

**Marking Scheme**  
**Strictly Confidential**  
**(For Internal and Restricted use only)**  
**Senior Secondary School Examination, 2026 (XII<sup>th</sup>)**  
**SUBJECT NAME: - CHEMISTRY (043), (Q.P. CODE 56/5/1)**


**General Instructions: -**

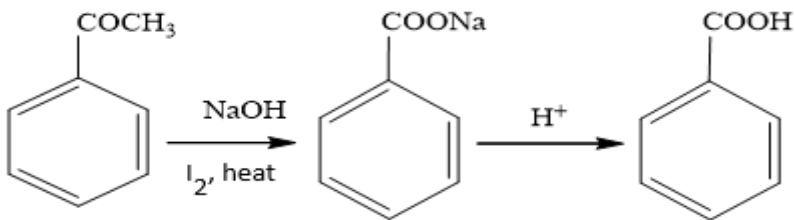
<b>1</b>	The CBSE has decided to introduce On Screen Marking (OSM) for the evaluation of Class XII answer Book with the 2026 Examination.
<b>2</b>	You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. A small mistake in evaluation may lead 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.
<b>3</b>	<b>“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 Newspaper/Website, etc. may invite action under various rules of the Board and IPC.”</b>
<b>4</b>	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. <b>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 <span style="color: red;">Class-XII</span>, 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.</b>
<b>5</b>	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.
<b>6</b>	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.
<b>7</b>	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. <b>This is most common mistake which evaluators are committing.</b>
<b>8</b>	If a question has parts, please award marks on the right-hand side for each part in the OSM Portal. Marks awarded for different parts of the question will be totaled up by the OSM System.
<b>9</b>	If a question does not have any parts, marks must be awarded in the left-hand margin in the OSM Portal. This may also be followed strictly.

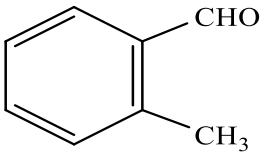
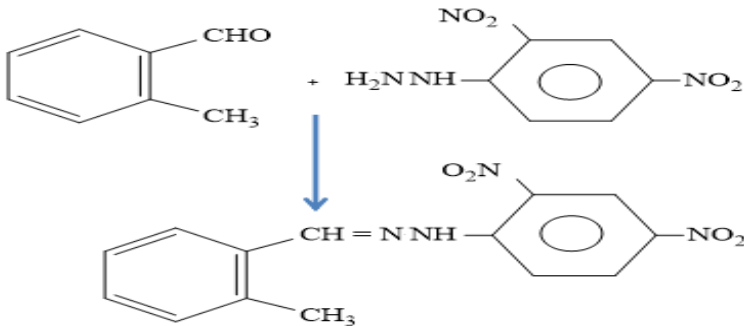
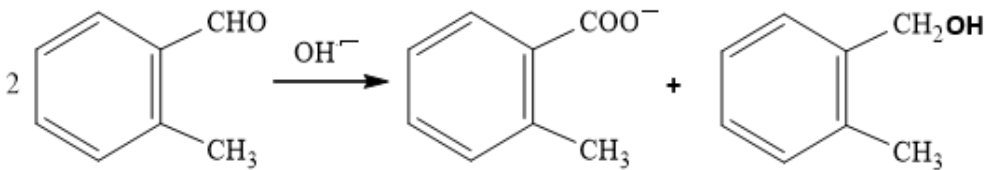
10	No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
11	A full scale of marks _____ (example 0 to 80/70/60/50/40/30 marks as given in Question Paper) has to be used. Please do not hesitate to award full marks if the answer deserves it.
12	Every examiner 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.
13	Ensure that you do not make the following common types of errors committed by the Examiner in the past :- <ul style="list-style-type: none"> <li>• 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.)</li> <li>• Half or a part of answer marked correct and the rest as wrong, but no marks awarded.</li> </ul>
14	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.
15	The Examiners should acquaint themselves with the guidelines given in the <b>“Guidelines for Spot Evaluation”</b> before starting the actual evaluation.
16	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.
17	<b>If a candidate attempts both alternatives/options in a question where only one option/ alternative is required to be attempted, the Evaluator shall award marks in both the options. The system will take the higher of two scores and disregard the other response.</b>
18	<b>In a question having two options/alternatives, if a candidate has attempted only one, then the evaluator shall mark “NA” (Not attempted) against the option that has not been attempted by the candidate.</b>

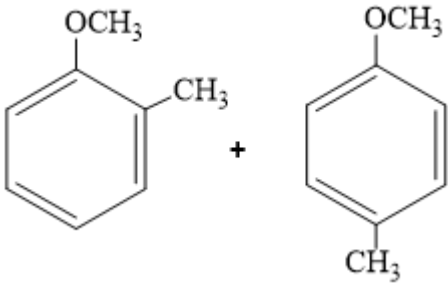
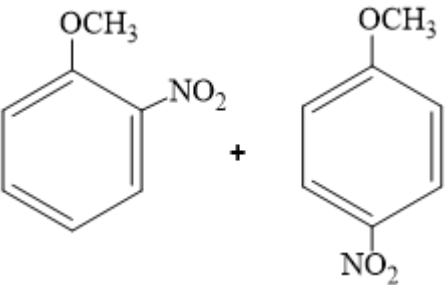
**MARKING SCHEME**  
**CHEMISTRY (Subject Code-043)**  
**(PAPER CODE : 56/5/1) (26-05-43N)**

Q.No.	EXPECTED OUTCOMES/VALUE POINTS	Marks
<b>SECTION - A</b>		
1.	(B)	1
2.	(C)	1
3.	(D)	1
4.	(D)	1
5.	(A)	1
6.	(B)	1
7.	(B)	1
8.	(D)	1
9.	(A)	1
10.	(A)	1
11.	(D)	1
12.	(A)	1
13.	(A)	1
14.	(B)	1
15.	(A)	1
16.	(C)	1
<b>Section - B</b>		
17.	<p>(a)</p> $\Delta T_b = K_b \times m$ $\Delta T_b = 1 \times 0.512$ $= 0.512$ <p>Van't Hoff factor (i) = <math>\frac{\text{Observed colligative property}}{\text{Calculated colligative property}}</math></p> $= \frac{0.18}{0.512}$ $= 0.3516$ <p>Alternative method</p> $\Delta T_b = i K_b m$ $(T_b - T_b^\circ) = i \times 0.512 \times 1$ $0.18 = 0.512 \times i$ $i = \frac{0.18}{0.512}$ $i = 0.3516$	<p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><b>1</b></p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><b>1</b></p>

	OR	
17	<p>(b) At a given temperature, the solubility of a gas in a liquid is directly proportional to the partial pressure of the gas.</p> $p = K_H X_{CO_2}$ $X_{CO_2} = \frac{760}{1.25 \times 10^6}$ $= 6.08 \times 10^{-4}$	<p>1</p> <p>1/2</p> <p>1/2</p>
18.	<p>(a) Fuel cell / H<sub>2</sub>-O<sub>2</sub> fuel cell</p> <p>(b) When concentration approaches zero, the molar conductivity is known as limiting molar conductivity / Conductivity of a solution, when concentration approaches zero.</p>	<p>1</p> <p>1</p>
19.	<p>(a) </p> <p>(b) <math>CH_3NO_2 \xrightarrow{Sn/HCl} CH_3NH_2 \xrightarrow{CHCl_3 + KOH(alc.)} CH_3NC</math></p>	<p>1</p> <p>1</p>
20.	<p>(a) Glucose and fructose</p> <p>(b) The amino acids which cannot be synthesised in the body and must be obtained through diet.</p>	<p>1/2+1/2</p> <p>1</p>
21.	<p>(a) Vitamin A,D, E, K (any two).</p> <p>(b) Acetylation of glucose with acetic anhydride gives stable glucose pentaacetate which confirms the presence of five –OH groups /</p> $  \begin{array}{ccc}  \begin{array}{c} \text{CHO} \\   \\ (\text{CHOH})_4 \\   \\ \text{CH}_2\text{OH} \end{array} & \xrightarrow{\text{Acetic anhydride}} & \begin{array}{c} \text{CHO} \quad \text{O} \\   \quad \parallel \\ (\text{CH}-\text{O}-\text{C}-\text{CH}_3)_4 \\   \quad \parallel \\ \text{CH}_2-\text{O}-\text{C}-\text{CH}_3 \end{array}  \end{array}  $	<p>1/2 + 1/2</p> <p>1</p>
	Section - C	
22.	<p><math>2 \text{Cr(s)} + 3\text{Fe}^{2+}(\text{aq}) \longrightarrow 3 \text{Fe(s)} + 2\text{Cr}^{3+}(\text{aq})</math></p> <p><math>E^\circ_{\text{cell}} = E^\circ_{\text{cathode}} - E^\circ_{\text{anode}}</math>  <math>= (-0.44) - (-0.74) \text{ V}</math>  <math>= 0.30 \text{ V}</math></p> <p><math>E_{\text{cell}} = E^\circ_{\text{cell}} - \frac{0.059}{6} \cdot \log \frac{[\text{Cr}^{3+}]^2}{[\text{Fe}^{2+}]^3}</math></p> <p><math>E_{\text{cell}} = 0.30 - \frac{0.059}{6} \log \frac{[10^{-1}]^2}{[10^{-2}]^3}</math></p>	<p>1/2</p> <p>1/2</p> <p>1</p>

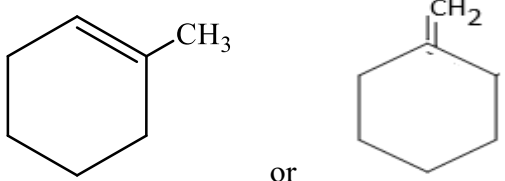
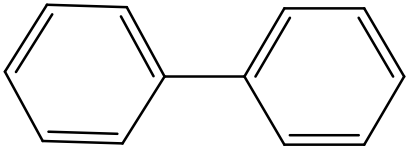
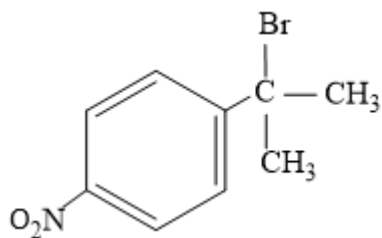
	$= 0.30 - \frac{0.059}{6} \log 10^4$ $= 0.30 - \frac{0.059}{6} \times 4$ $= 0.30 - \frac{0.236}{6}$ $= 0.30 - 0.0393$ $= 0.2606 \text{ V or } 0.26 \text{ V}$	<b>1</b>
<b>23.</b>	<p>(a) The sum of powers of concentration of the reactants in the rate law expression is called order of the reaction.</p> <p>(b) (i) Rate becomes 4 times. (ii) Order is 2</p>	<b>1</b> <b>1</b>
<b>24.</b>	$\log \frac{K_2}{K_1} = \frac{E_a}{2.303R} \left( \frac{1}{T_1} - \frac{1}{T_2} \right)$ $\frac{K_2}{K_1} = 2$ $\therefore \log 2 = \frac{E_a}{2.303 \times 8.314} \left( \frac{1}{298} - \frac{1}{308} \right)$ $0.30 = \frac{E_a}{19.147} \times \frac{10}{298 \times 308}$ $E_a = \frac{0.30 \times 19.147 \times 298 \times 308}{10}$ $= 52722 \text{ J mol}^{-1} \text{ or } = 52.722 \text{ kJ mol}^{-1} \quad (\text{Deduct } \frac{1}{2} \text{ mark for incorrect or no unit}).$	<b>1</b> <b>1</b> <b>1</b>
<b>25.</b>	<p>(a) Potassium trioxalatochromate (III)</p> <p>(b) Complexes in which a metal is bound to only one kind of donor groups are called homoleptic complexes whereas in heteroleptic complex the metal is bound to more than one kind of donor groups.</p> <p>(c) Geometrical isomerism / cis-trans isomers.</p>	<b>1</b> <b>1</b> <b>1</b>
<b>26.</b>	<p>(a) <math>[\text{Cr}(\text{H}_2\text{O})_5\text{Cl}] \text{Cl}_2 \cdot \text{H}_2\text{O}</math></p> <p>(b) +3 <math>\text{sp}^3\text{d}^2</math></p> <p>(c) Due to d-d transition / Due to presence of unpaired electrons which undergoes d-d transition.</p>	<b>1</b> $\frac{1}{2}$ $\frac{1}{2}$ <b>1</b>
<b>27.</b>	<p>(a)</p> 	<b>1</b>

	<p>(b) <math>\text{CH}_3\text{CN} \xrightarrow[\text{(ii) H}_2\text{O}]{\text{(i) CH}_3\text{MgBr}} \text{CH}_3\text{COCH}_3</math></p> <p>(c) <math>\text{C}_6\text{H}_5\text{COOH} \xrightarrow{\text{NaOH}} \text{C}_6\text{H}_5\text{COONa} \xrightarrow[\text{CaO, heat}]{\text{NaOH}} \text{C}_6\text{H}_6</math></p>	1
28.	<p>(a) (i) <math>\text{CH}_3\underset{\text{CH}_3}{\text{CHCOOH}} &lt; \text{CH}_3\underset{\text{Br}}{\text{CHCH}_2\text{COOH}} &lt; \text{CH}_3\text{CH}_2\underset{\text{Br}}{\text{CHCOOH}}</math></p> <p>(ii) Due to steric hindrance and electronic effect / The presence of two methyl groups in acetone hinders the approach of nucleophile to carbonyl carbon than in ethanal having one methyl group.</p> <p>(iii) <math>\text{CH}_3\underset{\text{H}}{\text{C}} = \text{NNH}_2 + \text{H}_2\text{O}</math></p> <p style="text-align: center;"><b>OR</b></p> <p>(b) </p> <p></p> <p></p>	1 1 1  1 1 1
	<b>Section - D</b>	

29.	<p>(a) (i) </p> <p>(ii) </p> <p>(b) (i) Ethyl halide and sodium tert-butoxide / <math>C_2H_5X</math> and <math>(CH_3)_3C-O-Na</math>  <b>OR</b>  (ii) Bond between <math>O-C_6H_5</math> is stronger than the bond between <math>O-CH_3</math> due to resonance / Due to <math>sp^2</math> hybridisation there is partial double bond character in <math>O-C_6H_5</math>.</p> <p>(c) Because of repulsion between two alkyl groups.</p>	<p><math>\frac{1}{2} + \frac{1}{2}</math></p> <p><math>\frac{1}{2} + \frac{1}{2}</math></p> <p><math>\frac{1}{2} + \frac{1}{2}</math></p> <p>1 1</p>
30.	<p>(a) (i) Anode : Chlorine / <math>Cl_2</math> / <math>2Cl^- \longrightarrow Cl_2 + 2e^-</math>  Cathode : Copper / <math>Cu</math> / <math>Cu^{2+} + 2e^- \longrightarrow Cu</math></p> <p>(ii) Anode : Peroxodisulphate ion / <math>2SO_4^{2-} \longrightarrow S_2O_8^{2-} + 2e^-</math>  Cathode: Hydrogen / <math>H_2(g)</math> / <math>H_2O + 1e^- \longrightarrow \frac{1}{2}H_2(g) + OH^-</math></p> <p>(b) (i) 1 Faraday  <b>OR</b>  (ii) The amounts of different substances liberated by the same quantity of electricity passing through the electrolytic solution are proportional to their chemical equivalent weight.</p> <p>(c) Reaction (I) is feasible and due to overpotential of oxygen .</p>	<p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p>1</p> <p><math>\frac{1}{2} + \frac{1}{2}</math></p>
	<b>SECTION - E</b>	
31	<p>(a) (i) Vant Hoff factor (i) = 3  <math>\Delta T_f = i K_f \times m</math></p>	<p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p>

	$\Delta T_f = i K_f \cdot \frac{W_B}{M_B} \times \frac{1000}{W_A}$ $= 3 \times 1.86 \times \frac{10.5 \times 1000}{184 \times 250}$ $= 1.27 \text{ K}$ <p>Freezing point of solution = Freezing point of solvent <math>-\Delta T_f</math></p> $= 273.15 - 1.27 \quad / \quad = 273 - 1.27$ $= 271.88 \text{ K} \quad \text{or} \quad -1.27^\circ\text{C} \quad / \quad 271.73 \text{ K}$ <p>(ii)</p> <table><thead><tr><th>Ideal solution</th><th>Non ideal solution</th></tr></thead><tbody><tr><td>1. It obeys Raoult's law at all range of concentration</td><td>It does not obey Raoult's law</td></tr><tr><td>2. <math>\Delta H_{\text{mix}} = 0</math></td><td><math>\Delta H_{\text{mix}} \neq 0</math></td></tr><tr><td>Or</td><td>Or</td></tr><tr><td><math>\Delta V_{\text{mix}} = 0</math></td><td><math>\Delta V_{\text{mix}} \neq 0</math></td></tr><tr><td></td><td>(or any other two correct differences)</td></tr></tbody></table>	Ideal solution	Non ideal solution	1. It obeys Raoult's law at all range of concentration	It does not obey Raoult's law	2. $\Delta H_{\text{mix}} = 0$	$\Delta H_{\text{mix}} \neq 0$	Or	Or	$\Delta V_{\text{mix}} = 0$	$\Delta V_{\text{mix}} \neq 0$		(or any other two correct differences)	<p>1</p> <p>1</p> <p>1+1</p>
Ideal solution	Non ideal solution													
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Or	Or													
$\Delta V_{\text{mix}} = 0$	$\Delta V_{\text{mix}} \neq 0$													
	(or any other two correct differences)													
	OR													
31	<p>(b) (i) <math>\text{K}_2\text{SO}_4 \longrightarrow 2\text{K}^+ + \text{SO}_4^{2-}</math></p> <p><math>i = 3</math></p> <p><math>\pi V = i n_B R T</math></p> $\pi \times 2 = \frac{3 \times 0.025}{174} \times 0.082 \times 300$ $\pi = \frac{3 \times 0.025 \times 0.082 \times 300}{174 \times 2}$ $= 5.3 \times 10^{-3} \text{ atm}$ <p>(ii) Maximum boiling azeotrope</p> <p>Because this mixture shows negative deviation / Acetone - chloroform interactions are stronger.</p>	<p><math>\frac{1}{2}</math></p> <p><math>\frac{1}{2}</math></p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>												
32.	<p>(a) (i) (I) Electrons from ns and (n–1)d orbitals take part in bonding / Due to similar energy of ns and (n–1)d orbitals.</p> <p>(II) <math>\text{Mn}^{2+}</math>, more number of unpaired electrons.</p> <p>(III) <math>\text{Mn}^{3+}</math>, it has <math>d^4</math> configuration and can gain one electron to get stable <math>d^5</math> configuration</p> <p>(ii) (I) <math>2\text{MnO}_2 + 4\text{KOH} + \text{O}_2 \longrightarrow 2\text{K}_2\text{MnO}_4 + 2\text{H}_2\text{O}</math></p> <p>(II) <math>5\text{C}_2\text{O}_4^{2-} + 2\text{MnO}_4^- + 16\text{H}^+ \longrightarrow 2\text{Mn}^{2+} + 8\text{H}_2\text{O} + 10\text{CO}_2</math></p> <p>OR</p> <p>(b) (i) As we move from left to right there is gradual decrease in the atomic radii of elements of the lanthanoids / The filling of 4f before 5d orbital results in a regular decrease in atomic radii.</p>	<p>1</p> <p><math>\frac{1}{2} + \frac{1}{2}</math></p> <p><math>\frac{1}{2} + \frac{1}{2}</math></p> <p>1</p> <p>1</p> <p>1</p>												



	<p>(ii) It is because of d-d transition / due to the presence of unpaired electrons which undergoes d-d transition.</p> <p>(iii) <math>\text{Mn}^{2+}</math> : Half filled configuration  <math>\text{Zn}^{2+}</math> : Fully filled configuration</p> <p>(iv) <math>\text{Cu}^{2+}</math>, Because of high <math>\Delta_{\text{hyd}}H^\circ</math>.</p> <p>(v) <math>\text{Ce}^{4+}</math> reverts to the most common oxidation state of <math>\text{Ce}^{3+}</math>.</p>	<p><b>1</b></p> <p><math>\frac{1}{2} + \frac{1}{2}</math></p> <p><math>\frac{1}{2} + \frac{1}{2}</math></p> <p><b>1</b></p>
<b>33.</b>	<p>(a) (i) (I) 2-Bromo-2-methylbutane            (II) Vinylic halide            (III) It is slowly oxidised in presence of light to give poisonous gas phosgene/  <math display="block">2\text{CHCl}_3 + \text{O}_2 \xrightarrow{\text{light}} 2\text{COCl}_2 + 2\text{HCl}</math></p> <p>(ii) (I) Groups having two nucleophilic centres.            (II) Equal amounts of dextro and laevo enantiomers in a mixture.</p> <p><b>OR</b></p> <p>(b) (i) (I) Tert-butyl bromide / <math>(\text{CH}_3)_3\text{C}-\text{Br}</math> / 2-Bromo-2-methylpropane            (II)             (III) Because +R effect stabilises the intermediate carbocation.</p> <p>(ii) (I)             (II) </p>	<p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p> <p><b>1</b></p>