



## CHEMISTRY · CHAPTER 1

# Solutions

A 1-page guide for parents · 90-second read.

EXPECTED MARKS

**7 marks**

TIME TO MASTER

**12-15 hrs**

HELPLINE

**70330 05444****WHAT THIS CHAPTER IS, IN PLAIN ENGLISH**

Your child is learning how solutions (sugar in water, salt in water, alcohol in water, dissolved gases in liquids) behave — particularly how dissolving something in a solvent **CHANGES** the properties of that solvent. Adding salt to water lowers its freezing point (which is why salt is sprinkled on icy roads). Adding sugar raises its boiling point (slightly). All such changes follow precise formulas that depend **ONLY** on how many dissolved particles there are — not on what they are. This is one of the most heavily-tested chapters in the Chemistry paper.

**5 QUESTIONS TO ASK YOUR CHILD**

- State Raoult's law. Why does the vapour pressure of solvent go **DOWN** when you dissolve something in it?
- What's the difference between molarity and molality? When should you use which?
- Why is salt sprinkled on icy roads? (FP depression)
- Name two examples each of: (a) ideal solution (b) positive deviation (c) negative deviation.
- What does the van't Hoff factor tell you? When is it greater than 1? Less than 1?

**WEAK-SPOT INDICATORS**

- Cannot quickly inter-convert between mass %, molarity, molality, and mole fraction.
- Confuses molarity and molality (uses molarity in FP/BP formulas — wrong).
- Mixes up positive and negative deviation from Raoult's law.
- Forgets °C → K conversion in osmotic pressure problems.
- Cannot recall whether dissociation gives  $i > 1$  or  $i < 1$  (it's  $> 1$ ).

**WHEN TO WORRY — AND WHAT TO DO**

If your child cannot do a basic colligative-property numerical (find molar mass from FP depression) in 5 minutes from scratch, they will lose 5 marks here — and the rest of physical chemistry (Electrochemistry, Chemical Kinetics) compounds the problem. The fix is 3-4 numericals daily for two weeks, not re-reading.

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