

Mark Scheme (Results)

January 2012

International GCSE Human Biology
(4HB0) Paper 01

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INTERNATIONAL GCSE HUMAN BIOLOGY 4HB0 01 – JANUARY 2012

Question number	Answer	Marks
1 (a) (b) (c) (d) (e) (f) (g) (h) (i) (j)	C; A; B; B; B; D; B; C; B; C;	10

Total 10 marks

Question number	Answer	Marks
2 (a) (i)	A;	1
	(ii) B;	1
	(iii) F;	1
	(iv) D;	1
	(v) C;	1
	(vi) E;	1

Total 6 marks

Question number	Answer	Marks															
4 (a) (i)	blue black colour; on its own	1															
	Accept black on its own but not blue																
(ii)	place powder in boiling tube; dissolve in water; add Benedict's solution; heat/boil; in water bath; observe colour at end / observe or describe correct colour change;	3 max															
(iii)	use of goggles/protective gloves;	1															
(b)	<table border="1"> <thead> <tr> <th>Test</th> <th>Powder A</th> <th>Powder B</th> <th>Powder C</th> <th>Powder D</th> </tr> </thead> <tbody> <tr> <td>Iodine</td> <td>yellow/brown</td> <td>blue black</td> <td>blue black</td> <td>yellow/brown</td> </tr> <tr> <td>Benedict's</td> <td>blue</td> <td>brick red</td> <td>blue</td> <td>brick red</td> </tr> </tbody> </table>	Test	Powder A	Powder B	Powder C	Powder D	Iodine	yellow/brown	blue black	blue black	yellow/brown	Benedict's	blue	brick red	blue	brick red	5
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Iodine	yellow/brown	blue black	blue black	yellow/brown													
Benedict's	blue	brick red	blue	brick red													
	(one mark for each correct column)																
4 (c) (i)	A;	1															
(ii)	D;	1															
(iii)	C;	1															
(iv)	B	1															

Total 14 marks

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Total 6 marks

Question number	Answer	Marks
6 (a) (i)	circle around: legs; hairs; feet; proboscis;	3 max
(ii)	Typhoid/food poisoning/polio;	1
(iii)	cover food/place in a fridge; kill flies; (effective) treatment of sewage/sanitation; thorough cooking of food;	3 max
(b)	e.g. yoghurt making; cheese flavouring; sewage treatment; recycling nutrients; antibiotic manufacture; vinegar production	3 max

Total 10 marks

Question number	Answer	Marks
7 (a) (i)	sequence of nucleotides/section of DNA/part of a chromosome; give a particular characteristic/phenotype/feature; codes for amino acids; to produce protein/polypeptide;	2 max
(ii)	Hidden/not expressed; Unless homozygous/two present; Accept converse argument	2 max
(iii)	reduced/less oxygen transported; Reject no oxygen	1
(b) (i)	R r R r; RR Rr Rr rr;	2
(ii)	1:3/25%/1 in 4/1/4;	1
7 (c)	resistance to malaria; (People with the sickle cell allele) are better able to survive; and pass on allele;	2 max

Total 10 marks

Question number	Answer	Marks
8 (a)	taking sweet, sour, bitter and salt solutions taking individually; placed on the tongue; pieces of (filter) paper/cotton buds/pipette; soaked in one solution; held in forceps/tweezers; moved across tongue/test on each area of the tongue; washing out mouth between tastings; description of fair testing;	4 max
(b) (i)	back;	1
(ii)	front;	1
8 (c)	middle; lowest numbers;	2
(d)	more reliable results; children are different;	2

Total 10 marks

Question number	Answer	Mark s
9 (a)	protein; enzyme	2
(b)	amylase has an optimum temperature at 40°C; (near) body temperature; denatured at 80°C Reject reference to enzyme dying	2
9 (c)	starch digested/broken down;	1
(d)	maltose; small molecule (so can pass through);	2
(e)	insufficient time for digestion of all starch / positive starch test would occur;	1
(f)	Mouth/salivary gland; duodenum/small intestine/pancreas;	2

Total 10 marks

Question number	Answer	Accept	Marks
10 (a)	(i) A ball and socket; B hinge;		2
	(ii) humerus;	Phonetically spelled	1
(b)	(i) position of biceps; tendons; (tendons) to radius and to scapula/humerus;		3
	(ii) contracts/shortens; tendons pull (bones);		2
10 (c)	(i) calcium;		1
	(ii) vitamin D formation; helps uptake/absorption of calcium ions;		2
	(iii) ultra-violet light; causes skin cancer; sunburn/heatstroke;		2 max

Total 13 marks

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