

PRACTICE WORKBOOK

CLASS 12

Chemistry

Six original topic units develop chemical reasoning through explanations, worked examples and answered practice. Stated assumptions distinguish ideal models from observations.



6 practice units
36 tasks with answer guidance

Name / नाम: _____

Original selected-topic practice. Use alongside school lessons and the prescribed textbook. The contents define this book's scope.

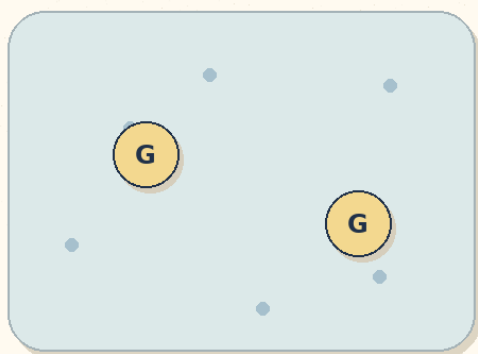
UNIT 01 · LOOK & EXPLAIN

Solution studio: concentration and particle effects

Equal formula-unit amounts, different particle counts

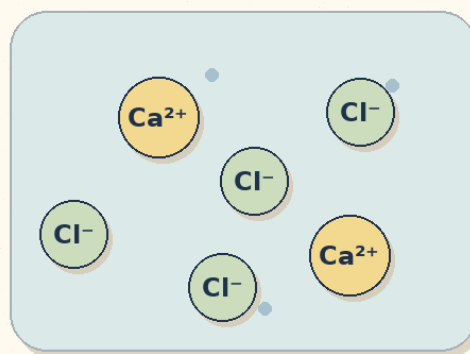
Ideal complete dissociation; comparable solvent amounts

Glucose



2 units → 2 molecules

CaCl₂



2 units → 6 ions

G labels one glucose molecule. Each CaCl₂ unit gives one Ca²⁺ and two Cl⁻ ions.

Use the labels and worked example to explain the idea. The diagram is schematic unless a scale is given.

Look, annotate and explain

Identify the parts or values that matter. Add a label or annotation to show a connection. Explain how the diagram supports the worked example, then use it with the practice on the next page.

UNIT 01 · APPLY & EXPLAIN

Solution studio: concentration and particle effects

4. Find ΔT_f for 0.10 mol kg^{-1} glucose with $K_f = 1.86 \text{ K kg mol}^{-1}$ and $i = 1$. [2 marks]

5. An ideal solvent has mole fraction 0.90 and pure vapour pressure 20 kPa. Find its vapour pressure over the solution. [2 marks]

6. Compare ideal freezing-point depression of glucose and completely dissociated CaCl_2 at equal molality. [4 marks]

Show your thinking with a drawing, diagram or explanation.

Pause & reflect

What can I explain now? What will I try again?

☐ I tried ☐ I explained ☐ I checked



UNIT 01 · ANSWER GUIDANCE

Solution studio: concentration and particle effects

1. $500\text{ mL} = 0.500\text{ L}$; $M = 0.20/0.500 = 0.40\text{ mol L}^{-1}$.
2. $m = 0.15/0.30 = 0.50\text{ mol kg}^{-1}$.
3. Molality uses solvent mass, which is unaffected by simple expansion; molarity uses solution volume, which can change with temperature.
4. $\Delta T_f = iK_f m = 0.186\text{ K}$.
5. $p = x p^\circ = 0.90 \times 20 = 18\text{ kPa}$.
6. Glucose has $i = 1$; CaCl_2 gives one Ca^{2+} and two Cl^- , so ideal $i = 3$. Its depression is three times glucose; real ion interactions can alter effective i .

Teaching note

Circle the denominator: litres of solution for molarity, kilograms of solvent for molality.

Curriculum reference: https://cbseacademic.nic.in/web_material/CurriculumMain27/SecPart2/Chemistry_SecP2_2026-27.pdf
Selected units; outcomes are publisher-defined. Practical, project and prescribed literature requirements must also be studied through school.