

Examiners' Report/  
Principal Examiner Feedback

Summer 2013

International GCSE  
Human Biology (4HB0) Paper 01

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# International Human Biology 4HB0 01

## General

This was the fifth paper of the International GCSE qualification in Human Biology. It was felt students found it slightly more demanding than that sat in June 2012. The paper discriminated well and the full range of marks was seen for each part of each question. Centres are to be congratulated for preparing their students well for this paper, taking on board comments from previous reports.

## Question 1

The multiple-choice questions were well answered with no one question causing any major problems.

## Question 2

This question was about photosynthesis. It was generally answered well.

- (a) Most students completed the equation correctly naming oxygen.
- (b) Some students did not give light as the energy source, giving chemical energy instead.
- (c) A few students said how the substances were obtained, and not where from (soil and air).
- (d) A few said sugar, not glucose.

## Question 3

This question was about thermometers. It was usually answered well, mistakes more to do with not reading the question carefully than lack of knowledge.

- (a) Common mistake was missing the units here.
- (b)(i) Some failed to answer this question.
- (b)(ii) Many failed to say more energy and more respiration, or did not link the heat given out to the respiration.
- (c) Most got the mark for the laboratory thermometer having a greater range.

A few quoted the wrong thermometer as being more accurate.

## Question 4

This question concerned the components of the blood.

It was answered well by most. Almost all knew that transport of oxygen was the function of the red blood cells.

## Question 5

This question was about the digestive system. Most knew the first 2 marking points, and the last 2, but some struggled with the remaining points.

## Question 6

This question was about chromosomes.

- (a)(i) Most knew they were chromosomes.
- (a)(ii) A few did not know they were made up of DNA.
- (b) Not well done, a common mistake was not putting 2 chromosomes in each circle. Quite a few did not draw one long and one short chromosome.

(c) This tended to get either full marks, or hardly any marks, showing it was very well understood by some, but not understood at all by others.

### **Question 7**

This question was about cell structure and function. It was very well done by the majority of students, most getting almost full marks.

### **Question 8**

This question was about the structure and function of the eye.

(a)(i) Most scored well on labelling the eye getting at least 2 marks.

(a)(ii) Some students missed this mark, failing to put the lines on, or by not labelling the line as L.

(a)(iii) Some very confusing answers - it was not always clear whether the student was talking about near or distant objects, often it was a mixture of both. There were mistakes in naming the structures involved.

(b)(i/ii) Correct by most students. Only a few got them the wrong way round.

(b)(iii) Not very well answered by many. Common mistakes were talking about the size of the pupil without mentioning the circular or radial muscles, and mixing up the names circular and ciliary for the muscles involved here. Also, they did not make it clear whether they were talking about dim or bright light, or linking the muscle action correctly to the final size of the pupil.

(c) Most students achieved at least 2 marks here.

### **Question 9**

This question was designed to test knowledge and understanding of genetics.

(a)(i) Many students scored well here - a few got the x and y for the man and woman the wrong way round.

(a)(ii) Most could interpret the sex of the offspring A, B, C and D.

(b) Few could give a correct explanation of the term 'sex-linked' either not mentioning faulty allele or by failing to appreciate that it is not carried on the y chromosome.

(c)(i) Many gave their answers in terms of N/n, never mentioning x/y.

(c)(ii) Most knew the vitamin was A.

### **Question 10**

This question was about practical techniques and safety precautions.

The main problem here was not linking the precaution to the reason correctly especially for the third one - where the student was suggesting not cutting themselves as the precaution, rather than suggesting what could be done to make the technique safer. Also answers were too general - e.g. 'hurting / burning yourself'.

### **Question 11**

This question concerned the structure and function of the kidney, dialysis and kidney transplants.

(a)(i) Most knew that the fluid was urine.

(a)(iii) Not many knew that the blood vessel was the renal vein.

(b)(i) Quite a few knew it was urea in the solution leaving the dialysis machine.

- (b)(ii) Most were correct, a few failed to mention the relative sizes of the particles being stopped / allowed through.
- (b)(iii) Few knew it was the Bowman's capsule.
- (b)(iv) Not many score more than 2 marks here, failing to appreciate which substances would leave the blood and failing to correctly link the molecule with the effect its loss would have on the body.
- (c) Generally well done, with most scoring at least 2 marks.

### **Question 12**

This question was about respiration and exercise.

- (a)(i) Many did know what to call the mouthpiece / T piece, and also failed to say that they would breathe in and out through it.
- (a)(ii) Mostly well done. Sometimes the student said 'it stayed the same' and did not describe the appearance.
- (b) Most got the fair test mark, the more able students could explain that a larger volume would need more carbon dioxide to change it. Few explained about it being a valid comparison.
- (c) Most could name a safety precaution.
- (d) Not very well done by most, the only marking point found by many was that more carbon dioxide was breathed out after exercise. Many failed to give the idea that more energy would be required. They also did not appreciate that the energy required comes from aerobic respiration and that the carbon dioxide is a by-product of that respiration.

### **Question 13**

The final question concerned smoking and atmospheric pollution.

- (a) Most students did well on this question. Any that did not tended to mix up the symptoms of cystic fibrosis with those of bronchitis.
- (b)(i) Main mistakes here were the naming of greenhouse gases instead of those responsible for atmospheric pollution.
- (b)(ii) Most got the correct percentage of 2%, but some could not work out the 4.4%.
- (b)(iii) Very badly done. Few could correctly interpret the trends shown on the graph. Many linked ages rather than smoking and atmospheric pollution as was asked for in the question, and failed to notice that the line for non-smokers in high pollution areas went down and then up again.
- (b)(iv) Most got the mark for smoking having the greater effect, but then failed to explain how this was shown by the evidence on the graph.

## **Grade Boundaries**

Grade boundaries for this, and all other papers, can be found on the website on this link:

<http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx>

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