Recycling and Material Tradeoffs Worksheet

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

Recycling and Material Tradeoffs

Question 1

Choice (2)

Divide 70 kg by 100 kg and multiply by 100 percent.

Question 2

Recovery measures the fraction of material obtained. Energy use depends on collection and processing, which require separate measurements.

Question 3

Choice (1)

Only designs that meet the requirement are feasible for the comparison.

Question 4

Recovery and energy measure different outcomes. The preferred choice depends on which outcome the design values more and any required minimums.

Comparing Reusable Container Materials

Question 5

Choice (2)

P and Q meet the durability requirement. Q needs 6 MJ/kg, lower than P’s 9 MJ/kg. R fails the durability limit.

Question 6

9 MJ/kg − 6 MJ/kg = 3 MJ/kg.

Question 7

Choice (1)

Only P has a durability score of at least 80.

Question 8

R has the highest recovery at 88 percent, but its durability score is 62. The original requirement is at least 70.