Series P/PB2/1

SET 1

CLASS XII PRE-BOARD EXAMINATION – 2025-26

Q.P. Code: 043/2/1

Roll No. | | | | | | | | |

Candidate must write the Q.P. Code on the title page of the answer-book.

- Please check that this question paper contains **7** printed pages.
- Please check that this question paper contains **33** questions.
- Q.P. Code given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- **Please write down the serial number of the question in the answer-book before attempting it.**
- 15 minute time has been allotted to read this question paper. The students will read the question paper only and will not write any answer on the answer-book during this period.

CHEMISTRY (Theory)

Time allowed : 3 hours *Maximum Marks : 70*

General Instructions:

(i) *This question paper contains **33** questions. **All** questions are compulsory.*

(ii) *This question paper is divided into **five** sections Section **A, B, C, D** and **E**.*

(iii) ***Section A** questions number **1 to 16** are multiple choice type questions. Each question carries **1** mark*

(iv) ***Section B** questions number **17 to 21** are very short answer type questions. Each question carries **2** marks*

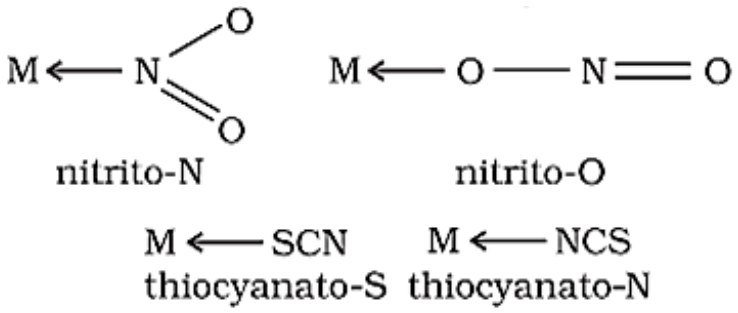
(v) ***Section C** questions number **22 to 28** are short answer type questions. Each question carries **3** marks*

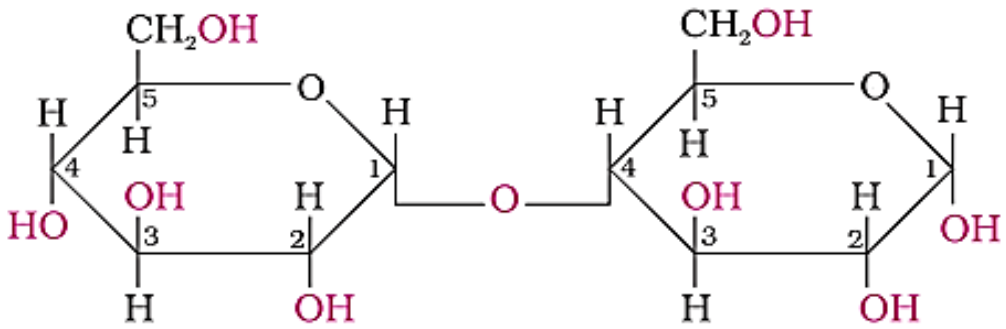
(vi) ***Section D** questions number **29 and 30** are case-based questions. Each question carries **4** marks*

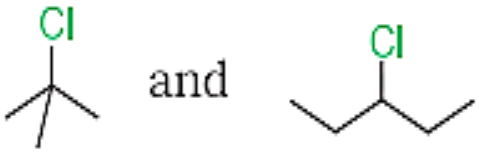
(vii) ***Section E** questions number **31 to 33** are long answer type questions. Each question carries **5** marks*

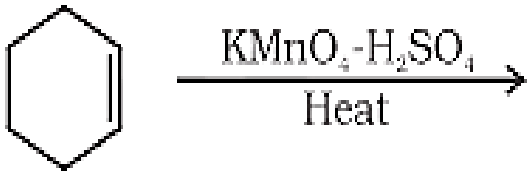
(viii) *There is no overall choice given in the question paper. However, an internal choice has been provided in few questions in all the sections except Section A.*

(ix) *Use of log tables and calculators is **not** allowed.*

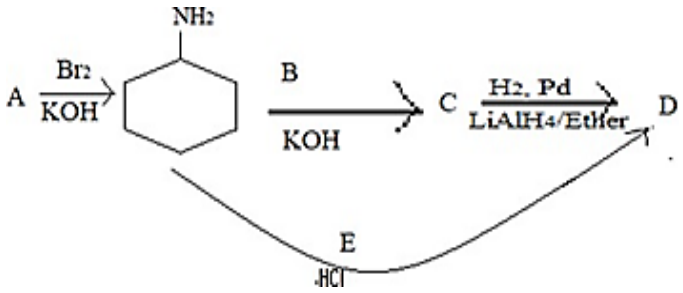
	SECTION A	
1)	Which of the following is an example for solid solutions a) Sea water b) Sugar solution c) Smoke d) 22 carat Gold	1
2)	Charge carried by 1 mole of electrons is a) 6.023×10^{23} c b) 9.65×10^{4} c c) 1.6×10^{-19} c d) 6.2×10^{19} c	1
3)	Which of the foowing statement is NOT correct a) Copper liberates hydrogen from acids b) In its higher oxidation states, manganese forms stable compounds with oxygen and fluorine c) Mn^{3+} and Co^{3+} are oxidizing agents in aqueous solution d) Ti^{2+} and Cr^{2+} are reducing agents in aqueous solution	1
4)	The unit of the rate of a reaction is the same as that of the rate constant for a a) First order reaction b) Zero order reaction c) Second order reaction d) Half order reaction	1
5)	The ligands which is shown below are coming under the class of  a) Chelating ligands b) Ambidentate ligands c) Didentate ligands d) Flexi dentate ligands	1
6)	If 75% of the first order reaction was completed in 32 minutes,50% of the same reaction would be completed in (a) 8 min (b) 4 min (c) 16 min (d) 24 min	1
7)	IUPAC name of the following $[Pt(NH_3)_2Cl_2]$ is (a) Diamminedicoridoplatinum(II) (b) diamminedichloridopatinum(IV) (c) diamminedichoridoplatinum(0) (d) dichoridodiammineplatinum(IV)	1
8)	Major product obtained on reaction of 3-Phenyl propene with HBr in presence of organic peroxide (a) 3-Pheny-1-bromopropane (b)1-phenyl-3-bromopropane (c) 1-penyl-2-bromopropane(d) 3-peny-2-bromopropane	1

9)	 What is the name of above structured carbohydrate (a) Sucrose (b) Maltose (c) Galactose (d) Amylose	1
10)	Which of the following reactions of glucose can be explained only by its cycic structure (a) Glucose forms pent acetate (b) Glucose reacts with hydroxylamine to form oximes (c) Pent acetate of glucose doesn't react with hydroxylamine (d) Glucose is oxidized by nitric acid to gluconic acid	1
11)	Solubility of gases in liquids decreases with rise in temperature because dissoution is (a) Endothermic and reversible process (b) exothermic and reversible process (c) Endothermic and irreversible process (d) exothermic and irreversible process	1
12)	Which of the following base is not present in DNA? (a) Adenine (b) Thymine (c) Cytosine (d) Uracil	1
13)	Assertion(A):- Copper sulphate cannot be stored in Zinc vessel Reason(R):- Zinc is less reactive than copper (a) Both A and R are true and R is the correct explanation of A (b) Both A and R are true but R is not the correct explanation of A (c) A is true but R is false (d) A is false but R is true	1
14)	Assertion(A):- Aliphatic primary amines can be prepared by Gabriel phthalimide synthesis Reason(R):- Alkyl halides undergo nucleophilic substitution with anion formed by phthalimide (a) Both A and R are true and R is the correct explanation of A (b) Both A and R are true but R is not the correct explanation of A (c) A is true but R is false (d) A is false but R is true	1

15)	Assertion(A):- Vitamin D can be stored in our body Reason(R):- Vitamin D is a fat soluble vitamin (a) Both A and R are true and R is the correct explanation of A (b) Both A and R are true but R is not the correct explanation of A (c) A is true but R is false (d) A is false but R is true	1
16)	Assertion(A):- Among Cu^{2+} and Cu^{1+} ions, the more stable ion is Cu2+ Reason(R):- For determination of stability of ion, its electrode potential is more important factor than its electronic configuration (a) Both A and R are true and R is the correct explanation of A (b) Both A and R are true but R is not the correct explanation of A (c) A is true but R is false (d) A is false but R is true.	1
	SECTION B	
17	A 5% solution of $Na_2SO_4.10\ H_2O$ (MW=322) is isotonic with 2% solution of non-electrolytic, on-volatile substance X.Findout the molecular weight of X? OR Cooking is faster in pressure cooker tan in cooking pan why?	2
18	Complete the following $2\ CrO_4^{2-} + 2H^+ \rightarrow$ $2MnO_4^- + H_2O + I^- \longrightarrow$	2
19	Explain the following a.CO is stronger complexing reagent than ammonia b. Co^{2+} is easily oxidized to Co^{3+} in the presence of a strong ligand	2
20	Out of the following pairs which one will undergo SN1 faster and why? 	2
21	What happens when a. Phenol treated with chloroform and aqueous sodium hydroxide followed by hydrolysis in acidic medium b.Phenol on zinc dust distillation	2

	SECTION C	
22	(1) Gas (A) is more soluble in water than Gas (B) at the same temperature. Which one of the two gases will have the higher value of KH (Henrys constant) and why? (2) For a 5% solution of urea (Molar mass=60g/mol), calculate the osmotic pressure at 300K(R=0.0821K atm/J/mol)? OR (1) Account for the following: Aquatic species are more comfortable in lower layers of water than in upper layers during summer. (2) Why is freezing/melting point of a substance used as a criterion for testing the purity of a substance? (3) Fruits are preserved against bacterial action by adding sugar. Support your answer with a possible reason.	1 2 1 1 1
23	Name the cells used in the following devices 1.used in Appolo space programme 2. used in auto mobiles 3. In hearing aids	3
24	With suitable chemical equations explain the preparation of potassium dichromate from chromite ore	3
25	1. Write the formula of Tetraamminediaquacobalt(III) chloride 2. Draw the crystal field splitting in Octahedral complexes 3. $Ni(CO)_4$ is a stable complex. Give a feasible explanation.	1 1 1
26	1. Benzyl chloride is highly reactive towards the SN1 reaction why? 2. 2-bromobutane is optically active but 1-bromobutane is optically inactive why? 3. Electrophilic substitution reactions in haloarenes occurs slowly why?	1 1 1
27	1.Arrange the following acids in the increasing order of acidity $NO_2CH_2COOH, FCH_2COOH, NC\text{-}CH_2COOH, CHCl_2COOH$ 2. Identify the product in the reaction given below 	2 1
28	Explain the terms 1. Glycosidic linkage 2. Invert sugar 3. Oligosaccharides	 1 1 1

	SECTION D	
	CASE BASED QUESTIONS	
29	A Lead storage battery is the most important type of secondary cell having a Lead anode and a grid of Lead packed with PbO2 as cathode. A 38% solution of suphuric acid is used as electrolyte. (Density=1.294 g/mL).The battery holds 3.5 L of the acid. During the discharge of the battery, the density of sulphuric acid falls to 1.139 g/mL (20% sulphuric acid by mass. 1. Write the reaction taking place at the cathode when the battery is in use 2. How much electricity in terms of Faraday is required to carry out the reduction of one mole of PbO2? 3. What is the molarity of sulphuric acid before discharge? OR 3. (1) Lead storage battery is considered a secondary cell why? (2) Write the products of electrolysis when dilute suphuric acid is electrolyzed using Platinum electrodes	 1 1 2 1 1
30	Source based question:- **Read the passage given below and answer the following questions:** Both alcohols and phenols are acidic in nature, but phenols are more acidic than alcohols. Alcohols on releasing hydrogen give alkoxide ion and that of phenol gives phenoxide ion. Phenoxide ion is more stable. Presence of electron withdrawing groups increases the acidity of phenol. Picric acid is derived from phenol.Alcohols can undergo oxidation but it must contain alpha hydrogen atom. In Kolbe's reaction and Reimer-Tiemann reaction the starting material is phenol. 1) Tertiary alcohols will not undergo oxidation but primary and secondary alcohol will undergo oxidation.Justify 2) Draw the shape of Picric acid 3) Draw the resonating structures of phenol and phenoxide ions **OR** 3) Explain why phenoxide ion is more stable than phenol	 1 1 2 2
	SECTION E	
	LONG ANSWER TYPE	
31	a) Write any two difference between order and molecularity of a reaction. b) The rate constant for a first order reaction is 60 s^{-1}.How much time will it take to reduce the initial concentration of the reactant to 1/10 th of its initial value	2 2

	c) What are Pseudo first order reactions ? **OR** a) A reaction is first order in A and second order in B 1) Write the differential rate equation 2) How is the rate affected on increasing the concentration of B three times 3) How is the rate affected when the concentration of both A and B are doubled b) For a first order reaction ,show that time required for 99% completion is twice the time required for the completion of 90% of reaction	1 1 1 1 2
32)	a) An organic compound "A" with molecular formula $C_5H_8O_2$ is reduced to n-pentane on treatment with Zn-Hg/HCl. "A" forms a dioxime with hydroxylamine and gives a positive iodoform test and Tollens test. Identify the compound "A" deduce its structure b) Would you expect benzaldehyde to be more reactive or less reactive in nucleophilic addition reactions than propanal? Explain your answer? **OR** a) Explain with suitable chemical equation 1) Stephens reduction 2) Cannizzaros reaction 3) Wolf-Kishner reduction b) Distinguish with suitable test between 1) Benzophenone and acetophenone 2) Propanone and propanal	3 2 1 1 1 1 1
33	(a) Observe the reaction chart and find the compound A,B,C,D,E also write names  **OR** (a) Give reason for the following (1) Aniline gets coloured on standing in air for a long time (2) Ethyl amine is soluble in water but aniline is insoluble (3) Aniline does not undergo Friedel-crafts reaction (b) Arrange the following in the decreasing order of P_{Kb} values $C_2H_5NH_2$,$C_6H_5NHCH_3$,$(C_2H_5)_2NH$ and $C_6H_5NH_2$	5