Double and Triple Bonds Worksheet

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

Double and Triple Bonds

Question 1

Choice (3)

A triple bond contains three shared electron pairs.

Question 2

Each C=O double bond has two pairs. The two double bonds total four pairs, containing eight shared electrons.

Question 3

Choice (2)

The equals sign represents two bond lines between the carbon atoms.

Question 4

Each carbon would participate in three pairs in C≡C and two pairs in C–H bonds, giving five. A carbon in this model must have four. Removing one H from each carbon gives HC≡CH.

Three Hydrocarbon Models

Question 5

Choice (1)

The structure contains two C atoms and two H atoms.

Question 6

The count decreases from 6 to 4 to 2 as bond order rises from 1 to 2 to 3. Each added shared pair between the carbons replaces one C–H bond on each carbon.

Question 7

The C=C bond has two shared pairs. Four C–H bonds add four pairs. The entire molecule has six pairs.

Question 8

Choice (1)

The C–C bond order decreases from 3 to 2. Each carbon gains one C–H bond and still has four shared pairs.