

Marking Scheme

Strictly Confidential

(For Internal and Restricted use only)

Senior School Certificate Examination, 2024

SUBJECT NAME CHEMISTRY (Theory)

(FOR VISUALLY IMPAIRED CANDIDATES ONLY)(Q.P.CODE 56(B))

General Instructions: -

You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. A small mistake in evaluation may lead to serious problems which may affect the future of the candidates, education system and teaching profession. To avoid mistakes, it is requested that before starting evaluation, you must read and understand the spot evaluation guidelines carefully.

“Evaluation policy is a confidential policy as it is related to the confidentiality of the examinations conducted, Evaluation done and several other aspects. Its’ leakage to public in any manner could lead to derailment of the examination system and affect the life and future of millions of candidates. Sharing this policy/document to anyone, publishing in any magazine and printing in News Paper/Website etc may invite action under various rules of the Board and IPC.”

Evaluation is to be done as per instructions provided in the Marking Scheme. It should not be done according to one’s own interpretation or any other consideration. Marking Scheme should be strictly adhered to and religiously followed. **However, while evaluating, answers which are based on latest information or knowledge and/or are innovative, they may be assessed for their correctness otherwise and due marks be awarded to them. In class-X, while evaluating two competency-based questions, please try to understand given answer and even if reply is not from marking scheme but correct competency is enumerated by the candidate, due marks should be awarded.**

The Marking scheme carries only suggested value points for the answers

These are in the nature of Guidelines only and do not constitute the complete answer. The students can have their own expression and if the expression is correct, the due marks should be awarded accordingly.

The Head-Examiner must go through the first five answer books evaluated by each evaluator on the first day, to ensure that evaluation has been carried out as per the instructions given in the Marking Scheme. If there is any variation, the same should be zero after deliberation and discussion. The remaining answer books meant for evaluation shall be given only after ensuring that there is no significant variation in the marking of individual evaluators.

Evaluators will mark(√) wherever answer is correct. For wrong answer CROSS ‘X’ be marked. Evaluators will not put right (✓) while evaluating which gives an impression that answer is correct and no marks are awarded. **This is most common mistake which evaluators are committing.**

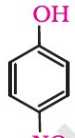
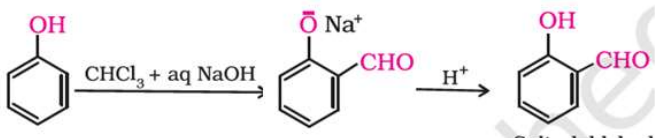
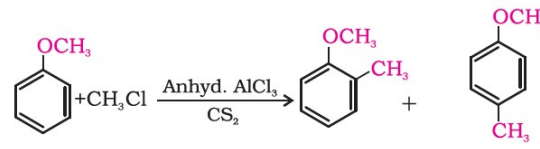
If a question has parts, please award marks on the right-hand side for each part. Marks awarded for different parts of the question should then be totaled up and written in the left-hand margin and encircled. This may be followed strictly.

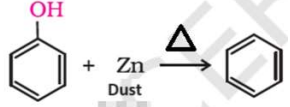
If a question does not have any parts, marks must be awarded in the left-hand margin and encircled. This may also be followed strictly.

If a student has attempted an extra question, answer of the question deserving more marks should be retained and the other answer scored out with a note **“Extra Question”**.

No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
A full scale of marks _____(example 0 to 80/70/60/50/40/30 marks as given in Question Paper) has to be used. Please do not hesitate to award full marks if the answer deserves it.
Every examiner has to necessarily do evaluation work for full working hours i.e., 8 hours every day and evaluate 20 answer books per day in main subjects and 25 answer books per day in other subjects (Details are given in Spot Guidelines).This is in view of the reduced syllabus and number of questions in question paper.
<p>Ensure that you do not make the following common types of errors committed by the Examiner in the past:-</p> <ul style="list-style-type: none"> ● Leaving answer or part thereof unassessed in an answer book. ● Giving more marks for an answer than assigned to it. ● Wrong totaling of marks awarded on an answer. ● Wrong transfer of marks from the inside pages of the answer book to the title page. ● Wrong question wise totaling on the title page. ● Wrong totaling of marks of the two columns on the title page. ● Wrong grand total. ● Marks in words and figures not tallying/not same. ● Wrong transfer of marks from the answer book to online award list. ● Answers marked as correct, but marks not awarded. (Ensure that the right tick mark is correctly and clearly indicated. It should merely be a line. Same is with the X for incorrect answer.) ● Half or a part of answer marked correct and the rest as wrong, but no marks awarded.
While evaluating the answer books if the answer is found to be totally incorrect, it should be marked as cross (X) and awarded zero (0)Marks.
Any unassessed portion, non-carrying over of marks to the title page, or totaling error detected by the candidate shall damage the prestige of all the personnel engaged in the evaluation work as also of the Board. Hence, in order to uphold the prestige of all concerned, it is again reiterated that the instructions be followed meticulously and judiciously.
The Examiners should acquaint themselves with the guidelines given in the “ Guidelines for Spot Evaluation ” before starting the actual evaluation.
Every Examiner shall also ensure that all the answers are evaluated, marks carried over to the title page, correctly totaled and written in figures and words.
The candidates are entitled to obtain photocopy of the Answer Book on request on payment of the prescribed processing fee. All Examiners/Additional Head Examiners/Head Examiners are once again reminded that they must ensure that evaluation is carried out strictly as per value points for each answer as given in the Marking Scheme.

MARKING SCHEME 2023
CHEMISTRY (Theory) - 043
 QP CODE 56(B)

Q.No	Value points	Mark
SECTION A		
1	B	1
2	C	1
3	D	1
4	A	1
5	A	1
6	A	1
7	D	1
8	C	1
9	A	1
10	C	1
11	D	1
12	A	1
13	C	1
14	A	1
15	A	1
16	C	1
SECTION B		
17	On adding non-volatile solute vapour pressure decreases. Therefore, in order to boil the solution, temperature has to be increased. Because it depends upon molality / number of solute particles.	1 1
18	(a) (i) $K_2[Zn(OH)_4]$ (ii) $[Pt(NH_3)_6]Cl_4$	1 1
OR		
18	b) i) A complex in which the metal atom/ion is bound to only one kind of donor group or ligand. ii) When a di- or polydentate ligand uses its two or more donor atoms simultaneously to bind to a single metal ion, it is called a chelate ligand.	1 1
19	(a) $(CH_3)_3C-I$, due to larger size of I / Iodide is a better leaving group.	$\frac{1}{2}$, $\frac{1}{2}$
	(b)  / p-nitrophenol	1
20	A)  B) 	1 1
21	A = CH_3CH_2CHO B = CH_3COCH_3	1,1
SECTION C		
22	$\Delta T_b = iK_b m$	$\frac{1}{2}$

	$= i \times \frac{K_b \times 1000 \times w_2}{M_2 \times w_1}$ $T_b - T_b^0 = 2 \times 0.52 \text{ K kg mol}^{-1} \times \frac{4 \text{ g}}{120 \text{ g mol}^{-1}} \times \frac{1000}{100 \text{ kg}}$ $T_b - T_b^0 = 0.347$ $T_b - 100^\circ\text{C} = 0.347^\circ\text{C}$ $T_b = 100.347^\circ\text{C} / 373.347 \text{ K}$	1 1 ½
23	<p>The conductivity of a solution at any given concentration is the conductance of one unit volume of solution kept between two platinum electrodes with unit area of cross section and at a distance of unit length. / Conductance of 1 cm³ of an electrolytic solution.</p> <p>Molar conductivity of a solution at a given concentration is the conductance of the volume V of solution containing one mole of electrolyte kept between two electrodes with area of cross section A and distance of unit length.</p> <p>Conductivity decreases with decrease in concentration whereas molar conductivity increases with decrease in concentration.</p>	1 1 ½ + ½
24	<p>a) Rate = k [A]¹[B]² b) Rate increases 9 times. c) Rate increases 8 times.</p>	1 1 1
25	<p>The energy used to split degenerate d-orbitals into two sets t_{2g} and e_g orbital.</p> <p>(a) $t_{2g}^5 e_g^0$ (b) $t_{2g}^3 e_g^2$</p>	1 1,1
26.	<p>(a) CH₃CN (b) 2, 4, 6 – trinitrophenol (c) CH₃ – CH₃ (d) But – 1 – ene (Attempt any three)</p>	1 × 3
27	<p>a) Carbylamine Reaction: Aliphatic and aromatic primary amines on heating with chloroform and ethanolic potassium hydroxide form isocyanides or carbylamines which are foul smelling substances.</p> $R-NH_2 + CHCl_3 + 3KOH \xrightarrow{\text{Heat}} R-NC + 3KCl + 3H_2O$ <p>b) Hoffmann Bromamide reaction: It is a method for preparation of primary amines by treating an amide with bromine in an aqueous or ethanolic solution of sodium hydroxide. The amine so formed contains one carbon less than that present in the amide.</p> $R-\overset{\text{O}}{\parallel}{C}-NH_2 + Br_2 + 4NaOH \longrightarrow R-NH_2 + Na_2CO_3 + 2NaBr + 2H_2O$ <p>c) Ammonolysis: An alkyl or benzyl halide on reaction with an ethanolic solution of ammonia undergoes nucleophilic substitution reaction in which the halogen atom is replaced by an amino (–NH₂) group. This process of cleavage of the C–X bond by ammonia molecule is known as ammonolysis.</p> $RNH_2 \xrightarrow{RX} R_2NH \xrightarrow{RX} R_3N \xrightarrow{RX} R_4N^+X^-$ <p>(1°) (2°) (3°) Quaternary ammonium salt (Either equation or explanation)</p>	1 1 1
28	<p>a) $CH_3-CH(OH)-CH_3 \xrightarrow{CrO_3} CH_3COCH_3$</p> <p>b) </p>	1 1

	number of unpaired electrons. (iv) Zn, because of absence of unpaired electrons / weak metallic bonding. (v) Sc	$\frac{1}{2} + \frac{1}{2}$ 1
	OR	
32	(b)(i)(1) Because of the presence of unpaired electron in d-orbital of Cu^{2+} or d-d transition, whereas there is no unpaired electron in Zn^{2+} .	1
	(2) Because Mn is more stable in +2 oxidation state. ($3d^5$) (3) Because of their ability to show variable oxidation states and complex formation / provide large surface area.	1 1
	(ii) The steady decrease in atomic size with increase in atomic number is called lanthanoid contraction. Consequence: 4d and 5d series elements are almost of similar atomic radii. (or any other consequence)	1,1
33	$\text{Zn (s)} \text{Zn}^{2+}(\text{aq}) \text{Ag}^+(\text{aq}) \text{Ag(s)}$	1
	(a)	
	(i) Anode (Zn)	1
	(ii) Electrons / ions	1
	(b) A cell which converts energy of combustion of fuel directly into electrical energy. Hydrogen, methane, methanol (any two)	1 $\frac{1}{2}, \frac{1}{2}$
	OR	
33	(b)(i)(1) The limiting molar conductivity of an electrolyte can be represented as the sum of the individual contributions of the anion and cation of the electrolyte. $\Lambda^{\circ} m^{\circ} = \nu_+ \lambda_+^{\circ} + \nu_- \lambda_-^{\circ}$ Here, λ_+° and λ_-° are the limiting molar conductivities of the cation and anion respectively.	1
	(2) Faraday's first law : The amount of substance deposited or liberated at the electrode is directly proportional to the quantity of electricity passed.	1
	(ii) (1) The slow oxidation of metal in the presence of air, moisture (2) Primary batteries are batteries which are non-rechargeable. e.g. : dry cell/mercury cell. Secondary batteries are batteries which are rechargeable. e.g. : lead storage/Ni- Cd battery	1 $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$