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Summer 2012

International GCSE

Chemistry (4CH0) Paper 2C

Edexcel Level 1/Level 2 Certificate

Chemistry (KCH0) Paper 2C

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Question 1

Very few errors were seen in part (a), but part (b) proved more challenging for many candidates. The acid in (b)(i) was usually identified as sulfuric acid, while a wide range of answers appeared in (b)(ii) – including nitrogen, nitric acid and carbon dioxide. Although the mark scheme allowed several alternative ways to score the marks in (b)(iii), many answers failed to score both marks. This is a question where many used inappropriate terms – especially physical processes such as dissolving and erosion (which would occur whether or not the rain was acidic). Incomplete references to buildings being damaged (with no reference to the type of stone or the nature of the damage) did not score. Effects on living things (eg fish and trees) were more likely to score, although answers lacking sufficient detail (eg animals die) were not accepted.

Question 2

In (a), the compound in limestone was better known than the one in haematite, where iron, iron ore and iron(II) oxide were often seen. Candidates should be aware that when a name is asked for, then a name should be given (and similarly a formula). In some questions, a formula may be accepted in place of a name, but this was not the case here, as the formulae appeared in part (b). Parts (b) and (c) were generally correct. There were several errors in (d) – in (i), many answers that referred to reactivity failed to score because there was no comparison (eg aluminium is very reactive or too reactive, with no mention of carbon or iron), while in (ii) anode replacement was often given (a significant cost, but not the major cost). The attempts at the equations in (f) varied from blanks to full marks. Those that came close to scoring full marks often balanced the aluminium equation with 2 electrons instead of 4, while others started with ions such as Al_2^{2+} and O_3^{2-}.

Question 3

In (a)(i), the advantage of using the pipette was well known, but with some confusing it with a dropping pipette or suggesting that it would be easier to control the amount. The main error in (a)(ii) was the suggestion that polystyrene would not break or react with the solutions. In (a)(iii), adding an indicator was more common than stirring. Many correct answers were seen in (a)(iv), usually a correct reference to temperature, indicator or pH. In (b), although most temperature readings were correct, quite a few misread the scales, with 19.2 and 23.05 appearing occasionally. Some candidates produced good graphs in (c)(i), although with common errors being dot-to-dot lines, the second line drawn to point 5 instead of through the last four, and joining the two lines by a curve. Mistakes in (c)(ii) included 20.1 instead of 21.0 and not giving the answer to 1 dp – candidates should be guided by the values in the table and on the axes, all of which are to 1 dp. The calculation in (d) was usually well done, although with some using 25 or 30 instead of 55 cm^3. More errors were seen in part (e), such as using the answer from (d) instead of 1800, multiplying instead of dividing, and not converting to kJ.

Question 4

Some candidates scored highly in part (a), but there were many errors, including glucose (not a raw material) in (i), catalysts such as iron and vanadium oxide in (ii), and to prevent ethanol from boiling away in (iii). Part (b) was generally well answered, with few candidates failing to score at least one mark. Some of the points that did not score included the release of carbon dioxide, and the oil being used to provide heat rather than ethene. Part (c) was also well answered, with errors including the equation in reverse, and water appearing on both sides.

Question 5

In part (a), the arrow was sometimes missing or pointing in the wrong direction, but the gas was usually correctly identified, and the equation was often correctly balanced. The best candidates did well in the calculations in (b), but several errors were common – in (i) some multiplied by 24000 instead of dividing, while others included 35.5 in the calculation, while in (ii) the common errors were not multiplying by 2, and failing to include the answer from (i) in the calculation. In (c)(i), chlorine and potassium sometimes appeared, with bromide (instead of bromine) perhaps the commonest error, and a surprising number of attempts at (c)(ii) referred only to oxidation or reduction. Part (d)(i) was usually correct, and most predictions in (ii) were correct and correctly explained, although there was some confusion with rates of reaction.

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