Covalent Bonding and Shared Electrons Worksheet

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

Covalent Bonding and Shared Electrons

Question 1

Choice (1)

A single covalent bond consists of one pair of shared electrons.

Question 2

The H–H bond contains two electrons. Both hydrogen atoms count that shared pair in their first energy level, which is full with two electrons.

Question 3

Choice (3)

Each line represents two shared electrons, so two lines represent four electrons.

Question 4

Both remaining pairs are lone pairs on the oxygen atom. They are drawn on O outside the O–H bonds.

Diatomic Model Labels

Question 5

Choice (3)

The triple bond contains three shared pairs, or six shared electrons.

Question 6

The double bond contains 4 shared electrons. There are 2 lone pairs on each of 2 oxygen atoms, giving 8 unshared electrons. Total = 4 + 8 = 12.

Question 7

Choice (2)

The model contains two nitrogen atoms. The triple bond changes the number of shared pairs, while the formula counts atoms.

Question 8

Six shared electrons is correct. Each N has one unshared pair, so the whole molecule has two unshared pairs or four unshared electrons.