Molar Mass and Mole Conversions Worksheet

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

Molar Mass and Mole Conversions

Question 1

Choice (4)

Each formula unit has one Mg and two Cl atoms. M = 24.31 + 2(35.45) = 95.21 g/mol.

Question 2

M = 2(1.01) + 16.00 = 18.02 g/mol. Mass = (0.240 mol)(18.02 g/mol) = 4.32 g, rounded to three significant figures.

Question 3

There are six oxygen atoms. Each NO_3 group has three O atoms, and the outer subscript 2 counts two groups.

Question 4

Choice (2)

M(CO_2) = 12.01 + 2(16.00) = 44.01 g/mol. Divide 22.0 g by 44.01 g/mol to get 0.500 mol.

Comparing Solid Samples

Question 5

M(NaCl) = 22.99 + 35.45 = 58.44 g/mol. n = 29.22 g/(58.44 g/mol) = 0.5000 mol.

Question 6

Choice (1)

Q has molar mass 39.10 + 35.45 = 74.55 g/mol. Its 37.28 g is about 0.500 mol, like P. R is 1.000 mol.

Question 7

KCl has a greater molar mass than NaCl because K is heavier than Na. The same number of moles of KCl has a greater mass.

Question 8

Choice (2)

Half of 58.44 g is 29.22 g. At 58.44 g/mol, that is 0.5000 mol.