Locating a Labeled Oxygen in a Model Ester

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

Locating a Labeled Oxygen in a Model Ester

Question 1

Choice (1)

Only the signal from the C=O bond changes, so the oxygen in that bond is labeled.

Question 2

The label changes the isotope of one oxygen. It does not replace it with a different element or change which atoms are joined.

Question 3

Draw CH_3–C(=O)–O*–CH_3. The central C–O signal shifts, so the starred oxygen is single-bonded to the central carbon and to the terminal CH_3. The unstarred oxygen is double-bonded to the central carbon.

Question 4

Each molecule contains the same numbers and kinds of atoms, including one heavy oxygen. Their masses match. The bond-specific records distinguish where that atom is attached.