

Mark Scheme (Results)

January 2013

International GCSE Human Biology
(4HB0) Paper 02

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications come from Pearson, the world's leading learning company. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk for our BTEC qualifications.

Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

If you have any subject specific questions about this specification that require the help of a subject specialist, you can speak directly to the subject team at Pearson. Their contact details can be found on this link: www.edexcel.com/teachingservices.

You can also use our online Ask the Expert service at www.edexcel.com/ask. You will need an Edexcel username and password to access this service.

Pearson: helping people progress, everywhere

Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

January 2013

Publications Code UG034699

All the material in this publication is copyright

© Pearson Education Ltd 2013

Question number	Answer	Marks
1 (a) (i)	Falls, (then rises);	1
(ii)	Three from: Bacteria/microorganisms/decomposers; Breakdown/digest/remove; Respiration; Use oxygen/aerobic; Less sewage;	3
(b)	Line down (delayed); Then line up;	2
(c) (i)	typhoid;	1
(ii)	bacteria;	1
	Total	8

Question number	Answer	Marks
2 (a)	Bronchiole; phonetic spellings	1
(b) (i)	heart;	1
(ii)	Pulmonary vein; accept capillary	1
(c) (i)	Diffusion;	1
(ii)	$C_6H_{12}O_6$; $6O_2$; (order of glucose and oxygen not important) $6H_2O$;	3
(d)	Two from: Capillaries close by; Moist; Thin wall; Accept relevant explanation for one feature;	2
(e)	Emphysema; phonetic spelling	1
	Total	10

Question number	Answer	Marks
3 (a) (i)	Both have 4 chromosomes: Large and short in each;	2
(ii)	4	1
(iii)	46	1
(b) (i)	As the temperature increases, the time taken for cell division decreases / inverse relationship; Further detail such as decrease is more rapid between 3/5 and 10 degrees;	1 1
(ii)	2h 2 cells; 8h 16 cells;	1 1
	Total	8

Question number	Answer	Marks
4 (a)	Transfers food; By peristalsis; From mouth to stomach;	1 1
(b)	Protein;	1
(c)	Liver; Gall bladder; Emulsify;	1 1 1
(d)	Amylase/carbohydrase amino acids/(poly)peptides lipids/fats	1 1 1
(e)	Two from: leads into the ileum; Digestion of food occurs here; Receives pancreatic secretions/receives bile;	2
	Total	11

Question number	Answer	Marks
5 (a)	Three from: flies / (hatched) larvae / hookworm / bacteria / fungi;	1
(b)	Two from: waterborne disease or one transmitted by flies, e.g. cholera, typhoid, schistosomiasis (Bilharzia);;	2
(c)	Four from: make the base stable; i.e. no cracks in the concrete floor; To avoid hookworm transmission and larvae; Make the hole large enough; To avoid urine splashing out onto the walls; Where flies, bacteria and fungi will thrive; Accept any other appropriate method; With relevant explanation;	4
(d)	Two from: Digests/breakdown sewage/organic material; To harmless/inorganic substances; Activated sludge;	2
	Total	9

Question number	Answer	Marks
6 (a)	S scale at least half of each axis; L line through points; A axes right way round, labelled correctly with units; A axes' scales linear; P points plotted accurately;	5
(b) (i)	As the enzyme concentration increases the time taken decreases / negative correlation; Any further detail such as rate of decrease is greater as the concentration increases;	1 1
(ii)	Three from: More digestion/breakdown; of protein; more collisions; more soluble/less viscous; more amino acids;	3
(c)	Two from: pH; volume of enzyme solution; time/speed of mixing;	2
(d)	Repeat the experiment; The closer the results in each experiment, the more reliable the experiment is;	1 1
	Total	14

Further copies of this publication are available from
Edexcel Publications, Adamsway, Mansfield, Notts, NG18 4FN

Telephone 01623 467467

Fax 01623 450481

Email publication.orders@edexcel.com

Order Code UG034699 January 2013

For more information on Edexcel qualifications, please visit our website
www.edexcel.com

Pearson Education Limited. Registered company number 872828
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE

Ofqual




Llywodraeth Cynulliad Cymru
Welsh Assembly Government

