Read the exam style question carefully, then fill in each section below.

Question:

A student reacts different alkalis with different acids.

a. Write a word equation to show the reaction between sodium hydroxide and sulfuric acid. **(2)**

b. Barium hydroxide reacts with nitric acid. The equation for the reaction is:

$$Ba(OH)_2 \quad + \quad HNO_3 \quad \rightarrow \quad Ba(NO_3)_2 \quad + \quad H_2O$$

Balance this equation. **(1)**

c. Calculate the relative formula mass of nitric acid. **(2)**

d. Calculate the percentage by mass of oxygen in nitric acid. **(3)**

Section 1: At first glance

1. What **command words** are used in this question? Circle them clearly.

2. **Underline the key information** in the question above.

2. **How many marks** is this question worth?

Section 2: Thinking ahead

Read the question again.

What do you need to know in order to answer this question really well?

Can you split the question into two or more parts?

Are there any labelled diagrams that might help you to show your answer?

What are the key words that you should include in your answer?

Section 4: Space to plan

Use this space to plan your answer.

Section 4: Answer the question

Section 5: Mark Scheme

a. Sodium hydroxide + sulfuric acid → sodium sulfate + water

Point	**Mark**
Sodium sulfate	1
water	1

b. $Ba(OH)_2 + \underline{\mathbf{2}}\ HNO_3 \rightarrow Ba(NO_3)_2 + \underline{\mathbf{2}}\ H_2O$

c.

Point	**Mark**
1+14+(3x16)	1 (working)
63	1 (answer)

d.

Point	**Mark**
(3x16)	1 (mass of oxygen)
÷63 (x100)	1 (working)
76.19 %	1 (answer)