



General Certificate of Secondary Education

Science B 4462 / Chemistry 4421

CHY1F Unit Chemistry 1

Report on the Examination

2008 Examination – January Series

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Science B / Chemistry Foundation Tier CHY1F

General

There were eight questions on this paper. The first six questions were targeted at grades E, F and G. The last two questions were targeted at grades C and D and were common to both Foundation and Higher Tier.

The majority of candidates appeared to have sufficient time to complete the paper. Candidates should be reminded to write their answers clearly in black ink or ball-point pen and within the space provided. Note that when candidates give several answers when only one or two are required, they might not be credited for their correct ideas if errors or contradictions are included in their response.

Fundamental knowledge and understanding of How Science Works in the world at large, as well as in the laboratory, were tested throughout this paper. This means that candidates should be reminded that it is essential to read all of the question carefully, analyse the information provided and think about their response before writing their answer.

Question 1 (*Low Demand*)

In part (a)(i) atoms were frequently mentioned, although there was often no link to the idea that these atoms were the same or identical. Reference to one type/sort of particle, instead of atom, was not credited. Most candidates named the correct gas for part (a)(ii). The correct symbol for nitrogen or oxygen was also accepted. Some candidates could not distinguish between an element and a compound. The most common incorrect answer was helium.

In part (b) the majority identified carbon as being present in propane. Again several candidates could not distinguish between an element, a compound and a mixture. The majority of candidates knew that each line between atoms represented a chemical bond.

Question 2 (*Low Demand*)

In part (a) most candidates selected the correct food additives.

In part (b) too many candidates failed to understand what the chromatogram indicated and thought that safe colours were either the ones that had the greatest depth of colour or those which reached the greatest height. Candidates often incorrectly stated that all colours from the soft drinks were safe. Only a small number were able to link the colours from the soft drinks with the safe colours shown.

Question 3 (*Low Demand*)

In part (a) the best type of margarine to use was usually correct. Candidates who then just quoted figures from the table did not receive credit for the explanation. Better answers used a comparative explanation, such as, highest amount of polyunsaturated fat or lowest amount of saturated fat.

In part (b) the majority of candidates incorrectly thought that saturated fats could be hardened. In part (b)(ii) most candidates scored at least one mark for either hydrogen or for higher.

Question 4 (*Low Demand*)

In part (a) the most common incorrect answer in (a)(i) was that plastic is made from many small molecules called polymers. The majority of candidates were aware that propene is produced from crude oil.

In part (b) many candidates gained at least two marks on this part of the question. Most were aware that few plastics are bio-degradable and also made a correct reference to re-cycling. Some also realised that the metal would not readily corrode and of the necessity to reduce landfill. Comments about injury to wildlife or their habitats were not credited in this question.

Question 5 (Low Demand)

In part (a) to many candidates a line of best fit meant a straight line. To gain the mark candidates were expected to draw a curve which passed through or was close to all of the points.

In part (b) many candidates correctly read off the concentration of carbon dioxide. It was still possible to give the correct year in part (b)(ii), even if the curve had not been drawn correctly.

In part (c) the majority of candidates realised the carbon dioxide concentration was rising. A reasonable number of candidates also described the increasing rate of increase after about 1935 for the second mark.

Question 6 (Low Demand)

In part (a) generally good answers to this part, however, candidates should be specific in describing conduction; whether they mean electrical or heat conduction.

Part (b) was surprisingly poorly answered.

In part (c) there was a wide variety of the answers on the mark-scheme. Many candidates were awarded the mark. The main problem was vague answers, such as, air pollution or just pollution. Similarly in part (c)(ii) most candidates gave vague answers about pollution. Few candidates gained the mark because they did not link sulphur dioxide to acid rain.

In part (d) most produced a correct explanation that copper is running out. Some good answers were provided in part (d)(ii), the most popular answers mentioned recycling and use of other metals/materials in place of the copper. To use less copper was an inadequate response, unless a specific example was provided.

Question 7 (Standard Demand)

In part (a) candidates in general read the information supplied and correctly based their answers on it. In part (a)(i) a common misconception is that South America and Africa are the same shape.

In part (b) no word box was given and candidates usually gained one or two marks. Crust was the most common correct answer.

Question 8 (Standard Demand)

There were good answers to part (a)(i) but only the better candidates were able to name and state the number of elements present in sodium carbonate. A common error was to write that the compound consisted of two sodiums and three carbonates.

In part (b) most candidates gained the mark for correctly showing calcium carbonate as the reactant. A common error was to think that the products are calcium and carbon dioxide. Correct formulae were allowed in the equation. The term thermal decomposition or endothermic was not well known.

In part (c) there were very few correct answers. Very few candidates understood the meaning of the word unlimited and often based their answers around the idea that, by recycling, the most important benefit would be a saving of the raw materials.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results Statistics](#) page of the AQA Website.