

OCR Report to Centres

January 2013

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This report on the examination provides information on the performance of candidates which it is hoped will be useful to teachers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding of the specification content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the examination.

OCR will not enter into any discussion or correspondence in connection with this report.

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Advanced Subsidiary GCE Science (H178)

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G641 Remote Sensing and the Natural Environment

General Comments:

The candidates generally found the paper very accessible with a wide range of marks awarded.

Comments on Individual Questions:

Question 1

- 1a** Candidates had a general idea of what an autotroph is, but tended to express it too vaguely. 'Something that makes its own food' is not enough at this level.
- 1b** Poor examination technique let down a lot of candidates on this question. They simply did not make use of the data, so that in (i) we expected to see reference to the months and to the speed of growth. A surprising number of candidates believe that the month before September is April.
- 1bii.** Yet again, candidates lost marks through vagueness. We expected to see reference to times of the year. It was not enough simply to say 'temperature'.
- 1biii & iv** Marks were lost here through failure to compare the two decades.
- 1c** The action of decomposers was well known.
- 1e** Most candidates scored two marks here. They have a sound understanding of the meaning of biodiversity.
- 1e** Whilst the majority of candidates understood the feeding relationships in the food web, many failed to address what would happen to the *populations* of the creatures involved, so would make statements like 'fewer herring will *affect* puffins' or 'codfish will suffer' .

Question 2

- 2a** Many candidates could name a mineral ion, but its function was less well known. Most resorted to 'used for growth' which is not enough at this level.
- 2b** Candidates have a good understanding of cellular transport. The commonest misconception was that glucose needs active transport to enter the cell.
- 2c** A good number of candidates realised that oxygen was the gas needed by plant roots, although fewer could suggest why, even though they had correctly described active transport in the previous question. A significant number suggested that roots photosynthesise and there is quite a strong belief that ALL roots can fix nitrogen.
- 2d** Most candidates correctly identified leaching as a cause of nutrient ion loss, but fewer remembered denitrification.

Question 3

- 3a** The electromagnetic spectrum was well known.
- 3bi** Most candidates understood that waves were reflected or scattered by Titan. Some were unsure where they had come from to start with, and fewer still were able to say what happened to them after reflection.
- 3biii** The use of radio waves to send information back to Earth was well known.
- 3c** The effect of different constituents of the atmosphere on scattering light was well understood. Weaker candidates would sometimes alarmingly talk about the atmosphere absorbing light. The ozone layer was frequently implicated.
- 3d** Almost universally correct.

Question 4

- 4a** The light dependent stage of photosynthesis was better understood than in previous years and some excellent answers were seen. A significant number of candidates simply gave the standard equation for photosynthesis. This gained no marks.
- 4b** The majority of candidates could explain why fewer trees would result in an increase in atmospheric carbon dioxide. Fewer mentioned the contribution of dead trees.
- 4c** A heartening number understood the principle of positive feedback, although some had difficulty expressing it, but some excellent answers were seen. However, they did have more difficulty applying the principle in 4cii, but better candidates scored at least two marks.
- 4di** Some candidates lost the mark by failing to state NEAR infrared.
- 4dii** Candidates were competent in the conversion of nm to m and giving their answer to 2 sig. figs. Surprisingly, the problem was more usually the unit. Metres often appeared in one guise or another.
- 4e** The commonest error was to infer that the loss of any plant species will inevitably lead to the loss of pharmaceutical drugs, rather than that it might.

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