FSD

Objective
Paper Code
8483

Intermediate Part Second FBD-91-21

Roll No. : _____

CHEMISTRY (Objective) GROUP - I

Time: 20 Minutes Marks: 17

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.**

S.#	Questions	A	B	C	D
1	During the manufacturing process of cement the temperature of decomposition zone goes up to:	600°C	900°C	1000°C	1200°C
2	Carboxylic acids on reduction with HI and red phosphorus gives:	Alkanes	Alcohols	Aldehydes	Ketones
3	Which acid is used in the manufacture of synthetic fiber?	Formic acid	Oxalic acid	Carbonic acid	Acetic acid
4	The compound used in the processing of anti-polio vaccine is:	Acetaldehyde	Formaldehyde	Acetone	Ethylbromide
5	Formalin is _____ solution of Formaldehyde in water.	10%	20%	40%	60%
6	Which compound will have maximum repulsion with H_2O ?	C_6H_6	C_2H_5OH	$CH_3CH_2CH_2OH$	CH_3-O-CH_3
7	Which is not a nucleophile?	H_2O	H_2S	BF_3	NH_3
8	The electrophile in aromatic sulphonation is:	H_2SO_4	HSO_4^-	SO_3	SO_3^+
9	Formula of chloroform is:	$CH_3C\ell$	$CC\ell_4$	$CH_2C\ell_2$	$CHC\ell_3$
10	A double bond consists of:	Two sigma bonds	One sigma and one pi bond	One sigma and two pi bonds	Two pi bonds
11	The colour of transition metal complexes is due to:	d-d transition of electrons	Paramagnetic nature of transition elements	Ionization	Loss of S-electrons
12	The anhydride of $HC\ell O_4$ is:	$C\ell O_3$	$C\ell O_2$	$C\ell_2O_5$	$C\ell_2O_7$
13	Which halogen is a solid at room temperature and pressure?	F_2	$C\ell_2$	Br_2	I_2
14	Among group VA elements, the most electronegative element is:	Sb	N	P	As
15	Tincal is a mineral of:	$A\ell$	B	Si	C
16	Chile Saltpeter has the chemical formula:	$NaNO_3$	KNO_3	$Na_2B_4O_7$	$Na_2CO_3 \cdot H_2O$
17	Mark the correct statement:	Metallic character increases down the group	Metallic character increases from left to right along a period	Metallic character remains the same from left to right along a period	Metallic character remains the same down the group

FSD

Intermediate Part Second

Roll No. _____

CHEMISTRY (Subjective) GROUP - I

Time: 02:40 Hours Marks: 68 FBD-41-21

SECTION – I

2. **Write short answers to any EIGHT parts.** 16

(i) Why anionic radius is greater than parent atom?
(ii) Diamond is a non-conductor while graphite is a good conductor. Give reason.
(iii) Complete and balance the equations: (a) $LiNO_3 \xrightarrow{heat}$ (b) $NaNO_3 \xrightarrow{heat}$
(iv) Describe two problems during manufacturing of NaOH by diaphragm cell.
(v) Convert Boric acid into tetra boric acid.
(vi) Write the reaction of H_3BO_3 with (a) NaOH (b) Na_2CO_3
(vii) Write any two uses of boric acid.
(viii) Write two methods for preparation of nitrogen oxide (NO).
(ix) Write any two reactions of H_2SO_4 as an oxidizing agent.
(x) How diammonium phosphate is prepared?
(xi) Define cement.
(xii) Which types of raw material is used in cement? Give their names.

3. **Write short answers to any EIGHT parts.** 16

(i) Write equations for the reactions of chlorine with hot and cold NaOH.
(ii) Give four uses of bleaching powder.
(iii) Arrange the oxy acids of halogen in increasing order of their acidic strength.
(iv) What is sacrificial corrosion?
(v) What are interstitial compounds?
(vi) Write mechanism for nitration of benzene.
(vii) Convert benzene into (a) Hexachlorocyclohexane (b) Benzene sulphonic acid.
(viii) What is Tollen's test?
(ix) Write general mechanism for the acid catalysed nucleophilic addition reactions of carbonyl compounds.
(x) Write four uses of acetic acid.
(xi) Convert acetic acid into (a) Ethane (b) Ethyl alcohol.
(xii) Write structural formulae of (a) Malonic acid (b) Phthalic acid.

4. **Write short answers to any SIX parts.** 12

(i) Define heterocyclic compounds and give two examples with names.
(ii) What is metamerism? Give one example.
(iii) Write the structural formulas for these compounds. (a) 3-n-propyl-1, 4-pentadiene (b) But-1-en-3-yne
(iv) How will you convert? (a) Ethene into ethyl alcohol (b) Ethene into ethyne.
(v) Define Markownikov's rule and give one example.
(vi) Define allyl halide, which is the best method of preparing allyl halide.
(vii) Give IUPAC names of following compounds:

(a) $(C_2H_5)_2CH-CH_2-\underset{C\ell}{CH}-CH_3$ (b) $(CH_3)_2CH-CH_2-CH(C_2H_5)CH_2C\ell$

(viii) How phenol is prepared from sodium salt of benzene sulphonic acid?
(ix) Give uses of ethanol. Only four.

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

5. (a) Describe variation of melting point and boiling point in periods and groups of modern periodic table. 04
(b) Describe peculiar behaviour of Be. 04

6. (a) Write preparation and two reactions of HNO_2. 04
(b) Write a note on these properties of transition elements: (i) Binding energies (ii) Oxidation state 04

7. (a) Explain geometrical isomerism with suitable examples. 04
(b) What is Cannizzaro's reaction? Explain with mechanism. 04

8. (a) Describe any four methods for the preparation of alkenes. 04
(b) What is B-Elimination reaction? Explain E_2 reaction in detail. 04

9. (a) What are Friedel and Craft's reactions? Give one example in each case with mechanism. 04
(b) How will you obtain pure ethanol by fermentation of starch. 04

Roll No. : _____

Objective
Paper Code
8488

Intermediate Part Second F30-42-21

CHEMISTRY (Objective) GROUP - II

Time: 20 Minutes Marks: 17

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.**

S.#	Questions	A	B	C	D
1	Preparation of vegetable ghee involves:	Halogenation	Hydrogenation	Hydroxylation	Dehydroge-nation
2	Which is meta-directing group?	– OH	$-NH_2$	$-NO_2$	– $C\ell$
3	For which mechanism, first step involved is same?	E_1 and E_2	E_2 and SN_2	E_1 and SN_1	SN_1 and E_2
4	Ethanol can be converted into ethanoic acid by:	Hydrogenation	Oxidation	Hydration	Halogenation
5	The homologous series of both aldehydes and ketones have the general formula:	$C_nH_{2n}O_2$	C_nH_{2n+2}	$C_nH_{2n}O$	C_nH_{2n-2}
6	Formalin is _____ solution of Formaldehyde in water.	10%	20%	40%	60%
7	Alkane nitrile can be converted into carboxylic acids by:	Hydration	Acidic hydrolysis	Hydrogenation	Oxidation
8	Which reagent is used to covert a carboxylic acid to an alcohol?	H_2 / Ni	H_2 / Pt	$NaBH_4$	$LiAlH_4$
9	All the nitrogen fertilizers except _____ make the soil acidic.	Calcium nitrate	Ammonium nitrate	Potassium nitrate	All these
10	Ionization energy of calcium is lower than _____ element.	Strontium	Magnesium	Barium	Sodium
11	Which compound is added in Down's cell to lower the melting point of sodium chloride?	$CaSO_4$	$CaC\ell_2$	$Ca(NO_3)_2$	Na_2CO_3
12	Boric acid cannot be used:	As antiseptic in medicine	For washing eyes	In soda bottles	For enamels and glazing
13	Nitric acid does not react with all metals given, except:	Gold	Platinum	Magnesium	Iridium
14	Chlorine heptoxide ($C\ell_2O_7$) reacts with water to form:	Hypochlorous acid	Chloric acid	Perchloric acid	Chlorine and oxygen
15	$C\ell^-$ cannot oxidize:	F^-	Br^-	I^-	Na-metal
16	The colour of $[Ti(H_2O)_6]^{3+}$ ion is:	Red	Yellow	Violet	Green
17	Fredrick Wholer synthesized urea by heating:	$NH_4C\ell$	$(NH_4)_2CO_3$	NH_4CNO	NH_3

Intermediate Part Second Roll No. _____

CHEMISTRY (Subjective) GROUP - II

Time: 02:40 Hours Marks: 68 FBD-42-21

SECTION – I

2. **Write short answers to any EIGHT parts.** 16
   (i) The oxidation states vary in a period but remain almost constant in a group. Why?
   (ii) The hydration energies of the ions are in the following order $A\ell^{3+} > Mg^{2+} > Na^{+}$. Justify.
   (iii) Write the names and chemical formulas of important minerals of sodium.
   (iv) What happens when (a) Lithium carbonate is heated (b) Lithium hydroxide is heated to red hot?
   (v) How borax can be converted into orthoboric acid?
   (vi) Why nitric acid is frequently transported in Aluminium containers?
   (vii) Write the names and chemical formulas of four important boric acids.
   (viii) How does nitrogen differ from other elements of its group?
   (ix) Write the equation for the reaction between conc $\cdot H_2SO_4$ and copper and explain what type of reaction is it?
   (x) Why nitrogen is necessary for plants? Give names of two nitrogen fertilizers.
   (xi) ~~What do you mean by setting of cement?~~
   (xii) Write any four points of essential qualities of a good fertilizer.

3. **Write short answers to any EIGHT parts.** 16
   (i) Give reactions of bleaching powder with ammonia and carbon dioxide.
   (ii) Write reaction for the preparation of bleaching powder and names of the methods used to prepare it.
   (iii) Write names of these compounds. (a) $NaC\ell O_3$ (b) HIO_3
   (iv) Why does damaged tin plated iron get rusted quickly?
   (v) What are substitutional alloys? Give examples.
   (vi) What arguments were given by Kekule to confirm the regular hexagonal structure for benzene?
   (vii) How would you prepare benzene from acetylene and toluene from n-heptane?
   (viii) What is Benedict's solution test?
   (ix) Write the names of those weak oxidizing agents, which can oxidize aldehydes but not the ketones?
   (x) Write molecular formulas of palmitic acid and stearic acid.
   (xi) How would you prepare acetic acid from ethanol and a suitable alkane nitrile?
   (xii) Give two reactions of carboxylic acids in which OH group of the acids are involved.

4. **Write short answers to any SIX parts.** 12
   (i) Define functional group. Give any two examples.
   (ii) What is tautomerism? Give example.
   (iii) What is hydrogenolysis? Give example.
   (iv) Convert CH_4 into formaldehyde by catalytic oxidation.
   (v) What is mustard gas? How it is prepared?
   (vi) Define nucleophile and electrophile.
   (vii) ~~Complete the reactions: (a) $C_2H_5Br + NH_3 \rightarrow$ (b) $C_2H_5Br + CH_3COONa \rightarrow$~~
   (viii) Write the structural formulae of lactic acid and tartaric acid.
   (ix) Distinguish between methanol and ethanol by one test.

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

5. (a) Write similarities and differences of hydrogen with IV-A group elements. 04
   (b) Describe diaphragm cell method for preparation of NaOH. 04

6. (a) Write equations for the reactions of conc $\cdot HNO_3$ with: (i) Zn (ii) Cu (iii) Sn (iv) HI 04
   (b) Describe electrochemical theory to explain corrosion. 04

7. (a) Describe atomic orbital hybridization. Explain sp^2-hybridizaton. 04
   (b) What is aldol condensation reaction? Give an example and mechanism. 04

8. (a) Explain Markownikov's rule with mechanism and two examples. 04
   (b) Explain S_N2 reactions with example and characteristics. 04

9. (a) How straight chain structures for the benzene is ruled out. 04
   (b) Give the preparation of methyl alcohol on large scale. How it may be distinguished from ethyl alcohol. 04

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