil spillage affecting the marine life?.
xii. Write down the human activities which lead to produc SO_x.

Q.3: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. Write the functional group with example of alkanal and alkanol.
ii. What do you know about position isomerism?
iii. How will you bring out the following conversions?
(a).Acetic acid to ethane (b) Methane to nitro methane.
iv. Starting from ethene prepare:
(i) Ethane (ii) Ethylene glycol
v. Give the reactivity order of alkane, alkene and alkyne.
vi. How does Grignard reagent react with CO_2?
vii. Write two methods for the preparation of alkyl halides from alcohols.
viii. Write the names of any four non woody raw material used in paper industry..
ix. What are the macro nutrients?
x. Write any four similarities of oxygen with sulphur.
xi. Why does aqua regia dissolve gold?
xii. P_2O_5 is powerful dehydrating agent. Prove by giving two examples.

Q.4: Write short answers to any Six parts. **(2 × 6 = 12)**

i. Under what conditions does Al corrode?
ii. What is central metal atom?
iii. What is coordination sphere?
iv. How is phenol prepared from chlorobenzene?,
v. How will you distinguish between methanol and ethanol?
vi. How is benzene prepared from phenol?
vii. Give general mechanism of base catalysed addition reaction of carbonyl compounds.
viii. What is fehling solution test?
ix. How is Acetamide prepared from acetic acid?

Section-II

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

5. **(a)** Discuss the position of Hydrogen with Group IV-A elements.
(b) Write down commercial preparation of sodium by Down's cell.
6. **(a)** Describe Backmann's method for the preparation of Bleaching powder.
(b) What is setting of cement? Discuss the reactions taking place between 1-7 days.
7. **(a)** Describe two important sources of organic compounds.
(b) What is meant by electrophilic substitution reaction? Explain Friedel-crafts alkylation with mechanism.
8. **(a)** Prepare alkanes from:
i) alkyl halides (Two methods)
ii) Kolbe's electrolysis with mechanism
(b) Explain the mechanism of E1 reaction in detail.
9. **(a)** Describe with mechanism of aldol condensation reaction. Why does formaldehyde not give this reaction.
(b) Write down the mechanism of reaction between acetic acid and ethanol.

MULTAN BOARD

Chemistry (New Scheme) (Inter Part-II Class 12th) **Time : 20**
Session (2022) **(Group-I) Objective** **Marks : 17**

Note: You have 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 with marker or pen. Cutting or filling two or more circles will result in zero mark in that question.

Q.1: Answer all the following Multiple Choice Questions.

1. The mineral sylvite has the chemical formula:

(a) $NaCl$ (b) KCl ● (C) $MgCO_3$ (d) $CaCO_3$

2. Boric acid cannot be used:

(a) As antiseptic in medicine (b) For washing eyes
(C) In soda bottles ● (d) For enamels and glazes

3. Oxidation of NO in air produces:

(a) N_2O (b) N_2O_3 (c) N_2O_5 (d) N_2O_4 ●

4. Which halogen does occur naturally in positive oxidation state?

(a) I_2 ● (b) Br_2 (c) Cl_2 (d) F_2

5. The purest from of commercial iron is:

(a) Pig iron (b) Cast iron (c) Wrought iron ● (d) Steel

6. Which one of the following is not heterocyclic compound?

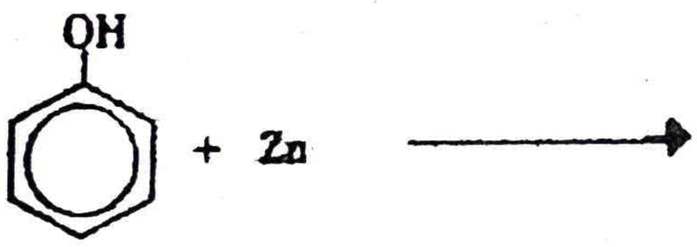
(a) Naphthalene ● (b) Pyridine (c) Furan (d) Pyrrole

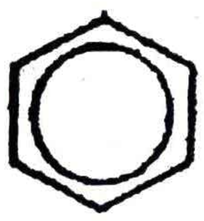
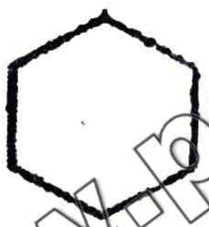
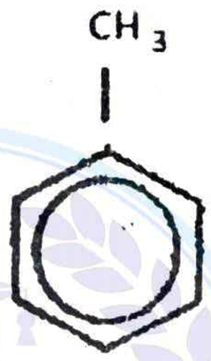
7. The reaction step shown is known as:

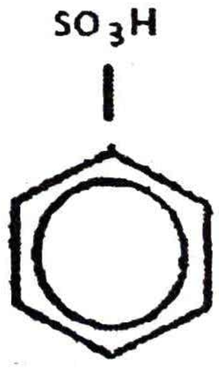
$$H_3C-CH_2-OSO_3H + H_2O \xrightarrow{100^\circ C} H_3C-CH_2-OH + H_2SO_4$$

(a) Hydrolysis (b) Hydration ● (c) Hydroxylation (d) Hydrogenation

8. Predict the product in the reaction



(A) ●  (B)  (C) 

(D) 

9. For which mechanism the first step involved is the same?

(a) E_1 and E_2 (b) E_2 and SN_2 (C) SN_1 and E_2 (d) E_1 and SN_1 ●

10. Which compound shows maximum hydrogen bonding with water?

(a) C_2H_6 (b) C_2H_5Cl (C) C_2H_5OH ● (d) CH_3-O-CH_3

11. Which among the following is known as Carbolic acid?

(a) C_6H_5OH ● (b) C_2H_5OH (C) CH_3COOH (d) CH_3-O-CH_3

12. Ketones are prepared by oxidation of:

(a) Primary alcohol (b) Secondary alcohol (C) Tertiary alcohol (d) All of these

13. Acetamide is prepared by heating:

(a) Ammonium acetate (b) Methyl cyanide (C) Ethyl acetate (d) Ethyl cyanide

14. Natural starch consists of how much percentage of amylose?

(a) 50% (b) 80-90% (c) 10-20% ● (d) 40%

15. Micronutrients are required in the quantity ranging from:

(a) 4-40 g (b) 6-200 g ● (c) 6-200 kg (d) 4-40 kg

16. A single chloride free radical can destroy how many ozone molecules?

(a) 10^6 (b) 10^4 (C) 10^2 (d) 10^5 ●

17. Pick the element having least melting point among alkaline earth metals?

(a) Be (b) Ca (C) Mg ● (d) Sr

MULTAN BOARD

Chemistry (New Scheme) **(Inter Part-II Class 12th)** **Time: 2:40 Hours**
Session (2023) **(Group-I) Subjective** **Marks : 68**
Note: Section I is compulsory, Attempt any 3 questions from Section II.

Section-I

Q.2: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. What is chemical garden?
ii. How is Boric acid prepared from borax?
iii. What is the effect of heat on boric acid?
iv. Complete the following reactions:

(a)  $+ SO_3 \xrightarrow{\text{Formation of } H_2SO_4} ?$

(b)  $+ \frac{15}{2} O_2 \longrightarrow ?$

v. Give the general mechanism of electrophilic substitution reactions of benzene.
vi. What is meant by terms? (a) Nitration (b) Oxidation
vii. What are steroids? Give one example.
viii. Name the important bases which make up DNA and RNA.
ix. Prepare polystyrene and give its two uses.
x. What is acid rain?
xi. How do chlorofluorocarbons destroy then ozone layer?
xii. Write the names of various stages in water treatment.

Q.3: Write short answers to any Eight parts. **(8 × 2 = 16)**

i. What are alicyclic compounds? Give their two examples.
ii. What is cracking of petroleum? Give one example.
iii. How will you convert acetic acid to ethane?
iv. Describe Wolf-Kishner's reduction.
v. How is Mustard gas prepared from ethane?
vi. Why do the element of groups VI A other than oxygen show more than two oxidation states?
vii. Why is SO_2 dissolved in H_2SO_4 and not in water?
viii. Describe "Ring test" for the confirmation of the presence of nitrate ions in solution.
ix. How is Grignard's reagent prepared? Give its two equation.
x. What is an electrophile? Give its two examples.
xi. Define Paper. Mention its two woody raw materials.
xii. What are Macronutrients? Give their requirements per acre.

Q.4: Write short answers to any Six parts. **(6 × 2 = 12)**

i. How is paramagnetism related with unpaired electrons?
ii. Why do transition elements exhibits more than one oxidation states?
iii. What is tin plating?
iv. Give two reactions which involve the cleavage of O-H bond in alcohols.
v. Why can 100% alcohol not be prepared by fermentation?
vi. How phenol is prepared from Dow's process?
vii. Give the reaction of acetone with hydrazine and hydroxylamine.
viii. How is formaldehyde prepared on industrial scale?
ix. How is acetic prepared from CO_2 ?

Section-II

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

5. (a) State modern periodic law. How the classification of elements in different blocks helps in understanding their chemistry?
(b) Write down the problems and their solutions during working of Diaphragm cell.
6. (a) Describe the peculiar behaviour of Fluorine. (Any four points)
(b) What are the principle methods of chemical pulping? Discuss in detail digestion process involved in neutral sulphite semi chemical process?
7. (a) Write a note on reforming of Petroleum.
(b) Explain structure of Benzene by resonance method.
8. (a) How will you bring about the conversion of ethyne into neoprene? Mention the equations.
(b) What are nucleophilic substitution reactions? Explain S_N1 reaction.
9. (a) What is cyclic polymerization of Alkynes? Give the mechanism of aldol condensation reaction.
(b) Describe two methods for the preparation of amino acids.