OCR
RECOGNISING ACHIEVEMENT

GCE

Science

Advanced Subsidiary GCE **AS H178**

Reports on the Units

January 2010

HX78/R/10J

Oxford Cambridge and RSA Examinations

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of pupils of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, OCR Nationals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support which keep pace with the changing needs of today's society.

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.

© OCR 2010

Any enquiries about publications should be addressed to:

OCR Publications
PO Box 5050
Annesley
NOTTINGHAM
NG15 0DL

Telephone: 0870 770 6622
Facsimile: 01223 552610
E-mail: publications@ocr.org.uk

CONTENTS

Advanced Subsidiary GCE Science (H178)

REPORTS ON THE UNITS

Unit/Content	Page
G641 Remote Sensing and the Natural Environment	1
G642 Science and Human Activity	3
Grade Thresholds	4

G641 Remote Sensing and the Natural Environment

General Comments

In general, candidates found the paper very accessible and it was rare for them not to attempt an answer. In previous papers, candidates have tended to find the biological questions easier than those that are predominantly physics. In this paper, it was more evenly balanced, which was heartening.

Comments on Individual Questions

1 **(a)** Most candidates could calculate correctly a value for 'other outputs' and recognise at least one factor that might be responsible, but fewer were able to quote a definition for the Law of Conservation of Energy.

(b) It was unusual for 'methane' to be missed in (i), but part (ii) was more problematic. Some candidates seemed to believe that respiration requires an input of energy.

(c) Given the problems that candidates frequently have with calculations, this one was well done. Some, however, lost a mark by rounding 38.57 down to 38.5. They could all suggest a sensible use for the faeces.

(d) Most candidates scored a mark for suggesting that cows could gain nourishment from grass whereas humans couldn't. However, few realised the wastage, as far as food production is concerned, of feeding cows grain.

2 **(a)** and **(b)** Some candidates clearly had no idea of the concept of productivity when applied to an ecosystem and were floundering to come up with reasons for the high productivity of a tropical rainforest.

(c) Most realised why the light intensity decreases as you near the forest floor but they found the change in humidity harder to account for.

(d) Candidates that realised that the question was talking about wavelengths of light, and hence its colour, scored well. Weaker ones merely repeated their answer to (c).

(e) Most candidates could score at least 3 marks here, although some saw the loss of oxygen production and the consequent suffocation of the human race as a major problem, rather than the build up of carbon dioxide.

3 This question proved to be a good discriminator.

(a) Most candidates scored at least one mark, with no one answer faring better.

(b) The concept of steady state was well understood, but not always well expressed. Despite being directed to use the diagram in (iii), some candidates took this to be a question about eutrophication, and consequently, only scored one mark.

(c) The Haber process was well understood.

4 Candidates understood the difference between red and violet light, but were confused about why the bulbs of the thermometers were painted black. Few suggested that the light might be reflected if the bulbs were left shiny.

(c) Candidates had no problem coming up with the relationship between wavelength of light and its warming effect, but, as ever, their understanding of what might cause inaccuracies in an experiment was weak. Given the heavy hint not to blame the experimenters themselves, they plumped for guessing about the equipment instead eg the prism might have been cracked, instead of looking for flaws in the method itself.

Parts (d) and (e) were pleasingly well answered, although (e)(iii) proved troublesome.

5 Most candidates could come up with a use for a remotely sensed image, but how it is generated is another matter. Confusion reigned. Some knew that numbers were involved, but were unable to describe coherently how; others felt the binary system was involved. A significant number thought the different shades of grey represented different frequencies of radiation. Answers to part (c) tended to be very vague.

G642 Science and Human Activity

No report for this unit due to small entry

Grade Thresholds

Advanced GCE Science H178
January 2010 Examination Series

Unit Threshold Marks

Unit		Maximum Mark	A	B	C	D	E	U
G641	Raw	60	44	38	33	28	23	0
	UMS	90	72	63	54	45	36	0
G642	Raw	100	80	70	60	50	40	0
	UMS	150	120	105	90	75	60	0

Specification Aggregation Results

Overall threshold marks in UMS (ie after conversion of raw marks to uniform marks)

	Maximum Mark	A	B	C	D	E	U
H178	300	240	210	180	150	120	0

The cumulative percentage of candidates awarded each grade was as follows:

	A	B	C	D	E	U	Total Number of Candidates
H178	11.0	24.5	43.1	59.0	80.0	100	292

For a description of how UMS marks are calculated see:
http://www.ocr.org.uk/learners/ums/index.html

Statistics are correct at the time of publication.

OCR (Oxford Cambridge and RSA Examinations)
1 Hills Road
Cambridge
CB1 2EU

OCR Customer Contact Centre

14 – 19 Qualifications (General)
Telephone: 01223 553998
Facsimile: 01223 552627
Email: general.qualifications@ocr.org.uk

www.ocr.org.uk

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored

Oxford Cambridge and RSA Examinations
is a Company Limited by Guarantee
Registered in England
Registered Office; 1 Hills Road, Cambridge, CB1 2EU
Registered Company Number: 3484466
OCR is an exempt Charity

OCR (Oxford Cambridge and RSA Examinations)
Head office
Telephone: 01223 552552
Facsimile: 01223 552553

© OCR 2010