Repairing a Shifted Ionic Layer

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

Repairing a Shifted Ionic Layer

Question 1

Choice (2)

With the middle ions shifted, positions 2 and 3 have like charges facing and positions 1 and 4 have opposite charges facing.

Question 2

Both lower rows contain two +1 ions and two −1 ions, for net charge zero. The swap changes which ions face the upper row at the middle sites without changing how many ions of either sign are in the row.

Question 3

Place the positive ion at site 2 opposite a negative upper ion. Place the negative ion at site 3 opposite a positive upper ion. The reverse repair has the same total charge, but it creates two facing like-charge pairs.

Question 4

All four still attract. Each facing pair moves together, preserving the opposite signs in each pair even though the signs at individual marked positions change.