

Sign. Dy. Supdnt.

Fictitious Roll No. (For Office Use)

Sign. Candidate

CHEMISTRY

022/1

(Group - I)

(PART - II)

(INTERMEDIATE)

Marks : 17

(OBJECTIVE PART)

(★)

Time : 20 Minutes

Note:- Write your Roll No. in space provided. Over writing, cutting, using of lead pencil will result in loss of marks. All questions are to be attempted.

1- Each question has four possible answers, Tick (✓) the correct answer. (17)

1	Mark the correct statement;							
	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
2	Which of the following is not an alkali metal?							
	A	Francium	B	Cesium	C	Rubidium	D	Radium
3	The chief ore of aluminium is;							
	A	H ₃ BO ₃	B	Al ₂ O ₃ .2H ₂ O	C	Al ₂ O ₃	D	Al ₂ O ₃ .H ₂ O
4	Which of the following species has the maximum number of unpaired electrons?							
	A	O ₂	B	O ₂ ⁺	C	O ₂ ⁻	D	O ₂ ²⁻
5	Hydrogen bond is the strongest between the molecules of;							
	A	HF	B	HCl	C	HBr	D	HI
6	The strength of binding energy of transition elements depend upon;							
	A	Number of electron pairs	B	Number of unpaired electrons	C	Number of neutrons	D	Number of protons
7	Which set of hybrid orbitals has planar triangular shape?							
	A	sp ³	B	sp	C	sp ²	D	dsp ²
8	Preparation of vegetable ghee involves;							
	A	Halogenation	B	hydrogenation	C	hydroxylation	D	Dehydrogenation
9	Amongst the following, the compound that can be most readily sulphonated is;							
	A	Toluene	B	Benzene	C	Nitrobenzene	D	Chloro benzene
10	SN ² reactions can be best carried out with;							
	A	Primary alkyl halide	B	Secondary alkyl halide	C	Tertiary alkyl halide	D	All the three
11	Rectified spirit contains Ethyl alcohol about;							
	A	80%	B	85%	C	90%	D	95%
12	Which of the following will have the highest boiling point?							
	A	Methanal	B	Ethanal	C	Propanal	D	2-Hexanone
13	Which acid is used in the manufacture of synthetic fibre?							
	A	Formic acid	B	Oxalic acid	C	Carbonic acid	D	Acetic acid
14	The reaction between fat and NaOH is called;							
	A	Esterification	B	Hydrogenolysis	C	Fermentation	D	Saponification
15	Which woody raw material is used for the manufacture of paper pulp?							
	A	Cotton	B	Bagasse	C	Poplar	D	Rice straw
16	Reducing smog contains high contents of;							
	A	NO ₂	B	SO ₂	C	NO	D	CO ₂
17	Ecosystem is a smaller unit of;							
	A	Lithosphere	B	Hydrosphere	C	Atmosphere	D	Biosphere

(The End)

Note:- Attempt any TWENTY TWO (22) short questions in all selecting eight from Q. 2 and Q. 3 each and six from Q. 4. (22 x 2 = 44)

SECTION - I

2- Write short answers of any eight questions. *ATK-GI-22* (2 x 8 = 16)

i	Why metallic character increases from top to bottom in a group?	ii	What is Lanthanide contraction?
iii	Give the formula of the following; (a) Spodumene (b) Magnesite	iv	What happens when (a) Lithium carbonate is heated (b) Beryllium is treated with sodium hydroxide
v	Why aqua regia dissolve gold and platinum?	vi	Name the allotropic forms of phosphorus.
vii	Write the chemistry involved in Borax bead test.	viii	How Aluminum reacts with non metals?
ix	How chromate ions are converted into dichromate ions?	x	What are the typical and non typical transition metals?
xi	Write the stages involved in the manufacturing of portland cement.	xii	Write the woody raw material used in the manufacturing of paper.

3- Write short answers of any eight questions. (2 x 8 = 16)

i	How the octane number of alkanes can be improved?	ii	Define functional group. Give two examples.
iii	What is iodized salt?	iv	Define Disproportionation reaction. Give an example.
v	Convert Ethyne into Glyoxal.	vi	State Markownikov's rule. Give an example.
vii	Write down four uses of Ethyne.	viii	Define electrophile and Nucleophile.
ix	Give the reaction of Grignard reagent with Methanal.	x	What is saponification. Give reaction.
xi	Define polysaccharides. Give two examples.	xii	How polyvinyl chloride (PVC) is prepared. Give its uses.

4- Write short answers of any six questions. (2 x 6 = 12)

i	How straight chain structure was ruled out for benzene (any two points).	ii	Convert n-Heptane to toluene.
iii	How does ethyl alcohol react with; (a) SOCl_2 /Pyridine (b) $\text{NH}_3/\text{H}_2\text{O}_2$.	iv	Why and how alcohol is denatured?
v	What is formalin? How is it prepared?	vi	What is peptide bond? Give formula of a dipeptide.
vii	Write down structural formula of; (a) Valeric acid (b) Acetic anhydride	viii	Briefly discuss recycling of waste by depolymerization.
x	What is chemical oxygen demand? How does it tell the Quality of water?		

SECTION - II

Note:- Attempt any three questions.

(8 x 3 = 24)

- 5- (a) Write comprehensive note on ionization energy. (04)
 (b) Discuss peculiar Behaviour of Boron. (04)
- 6- (a) Describe role of lime in industries. Write only eight points. (04)
 (b) Write down the reactions of KMnO_4 with (04)
 (i) H_2S (ii) FeSO_4 (iii) Oxalic acid (iv) KOH
- 7- (a) Define hybridization. Also explain Sp^2 mode of hybridization with example of ethene. (04)
 (b) Using ethyl bromide as a starting material prepare following (04)
 (i) Ethyl cyanide (ii) Ethene (iii) Nitroethane (iv) Ethyl acetate
- 8- (a) How addition of Halogens to alkenes takes place. Give the mechanism of reaction. (04)
 (b) Define Cannizzaro's reaction. Explain its mechanism with a suitable example. (04)
- 9- (a) Write a note on sulphonation of benzene. (04)
 (b) Describe Lucas test to differentiate between primary, secondary and tertiary alcohols. (04)

Roll No.

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(To be filled in by the candidate)

Chemistry**H.S.S.C (12th)-A-2022**

Time : 20 Minutes

Paper : II

Group: I

Objective – (ii)

Marks : 17

Ch-III

Paper Code

8	4	8	3
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302-91-22

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 in your answer book. Use marker or pen to fill the circles. Cutting or filling up two or more circles will result no mark.

SECTION-A

Q.1	Questions	A	B	C	D
1.	Which woody raw material is used for the manufacture of paper pulp?	Cotton	Bagasse	Poplar	Rice straw
2.	Ecosystem is a smaller unit of:	Lithosphere	Hydrosphere	Atmosphere	Biosphere
3.	A single chloride free radical can destroy how many Ozone molecules:	100	100000	10000	10
4.	The correct statement is:	Metallic character increases down the group	Metallic character increases from left to right along a period	Metallic character remains same from left to right along a period	Metallic character remains same down the group
5.	Chile saltpetre has the chemical formula:	NaNO ₃	KNO ₂	Na ₂ B ₄ O ₇	Na ₂ CO ₃ .H ₂ O
6.	The chief ore of Aluminum is:	Na ₃ AlF ₆	Al ₂ O ₃ .2H ₂ O	Al ₂ O ₃	Al ₂ O ₃ .H ₂ O
7.	Ketones are prepared by the oxidation of:	Primary alcohol	Secondary alcohol	Tertiary alcohol	All of these
8.	A carboxylic acid contains:	A hydroxyl group	A carboxyl group	A hydroxyl and carboxyl group	A phenolic group
9.	Which of these polymers is synthetic polymer?	Animal fat	Starch	Cellulose	Polyester
10.	Among the group VA elements, the most electronegative element is:	Sb	N	P	As
11.	Chlorine heptaoxide (Cl ₂ O ₇) reacts with water to form:	Hypochlorous acid	Chloric acid	Perchloric acid	Chlorine and Oxygen
12.	Which of the given is a typical transition metal?	Sc	Y	Ra	Co
13.	In, t-butyl alcohol, the tertiary carbon is bonded to:	Two hydrogen atoms	One hydrogen atom	Three hydrogen atoms	No hydrogen atom
14.	Formula of Chloroform is:	CH ₃ Cl	CCl ₄	CH ₂ Cl ₂	CHCl ₃
15.	Aromatic hydrocarbons are the derivatives of:	Normal series of paraffins	Alkene	Benzene	Cyclohexane
16.	When CO ₂ is made to react with Ethyl Magnesium Iodide, followed by acid hydrolysis, the product formed is:	Propane	Propanoic acid	Propanal	Propanol
17.	Which compound will have maximum repulsion with H ₂ O?	C ₆ H ₆	CH ₃ -CH ₂ -OH	CH ₃ -CH ₂ -CH ₂ -OH	CH ₃ -O-CH ₃

Roll No.

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(To be filled in by the candidate)

Chemistry**H.S.S.C (12th)-A-2022**

Time : 2:40 Hours

Paper : II

Group: I

Subjective **Suol-92-22** Marks : 68

Note: Section B is compulsory. Attempt any 3 questions from Section C.

SECTION-B

2. Write short answers to any Eight parts. (8 x 2 = 16)

- i. Why I.E of inert gases is maximum along the period?
- ii. The hydration energies of different ions are in the given order $Al^{3+} > Mg^{2+} > Na^+$ Give reason.
- iii. Why aq. solution of sodium carbonate is alkaline in nature?
- iv. What is milk of Magnesia? Give its use as medicine.
- v. SiO_2 exists in solid state while CO_2 in gaseous state. Give reason.
- vi. Give four uses of Sodium Silicates.
- vii. Give two reactions in which nitrous acid (HNO_2) behaves as oxidizing agent.
- viii. What is Aqua Regia, how does it dissolve gold?
- ix. What is Stadelers process? Give its reaction.
- x. What is Sacrificial corrosion?
- xi. Define micronutrients. Give examples.
- xii. What types of reactions taking place in first 24 hours during setting of cement?

3. Write short answers to any Eight parts. (8 x 2 = 16)

- i. Describe the term "available chlorine" with reactions.
- ii. How Bleaching powder is prepared by Hasenclever's Method?
- iii. What are homocyclic and heterocyclic compounds. Give one example of each.
- iv. Write down the structural formulas of (i) Naphthalene (ii) Anthracene.
- v. How will you synthesize the following compounds starting from ethyne? (i) Oxalic acid (ii) Acrylonitrile.
- vi. How does propyne react with the given reagents? (i) $AgNO_3/NH_4OH$ (ii) Cu_2Cl_2/NH_4OH
- vii. Identify A and B. $CH_3CH_2CH_2OH \xrightarrow{PCl_5} A$ $A \xrightarrow{Na/Ether} B$.
- viii. Give IUPAC names of the given compounds. (a) CH_2Cl_2 (b) $\begin{array}{c} C H_2 - C H_2 \\ | \quad \quad | \\ Br \quad \quad Br \end{array}$
- ix. How will you convert? $CH_3 - CH_2 - Br \longrightarrow CH_3COOC_2H_5$
- x. What is meant by Rancidity of fats and oils?
- xi. Demonstrate Hardening of Oils with example.
- xii. Describe condensation polymerization with example.

4. Write short answers to any Six parts. (6 x 2 = 12)

- i. Give names and possible isomeric structures of xylenes.
- ii. Why benzene is less reactive than alkenes?
- iii. Absolute alcohol cannot be prepared by fermentation process, Why?
- iv. How would you convert phenol into cyclohexanol and picric acid?
- v. Write down any four uses of formaldehyde.
- vi. How carboxylic acids can be prepared by the hydrolysis of esters?
- vii. Describe the synthesis of amino acid by Strecker method.
- viii. Write down necessary conditions for the formation of smog.
- ix. How detergents are threat to aquatic animal life?

SECTION-C**(EACH QUESTION CARRIES EIGHT (8) MARKS)**

5. (a) Define ionization energy. How does it vary in groups and periods in the periodic table? 4
(b) Define semi-conductor. Write two properties and two uses of semiconductor. 4
6. (a) Describe the commercial preparation of Sodium by Down's cell. 4
(b) What is corrosion? Explain the electrochemical theory of corrosion 4
7. (a) Describe any four features of organic compounds. 1x4
(b) Define alkyl halides, how are they prepared from alcohols. 1+3
8. (a) Define polymerisation. Explain the linear polymerisation of ethyne upto the formation of Neoprene. 4
(b) How does acetaldehyde react with? 4
(i) HCN (ii) $NaHSO_3$ (iii) NH_2OH (iv) H_2NNH_2
9. (a) Give the reaction of phenol with (i) HCHO (ii) Br_2 (iii) H_2/Ni 2+1+1
(b) Give the reaction mechanism of: (i) Nitration of benzene (ii) Sulphonation of benzene. 2+2