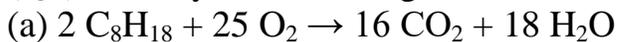


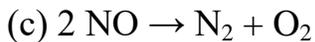
(Q1) Classify the following redox reactions:



Combustion reaction



Combination reaction



Decomposition reaction



Combination and combustion reaction

(Q2) Calculate the mass of KI in grams required to prepare 5.00×10^2 mL of a 2.80 M solution.

$M_{\text{KI}} = 166 \text{ g/mol}$

$n = 2.8 \times 0.5 = 1.4 \text{ mol}$

$m = 1.4 \times 166 = 232.4 \text{ g}$

(Q3) Describe how you would prepare 250 mL of a 0.707 M NaNO_3 solution.

Dissolve 15.0 g NaNO_3 in enough water to make up 250 mL

(Q4) How many grams of KOH are present in 35.0 mL of a 5.50 M solution?

10.8 g

(Q5) Calculate the molarity of each of the following solutions:

(a) 6.57 g of methanol (CH_3OH) in 1.50×10^2 mL of solution,

1.37 M

(b) 10.4 g of calcium chloride (CaCl_2) in 2.20×10^2 mL of solution,

0.426 M

(c) 7.82 g of naphthalene (C_{10}H_8) in 85.2 mL of benzene solution.

0.716 M

(Q6) Determine how many grams of each of the following solutes would be needed to make 2.50×10^2 mL of a 0.100 M solution:

(a) cesium iodide (CsI),

6.5 g

(b) sulfuric acid (H₂SO₄),

2.45 g

(c) sodium carbonate (Na₂CO₃),

2.65 g

(d) potassium dichromate (K₂Cr₂O₇),

7.36 g

(e) potassium permanganate (KMnO₄).

3.95 g

(Q7) Water is added to 25.0 mL of a 0.866 M KNO₃ solution until the volume of the solution is exactly 500 mL. What is the concentration of the final solution?

0.0433 M

(Q8) You have 505 mL of a 0.125 M HCl solution and you want to dilute it to exactly 0.100 M. How much water should you add? Assume volumes are additive.

126.25 mL

(Q9) A 46.2-mL, 0.568 M calcium nitrate [Ca(NO₃)₂] solution is mixed with 80.5 mL of 1.396 M calcium nitrate solution. Calculate the concentration of the final solution.

1.094 M