EXAM-DAY · 90-MIN REVISION CARD

Is Matter Around Us Pure?

Print this · Fold it · Carry to the exam-hall gate · Revise once · Then walk in.

FORMULAS & KEY RESULTS

Mass % (w/w) = (mass of solute / mass of solution) × 100

Mass-by-volume % (w/v) = (mass of solute in g / volume of solution in mL) × 100

Volume % (v/v) = (volume of solute / volume of solution) × 100

Mass of solution = mass of solute + mass of solvent

PARTICLE-SIZE TABLE — Solution: <1 nm | Colloid: 1-100 nm | Suspension: >100 nm

TYNDALL EFFECT — shown by colloids and suspensions; NOT by true solutions

FILTERABILITY — Solution: NO | Colloid: NO (paper) / YES (centrifuge) | Suspension: YES (paper)

SETTLING ON STANDING — Solution: NO | Colloid: NO | Suspension: YES

FRACTIONAL DISTILLATION RULE — use when BP difference < 25°C; simple distillation otherwise

Saturated solution: solvent has dissolved MAX solute at given T; adding more → it stays undissolved

Unsaturated: less than max; Supersaturated: more than max (unstable, formed on slow cooling)

TOP 5 PYQ PATTERNS

1 Tabular comparison of solution / colloid / suspension on 5-6 parameters
3 marks · 85% of years
ALWAYS draw the table — particle size, appearance, Tyndall, filterability, stability, example. 6 rows × 3 columns. Examiner-favourite.

2 Tyndall effect — definition + two daily-life examples
3 marks · 70% of years
Definition + WHY (1-100 nm scatter light) + two examples (sunlight in dark room, headlight in fog). Memorise these two.

3 Choose the right separation technique for a given mixture
2 marks · 90% of years
Match to particle size + miscibility: oil+water → separating funnel; NH_4Cl+NaCl → sublimation; sea water → evaporation/crystallisation; ink components → chromatography; ethanol+water → fractional distillation.

4 Mass percentage numerical with given solute + solvent masses
2 marks · 75% of years
Write formula, add solute+solvent for solution mass, substitute, end with %. Show all 3 steps.

5 Identify pure substance / mixture / element / compound from a list
2 marks · 60% of years
Pure = one type of particle (element OR compound). Mixture = two+ substances. Test: can it be separated by physical means? YES → mixture.

90-MIN REVISION FLOW

0-10 min
Read the particle-size table, Tyndall rule and filterability rule until you can recite all three from memory

10-30 min
Draw out the 6-row comparison table (Solution/Colloid/Suspension) on a fresh sheet, then check against the cheat-sheet

30-50 min
Sketch all 5 separation-technique diagrams with labels — separating funnel, fractionating column, sublimation, chromatography, centrifuge

50-65 min
Solve 5 mass-percentage numericals with full working, then verify answers

65-80 min
Write 2 model 3-mark answers (Tyndall and Solution/Colloid/Suspension differentiation) without looking at notes

80-90 min
Attempt the 15-question Drill MCQ paper as a timed sprint (15 min target)

Confidence, not anxiety. You've practised this all year. Trust your steps. Don't change strategy on exam morning.
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