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Centre Number

Section I – Part B (continued)

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Student Number

Marks

Question 19 (7 marks)

Name ONE type of cell, other than the dry cell or lead–acid cell, you have studied. Evaluate it in comparison with either the dry cell or lead–acid cell, in terms of chemistry and the impact on society. Include relevant chemical equations in your answer.

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Question 20 (4 marks)

A 0.1 mol L^{-1} solution of hydrochloric acid has a pH of 1.0, whereas a 0.1 mol L^{-1} solution of citric acid has a pH of 1.6.

- (a) State ONE way in which pH can be measured. **1**

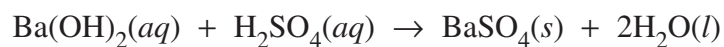
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- (b) Explain why the two solutions have different pH values. **3**

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Question 21 (4 marks)

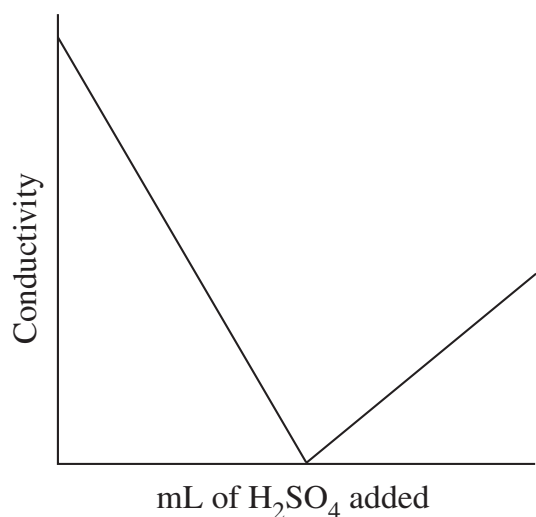
Barium hydroxide and sulfuric acid react according to the following equation:



- (a) Name this type of chemical reaction. **1**

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- (b) A 20 mL sample of barium hydroxide was titrated with 0.12 mol L⁻¹ sulfuric acid. The conductivity of the solution was measured throughout the titration and the results graphed, as shown. **3**



Explain the changes in conductivity shown by the graph.

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