PAPER CODE - 8481 [redacted]

12th CLASS - 1st Annual 2023

CHEMISTRY **TIME: 20 MINUTES**

GROUP : FIRST **OBJECTIVE** **MARKS: 17**

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. Use marker or pen to fill the Circle. Cutting or filling two or more circles will result in zero mark in that question.

QUESTION NO. 1 DGK-12-1-23

1	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
2	Which one of the following does not belong to alkaline - earth metals? (A) Be (B) Ra (C) Ba (D) Rn
3	Which element forms an ion with charge +3? (A) Beryllium (B) Aluminium (C) Carbon (D) Silicon
4	Laughing gas is chemically. (A) NO (B) N_2O (C) NO_2 (D) N_2O_4
5	Which of the following hydrogen halide is the weakest acid in solution? (A) HF (B) HBr (C) HI (D) HCl
6	Total number of transition elements are (A) 10 (B) 14 (C) 40 (D) 68
7	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
8	Synthetic rubber is made by polymerization of (A) Chloroform (B) Acetylene (C) Divinylacetylene (D) Chloroprene
9	Aromatic hydrocarbons are the derivates of (A) Normal series of paraffins (B) Alkene (C) Benzene (D) Cyclohexane
10	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
11	Ethanol can be converted into ethanoic acid by (A) Hydrogenation (B) Hydration (C) Oxidation (D) Fermentation
12	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
13	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
14	Amino acids reacts with ninhydrin to form intensely coloured ..... product. (A) Reddish green (B) Bluish violet (C) Yellowish (D) Pinkish
15	Nylon is polyamide made by hexamethylene diamine with. (A) Adipic acid (B) Picric Acid (C) Oxalic Acid (D) Acetic Acid
16	Urea is high quality (A) Potassium fertilizers (B) Phosphatic fertilizers (C) Nitrogenous fertilizers (D) Calcarious fertilizers
17	Ozone is a gas having oxygen atom. (A) Three (B) Two (C) One (D) Four

12th CLASS – 1st Annual 2023

CHEMISTRY **SUBJECTIVE** **TIME: 2 HRS 40 MINUTES**

GROUP: FIRST **MARKS: 68**

DGK-12-1-23

SECTION-I

QUESTION NO. 2 Write short answers any Eight (8) of the following **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 ?

QUESTION NO. 3 Write short answers any Eight (8) of the following **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 $CH_3 - CH_2 - Br \longrightarrow (CH_3 - CH_2)_4 N^+ Br^-$
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)

QUESTION NO. 4 Write short answers any Six (6) of the following **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 questions from this section **8 x 3 = 24**

Q.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 beryllium in which it differs from its own family members.
Q.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.
Q.7-(A)	What is isomerism ? Discuss any three types of structured isomerism.
(B)	Discuss the atomic orbital treatment to explain the structure of benzene.
Q.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)
Q.9-(A)	Explain Cannizzaro's reaction with mechanism. Which aldehydes give this reaction ?
(B)	How are carbonylic acids prepared from esters and alkenes ?

D

PAPER CODE – 8486

12th CLASS – 1st Annual 2023

CHEMISTRY **TIME: 20 MINUTES**

GROUP : SECOND **OBJECTIVE** **MARKS: 17**

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. Use marker or pen to fill the Circle. Cutting or filling two or more circles will result in zero mark in that question.

QUESTION NO. 1 DGK-12-2-23

1	Which of the following acid can be use as a catalyst in Friedal - Crafts reaction ? (A) $AlCl_3$ (B) HNO_3 (C) $BeCl_2$ (D) NaCl
2	When CO_2 is made to react with ethyl magnesium iodide, followed by acid hydrolysis, the product is (A) Propane (B) Propanoic acid (C) Propanal (D) Propanol
3	Ethanol can be converted into ethanoic acid by (A) Hydrogenation (B) Hydration (C) Oxidation (D) Fermentation
4	Rectified spirit contains alcohol about (A) 80 % (B) 85 % (C) 90 % (D) 95 %
5	Silver mirror test is given by . (A) Ethers (B) Ketones (C) Aldehydes (D) Alcohols
6	Amino acids are prepared by (A) Kolbe 's method (B) Strecker Synthesis (C) Fittig Reaction (D) William's son synthesis
7	The percentage of nitrogen in urea is (A) 16 % (B) 46 % (C) 56 % (D) 80 %
8	Which one of the following base is not present in DNA? (A) Adenine (B) Uracil (C) Thymine (D) Cytosine
9	The proportion of N_2 in atmosphere is (A) 78 % (B) 21 % (C) 0.9 % (D) 0.03 %
10	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
11	The oxides of Beryllium are (A) Acidic (B) Basic (C) Amphoteric (D) None of these
12	Which metal is used in thermite process due to its acitivity? (A) Iron (B) Copper (C) Aluminium (D) Zinc
13	Among group V-A elements the most electronegative element is (A) Sb (B) N (C) P (D) As
14	Which of the following Hydrogen halide is the weakest acid in solution? (A) HF (B) HBr (C) HCl (D) HI
15	The colour of transition metal complexes is due to (A) d – d transition of electrons (B) Paramagnetic nature of transition elements (C) ionization (D) Loss of s – electrons
16	The state of hybrindization of carbon atom in methane is (A) sp^3 (B) sp^2 (C) sp (D) dsp^2
17	The formula of chloroform is (A) CH_3Cl (B) CCl_4 (C) CH_2Cl_2 (D) $CHCl_3$

12th CLASS – 1st Annual 2023

CHEMISTRY **SUBJECTIVE** **TIME: 2 HRS 40 MINUTES**

GROUP: SECOND **MARKS: 68**

DGK-12-2-23

SECTION-I

QUESTION NO. 2 Write short answers any Eight (8) of the following 16

i	What are silicates ? Give two examples.
ii	How does H_3BO_3 react with ethyl alcohol ?
iii	Explain why CO_2 is non – polar and acidic in character ?
iv	How is TNT prepared from toluene ?
v	Write structural formula of the following compounds. (a) Naphthalene (b) Acetophenone
vi	Why –OH group is ortho - para directing ?
vii	What is the difference between a glycosidic linkage and a peptide linkage ?
viii	How " pH change " and " radiation " affect the enzyme activity ?
ix	How is soap prepared from triglyceride ? Give reaction.
x	Which chloride of nitrogen is powerful eye irritant and how is it formed from ammonia ?
xi	How are detergents threats to aquatic animal life ?
xii	Why is chlorine used for the disinfection of water ?

QUESTION NO. 3 Write short answers any Eight (8) of the following 16

i	What is Crude Oil ? Give its importance.
ii	Give names and formulas of any four functional groups.
iii	What is Sabatier-Sendem's reaction ?
iv	Discuss the reactivity of Pi (π) bond.
v	Give any two commercial uses of ethyne.
vi	What is meant by fuming nitric acid ?
vii	Give precipitation reactions of H_2SO_4.
viii	How is HNO_2 prepared ? Give one reaction.
ix	Discuss the reactivity of alkyl halides.
x	Define nucleophile , give two examples.
xi	Name essential steps in paper manufacturing process.
xii	Give the importance of nitrogen fertilizers.

QUESTION NO. 4 Write short answers any Six (6) of the following 12

i	Give the systematic names of following complexes. (a) $K_4[Fe(CN)_6]$ (b) $[\,PtCl\,(NO_2)\,(NH_3)_4\,]\,SO_4$
ii	How does the electronic configuration of valence shell affect paramagnetic properties of transition elements ?
iii	Give two methods of preparations of $K_2Cr_2O_7$
iv	How will you distinguish between 1 – propanol and 2 – propanol ?
v	How will you convert formaldehyde into ethyl alcohol ?
vi	How does phenol react with (a) Zn dust (b) Bromine water
vii	Write 2, 4 – DNPH – Test of carbonyl compounds.
viii	Give the mechanism of phenyl hydrazine with acetone.
ix	What is vinegar ?

SECTION-II

Note: Attempt any Three questions from this section 8 x 3 = 24

Q.5-(A)	How do you justify the position of hydrogen at the top of group IA and VII A elements ?
(B)	Describe the peculiar behavior of beryllium.
Q.6-(A)	What are halogens ? Give three application of Bromine and Iodine each.
(B)	What is Paper ? Describe the process of digestion in paper industry.
Q.7-(A)	Define structural isomerism. Discuss its three types.
(B)	Define sulphonation of benzene. Discuss its mechanism.
Q.8-(A)	Starting from ethyne prepare: (1) Acetaldehyde (2) Benzene (3) Chloroprene (4) Glyoxal
(B)	Define nucleophil substitution reaction. Describe in detail S_N1 reactions.
Q.9-(A)	Explain with mechanism Aldol Condensation.
(B)	How Acetic acid is prepared from (i) Grignard reagent (ii) Hydrolysis of Esters (iii) Alkene (iv) Alcohol

D