



General Certificate of Education

Science In Society 1401/2401

SCIS1 Exploring Key Scientific Issues

Report on the Examination

2010 examination - June series

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Set and published by the Assessment and Qualifications Alliance.

General Comments

The paper appeared accessible to candidates with a good range of marks achieved. The majority of candidates were able to tackle most questions, and there was little evidence that they ran out of time.

Many candidates were able to identify examples of “How Science Works” from the questions, and candidates who gained higher grades were able to generalise from the specific information given in the question to explain ideas about HSW. On the whole, many candidates were able to use the data given in the questions to support their answers. They should be encouraged to do this, supporting general assertions with specific information taken from the data.

In graphical questions, candidates may find it helpful to use a ruler to identify key points on the graphs and to refer to these in their answers. Unfortunately a number of candidates lost marks as a result of misreading points on the graphs. They should also remember that generalised statements of a trend will rarely obtain full marks.

When answering the longer questions candidates should ensure that they make use of the stem of the question to help them direct their answers. Some students did not use the context of the questions and instead gave, often competent, answers to what appeared to be a different question. Candidates need to be reminded that the longer 6 mark questions, which include marks for quality of written communication, need a very different approach from the rest. A list of relevant points gained few marks unless provided as part of an argument. Candidates should be discouraged from simply writing vague statements, or repeating information from the question without additional information. It would be helpful if candidates were familiarised with the standard 3 level mark scheme that is used for the 6 mark questions in this unit. Examples of these are given in the mark scheme for the unit and include indicative content for the answers.

Question 1

It is apparent that many candidates have a good understanding of the principles of the immune response to infection. The majority of candidates were able to correctly identify that antibodies are produced in response to an infection, but candidates at the lower end of the grade range were unable to use this knowledge in 1(a)(ii), to explain how the presence of antibodies indicated a previous infection, rather than a current one.

Many candidates were also able to give pleasing accounts of how vaccination worked in 1(b)(i).

Question 2

It was rather disappointing to note that there were significant gaps in students’ understanding of Chemistry explanations, with GCSE level knowledge being conspicuously absent in some cases. Whilst examiners saw some very interesting drawings of 4-stroke petrol engines, these were not creditworthy.

A majority of candidates were able to give reasons for repeating measurements which was pleasing, showing a good grasp of ideas about data.

Most candidates were able to obtain some credit in 2(b)(ii), with the best answers being able to give a number of reasons for their viewpoint on the ethical issues involved in restricting car use. Candidates who simply stated that it was a human right to be able to travel where a person wished often scored poorly in this answer.

Question 3

This was a difficult question, with students expected to read, and understand, a lot of information. However, many students were able to gain marks in this question, with most candidates being able to give creditworthy answers to at least some parts of the question.

There was an obvious confusion in the minds of many candidates between a placebo and a control, with some candidates suggesting that two different injections were used so that the mice did not know the difference in treatments. Candidates who used the word 'placebo' but who then went on to correctly describe the use of a control condition were not, this year, penalised for the confusion.

This confusion was not carried through to the designing of a 'blinded' experiment, and over half of the candidates were able to correctly identify the two ways in which this was done in the research described.

In 3(d) a number of students apparently misread 'humane' as 'human', and consequently made comparisons between the care given to the pregnant mice and to pregnant women. This was not deemed creditworthy. Candidates who scored in the higher grade boundaries were able to link the health of the mice with the reliability of the data collected.

Question 4

Many candidates were able to correctly identify a difference between infrared and visible light. A small majority of candidates were able to link the light year as a measurement to the size of the universe.

In 4(b)(i) the majority of candidates were able to score at least one mark. However, candidates who scored full marks on this question were able to correctly identify points on the graph, and some were also able to explain why the anomalies might have occurred in terms of the experiment. Use of a ruler would have benefited some candidates who misread either the scale, or the position of points on the graph.

A number of candidates showed a touching faith in the accuracy and ease of use of computers and computer modelling, perhaps at odds with their everyday experience of computers. However, many candidates were able to suggest good reasons for the use of computer models within astronomy.

Although many candidates were able to suggest that astronomers were looking for possible conditions for life in question 4(b)(iii), candidates at the higher mark levels were able to specifically link oxygen and carbon dioxide to life processes (respiration and photosynthesis), and also to Carbon dioxide's role in the development of a suitable atmosphere for life.

Question 5

Very few candidates were able to correctly give a definition of a cohort study in q5a(i), with many restating the bullet points in the stem of the question.

A large proportion of the candidates were able to correctly calculate the percentage of deaths during the study. Candidates, and their teachers/lecturers, are reminded of the mathematical requirements in Section 3.7 of the specification document and that they may be asked to make use of any of the skills described therein.

Question 5(c)(ii) was a new type of question in which candidates were asked to translate written information into a graphical form. Many candidates did this well, but again the use of a ruler to correctly identify points would have gained some more marks.

Question 6

Interestingly, the number of candidates who were able to identify that embryo stems cells were pluripotent was matched by those who, incorrectly, thought that the main difference between the two types of stem cells was simply that one was derived from adults and the other not.

Many candidates were able to describe the importance of clinical trials, and why regulatory bodies insist on them. Candidates who scored in the higher mark bands were able to identify significant steps in the testing process, and also link this to seriously ill patients. Lower scoring candidates limited themselves to more descriptive or general answers.

Question 7

This question allowed candidates to identify a number of how science works ideas in a passage relating to evolution. It was well answered by the majority of candidates.

Question 8

Radioactivity is often answered poorly in the Unit 1 exam, and sadly, this question was no exception. Many candidates were unable to correctly suggest reasons for the different ideas in the sections of questions. A number thought that 50 years was long time compared with the half-lives of radioactive waste. Although candidates attempted to use the idea of half-life, their descriptions were often poor. A number of candidates confused refuse landfill sites, with the issues of smell and gas production, with landfill sites for low level nuclear waste. In question 8(c) some candidates were able to link the idea of 'volunteerism' with ideas of imposed and voluntary risk.

Many candidates appeared to have misread what they were being asked to write about in 8(d), and did not include ideas about the scientific issues involved in the disposal of nuclear waste. Candidates who did not include both the science of nuclear waste as well as the risks and benefits were unable to access the higher marks available for this question. On the plus side however, examiners saw a number of very good headlines, showing creativity and literary talent in the candidates.

Mark Ranges and Award of Grades

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