

Chemistry

Section I – Part B (continued)

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.

7

The Button cell is alot smaller than the dry cell.



button cell

The impact on society of the button cell has made the ~~watch~~ watches and compact items able to be run by batteries. It has made more compact things portable such as calculators, watches, ~~and~~ the dry cell has been useful in making large things portable eg walkmans, torches and so on.

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

..... Universal Indicator (Colour indicator)

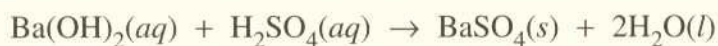
- (b) Explain why the two solutions have different pH values.

3

..... Hydrochloric^{acid} is a very strong acid therefore
~~hydrochloric acid is a very strong acid therefore~~ though its
concentration is the same as that of citric
acid because citric acid is weaker its
pH will be more basic than
HCl in this circumstance.

Question 21 (4 marks)

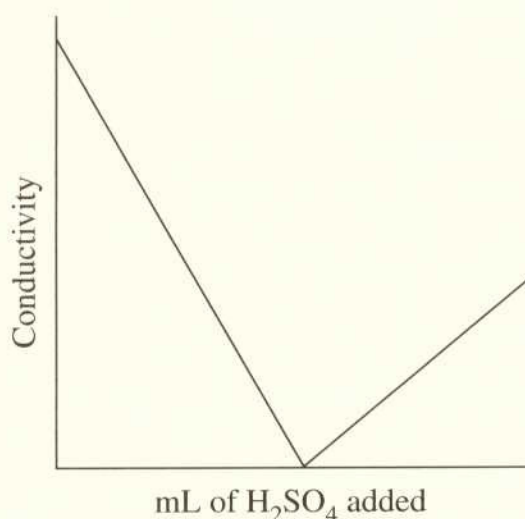
Barium hydroxide and sulfuric acid react according to the following equation:



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

..... Neutralization

- (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.

As Ba(OH)_2 ~~reacts~~ more readily is able to conduct more easily as it is in a salt state. While as H_2SO_4 is added the pH drops until it is neutral but then start conducting again as it is not neutral.