Hydrogen Bonding Worksheet

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

Hydrogen Bonding

Question 1

Choice (2)

A water molecule’s O can accept a hydrogen bond from an H bonded to the O of a neighboring molecule.

Question 2

Its H atoms are bonded to carbon. The molecules have no H bonded to O, N, or F to act as a donor.

Question 3

Choice (3)

Boiling separates molecules by overcoming intermolecular attractions, including hydrogen bonds.

Question 4

The ether O has a lone pair. It can attract the partially positive H bonded to O in a water molecule.

Same Formula, Different Boiling Points

Question 5

Choice (1)

Only ethanol has a hydrogen bonded directly to oxygen.

Question 6

Ethanol has an O–H group and can form hydrogen bonds with other ethanol molecules. Its boiling point is 78 °C, compared with −25 °C for the ether, consistent with more energy needed to separate ethanol molecules.

Question 7

78 °C − (−25 °C) = 103 °C.

Question 8

Choice (3)

Each molecule has the same number of C, H, and O atoms, so the two substances have the same molar mass.