**CHEMISTRY UNIT 3 & 4 EXTENDED RESPONSE #2**

In this extended response you will receive **two questions** (see full text below).

**Question 1:**

|  |  |  |
| --- | --- | --- |
| Changing levels of carbon dioxide in the atmosphere are having a significant impact on the health of marine organisms and ecosystems, such as coral reefs. This has led to national and international action to reduce carbon dioxide emissions.  In your extended response you should:   * Describe the role of human activity on CO2 emissions * Explain the link between CO2 emissions and ocean acidification * Describe and explain the effects of ocean acidification on marine organisms * Describe the actions taken by Australian and international governments to reduce future CO2 emissions   Provide evidence to substantiate your answer where possible. Evidence may take the form of statistics or findings from particular scientific studies. | **or** | *‘Models and theories are contested and refined or replaced when new evidence challenges them, or when a new model or theory has greater explanatory scope.’*  Discuss this concept with reference to models and theories of acids and bases from a range of scientists, including Lavoisier, Davy, Arrhenius and Bronsted and Lowry.  In your extended response you should:   * Describe the theory of acids & bases adopted by each scientist * Explain how each model was developed in order to explain new experimental evidence * Compare the ability of each model to explain the acidity of different substances |

**Question 2:**

|  |  |  |
| --- | --- | --- |
| Electrowinning, electrorefining and electroplating are three industrial applications of electrolysis.  Describe how these processes are used in industry, and explain how these processes can be understood using concepts of oxidation and reduction. | **or** | Primary cells, secondary cells and fuel cells are three applications of galvanic cells.  Compare and contrast these types of cells using concepts of oxidation and reduction. Include at least one specific example of each type of cell. |

On the day of the response you will have 1 hour to complete both questions. You will not know which questions will be used ahead of time, so will need to prepare for all four possible questions.