Testing Heat-Sealed Air Samples

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

Testing Heat-Sealed Air Samples

Question 1

At constant volume and gas amount, P/T is constant. (100 kPa)(330 K / 300 K) = 110 kPa.

Question 2

Both gas samples are at the same Kelvin temperature, so their average particle kinetic energies are equal. At the same volume, fewer particles in S can cause fewer total collisions with the walls and a lower pressure.

Question 3

Compare S at the original 300 K with S after it returns to the same temperature. At the same volume and temperature, its drop from 100 to 90 kPa indicates less gas. Cooling alone cannot explain a difference between readings made at the same temperature.

Question 4

Choice (2)

At equal volume and temperature, the gas amount is proportional to its absolute pressure. The remaining fraction is 90 kPa ÷ 100 kPa = 0.90.