Accounting for Attractions When a Solid Dissolves

Scoring guide · one credit per question · review written work against each rubric

Accounting for Attractions When a Solid Dissolves

Question 1

Choice (3)

The formation readings are negative. Both separation readings are positive in each trial.

Question 2

P gives +12 + 8 − 18 = +2 units. Q gives +15 + 5 − 23 = −3 units.

Question 3

P takes in 12 + 8 − 18 = 2 units for the change in attractions, leaving less thermal energy, so it cools. Q releases three units on balance, adding to thermal energy, so it warms. The energy to separate particles is only part of the record.

Question 4

The separation steps still take in 20 units. Formation now releases 20, giving zero net change in energy associated with the attractions. The formation step offsets the separation input.

Question 5

The detector shows that the particles disperse. The changes in attractions still take in and give out energy, but the 20-unit input and 20-unit release balance. No net transfer to or from thermal motion is needed in the repeat.