

Objective
Paper Code
8487

Intermediate Part Second - 103
CHEMISTRY (Objective) GROUP - I
Time: 20 Minutes Marks: 17

Roll No. : _____



Q.No.1 You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill the relevant circle in front of that question number on computerized answer sheet. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero marks in that question. Attempt as many questions as given in objective type question paper and leave other circles blank.coa

FBD-92-22

S.#	Questions	A	B	C	D
1	During nitration of benzene, the active nitrating agent is:	NO ₂	HNO ₃	NO	NO ₂ ⁺
2	For which Mechanism, the first step involved is the same?	E1 and E2	E2 and S _N 2	S _N 1 and E2	E1 and S _N 1
3	Which enzyme is not involved in fermentation of starch?	Diastase	Zymase	Urease	Invertase
4	Cannizzaro's reaction is not given by:	Acetaldehyde	Formaldehyde	Benzaldehyde	Trimethyl acetaldehyde
5	Acetic acid was first isolated from:	Milk	Vinegar	Butter	Red ant
6	Which is an addition polymer?	Nylon 6-6	Terylene	Polystyrene	Epoxy resin
7	Phosphorus helps the growth of:	Root	Leave	Stem	Seed
8	The pH range of the acid rain is:	7 - 6.5	6.5 - 6	6 - 5.6	Less than 5
9	Half of the atmospheric mass is concentrated in the lower:	5.6 km	10.6 km	15.6 km	20.6 km
10	Among alkali metal ions, minimum hydration energy is shown by:	Li ⁺	Na ⁺	Rb ⁺	K ⁺
11	The oxide of beryllium is:	Acidic	Basic	Neutral	Amphoteric
12	Which element is not present abundantly in earth's crust?	Si	Al	Na	O
13	Which catalyst is used to contact process?	V ₂ O ₅	Fe ₂ O ₃	SO ₃	Ag ₂ O
14	Chlorine heptaoxide (Cl ₂ O ₇) reacts with water to form:	Hypochlorous acid	Chloric acid	Perchloric acid	Chlorine and oxygen
15	Coordination number of Pt in [Pt Cl(NO ₂)(NH ₃) ₄] is:	02	04	01	06
16	Which set of hybrid orbitals has planar triangular shape?	sp ²	sp ³	sp	dsp ²
17	Vinyl acetylene combines with HCl to form:	Poly acetylene	Chloroprene	Benzene	Divinyl acetylene

311-XII132021-40000

CHEMISTRY (Subjective) GROUP - I

Time: 02:40 Hours

Marks: 68

F30-9/22

SECTION - I**2. Write short answers to any EIGHT parts.**

16

- (i) Why the size of cation is smaller than that of parent atom?
- (ii) ZnO oxide is amphoteric oxide. Justify with two reactions.
- (iii) Write any two uses of gypsum in industry.
- (iv) Write two major problems during manufacturing of NaOH in diaphragm cell.
- (v) Write four uses of borax.
- (vi) Why are liquid silicones preferred over ordinary organic lubricants?
- (vii) Write any four uses of H_2SO_4 .
- (viii) Write four similarities of oxygen and sulphur.
- (ix) Why does damaged tin plated iron get rusted quickly?
- (x) What is sacrificial corrosion?
- (xi) What are fertilizers? Why they are needed?
- (xii) Write any four essential qualities of good fertilizer.

3. Write short answers to any EIGHT parts.

16

- (i) Why iodine has metallic luster?
- (ii) Give any four uses of bleaching powder.
- (iii) Define functional group and give two examples.
- (iv) What is metamerism? Give example.
- (v) What is Clemmensen reduction? Give one example.
- (vi) How is mustard gas prepared? Give its use.
- (vii) How does ethyne react with water in the presence of $HgSO_4/H_2SO_4$
- (viii) Write a method for preparation of ethyl magnesium bromide in laboratory.
- (ix) What are β -eliminations reactions?
- (x) Differentiate between conjugated and derived proteins.
- (xi) Write structure of cholesterol.
- (xii) Give two difference between DNA and RNA.

4. Write short answers to any SIX parts.

12

- (i) What happens when Cl_2 is passed through benzene in sunlight?
- (ii) Convert benzene into glyoxal.
- (iii) Give IUPAC name: (a) $CH_3 - CH(OH)COOH$ (b) $CH_2(OH) - CH_2(OH)$
- (iv) Define fermentation. Give its necessary conditions.
- (v) Convert ethanal into ethanol.
- (vi) What are Zwitter ions? Give example.
- (vii) What is glacial acetic acid? Why is it called so?
- (viii) How acid rain affects our environment? Briefly discuss.
- (ix) What are leachates? Briefly explain.

SECTION - II Attempt any THREE questions. Each question carries 08 marks.

5. (a) Discuss the position of hydrogen on top of group IA. (four similarities and four differences) 04
(b) Write applications of aluminium. (any eight) 04
6. (a) Write the formulas of these minerals: (i) Dolomite (ii) Asbestos (iii) Epsom salt (iv) Sylvite 04
(b) Define corrosion. Explain electrochemical theory of corrosion. 04
7. (a) What is orbital hybridization? Explain structure of ethane on the basis of sp^3 -hybridization? 04
(b) Explain mechanism of S_N1 reactions with a suitable example. 04
8. (a) Describe the Kolbe's electrolytic method for the preparation of alkenes along with mechanism. 04
(b) Explain Cannizzaro's reaction with the help of mechanism of formaldehyde. 04
9. (a) What are Friedel craft alkylation reaction? Give its mechanism. 04
(b) Give the reaction of phenol with: (i) HNO_3 (ii) H_2SO_4 (iii) CH_3COCl (iv) Br_2 water 04

Roll No. : _____

Objective
Paper Code
8482

Intermediate Part Second - 103

CHEMISTRY (Objective) GROUP - II

Time: 20 Minutes

Marks: 17

FBO-92-22

Q.No.1 You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill the relevant circle in front of that question number on computerized answer sheet. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero marks in that question. Attempt as many questions as given in objective type question paper and leave other circles blank.coa

S.#	Questions	A	B	C	D
1	Keeping in view the size of atoms, which order is the correct?	Mg > Sr	Ba > Mg	Lu > Ce	Cl > I
2	Which does not belong to alkaline earth metals?	Be	Ra	Ba	Rn
3	Which metal is used in the thermite process because of its activity?	Iron	Copper	Aluminium	Zinc
4	Laughing gas is chemically:	NO	N ₂ O	NO ₂	N ₂ O ₄
5	The anhydride of HClO ₄ is:	ClO ₃	ClO ₂	Cl ₂ O ₅	Cl ₂ O ₇
6	Coordination number of Pt in [Pt Cl(NO ₂)(NH ₃) ₄] is:	2	4	1	6
7	A double bond consists of:	Two sigma bonds	One sigma and one pi bond	One sigma and two pi bonds	Two pi bonds
8	Vinyl acetylene combines with HCl to form:	Poly acetylene	Benzene	Chloroprene	Divinyl acetylene
9	Benzene cannot undergo:	Substitution reaction	Addition reaction	Oxidation reaction	Elimination reaction
10	S _N 2 reactions can be best carried out with:	Primary alkyl halides	Secondary alkyl halides	Tertiary alkyl halides	All these
11	Which enzyme is not involved in fermentation of starch?	Diastase	Zymase	Urease	Invertase
12	Cannizzaro's reaction is not given by:	Formaldehyde	Acetaldehyde	Benzaldehyde	Trimethyl acetaldehyde
13	Which reagent is used to reduce a carboxylic group to an alcohol?	H ₂ /Ni	H ₂ /Pt	NaBH ₄	LiAlH ₄
14	A polymeric substance that is formed in the liquid state and then hardened to a rigid solid is called a:	Fiber	Plastic	Varnish	Polyamide resin
15	Phosphorous helps the growth of:	Root	Leaf	Stem	Seed
16	Fungicides are the pesticides which:	Control the growth of fungus	Kill insects	Kill plants	Kill herbs
17	In purification of potable water the coagulant used is:	Nickle sulphate	Copper sulphate	Barium sulphate	Alum

312-XII132021-5000

CHEMISTRY (Subjective) GROUP - II

Time: 02:40 Hours Marks: 68

FRD-92-22

SECTION – I**2. Write short answers to any EIGHT parts.**

16

- Why metallic character increases from top to bottom in a group of metals?
- What are polymeric halides? Give example.
- How is lime mortar prepared?
- Why is the aqueous solution of Na_2CO_3 alkaline in nature?
- How will you convert boric acid into borax and vice versa?
- Why CO_2 is non-polar in nature?
- What is meant by Fuming nitric acid?
- NO_2 is a strong oxidizing agent. Prove the truth of this statement giving examples.
- Why does damaged tin plated iron get rusted quickly?
- What are chelates? Give example.
- Describe prilling of urea.
- What do you mean by setting of cement?

3. Write short answers to any EIGHT parts.

16

- How ClO_2 is prepared? Give its reaction.
- What are freons and teflons? Give their importance.
- Define homologous series. Also give two examples.
- Why do ethers and ketones show metamerism? Justify.
- Write structural formula of (a) vinyl bromide (b) 3-n-propyl-1, 4-pentadiene.
- How will you prepare propene from isopropyl chloride?
- Identify "A and B": $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH} \xrightarrow{\text{PCl}_5} \text{A} \xrightarrow{\text{Na/Ether}} \text{B}$
- Convert methane into methanol.
- Discuss the reactivity of alkyl halides.
- What is saponification number? Give saponification number of tripalmitate.
- Explain the classes of enzymes with one example in each (a) isomerase (b) lyases.
- Discuss the specificity of enzymes.

4. Write short answers to any SIX parts.

12

- How is m-chloronitrobenzene prepared from benzene?
- Define resonance. Give one example.
- How ethanol reacts with $\text{Conc} \cdot \text{H}_2\text{SO}_4$ at different temperatures?
- Write note on Lucas test.
- How will you distinguish between butanone and 3-pentanone?
- Write four uses of acetic acid.
- Define essential and non-essential amino acids.
- What are leachates?
- Define oxidizing and reducing smog.

SECTION – II Attempt any THREE questions. Each question carries 08 marks.

- (a) What is ionization energy? Give an example. How does it vary in group and periods? 04
(b) Write eight uses of borax. 04
- (a) Compare the chemical behaviour of lithium with magnesium. (any four points) 04
(b) Describe the following properties of transition metals (i) Alloy formation (ii) Paramagnetism. 04
- (a) Define sp -hybridization. Explain the structure of ethyne on the basis of sp -hybridization. 04
(b) Explain nucleophilic substitution bimolecular reaction. ($\text{S}_{\text{N}}2$) 04
- (a) Explain the acidic character of alkynes with two examples. 04
(b) What is Cannizzaro's reaction? Explain with mechanism. 04
- (a) Explain the terms with reference to alcohols: (i) Dehydration (ii) Oxidation 04
(b) Explain the rules for nomenclature of monocyclic aromatic hydrocarbons and their derivatives. (any four) 04