



Mark Scheme (Results)

January 2013

International GCSE Human Biology
(4HB0) Paper 02

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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

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