Corrosion and Protective Coatings Worksheet

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

Corrosion and Protective Coatings

Question 1

Choice (1)

Oxidation means electron loss.

Question 2

It reduces direct contact between iron and the water and oxygen involved in rusting.

Question 3

Choice (1)

A scratch can open a path for water and oxygen to contact the iron.

Question 4

Zinc loses electrons preferentially and is consumed. This can reduce oxidation of the nearby electrically connected iron.

Comparing Coated Steel Models

Question 5

Choice (2)

Q loses 2 mg, the smallest reading.

Question 6

R loses 13 mg and S loses 4 mg. The difference is $13 - 4 = 9$ mg.

Question 7

Choice (2)

Q and R have the same type of barrier coating. The table compares an intact coating with a scratched one.

Question 8

The scratched barrier exposes iron in R. In S, electrically connected zinc can oxidize sacrificially and reduce iron oxidation. The lower iron loss is consistent with that model.