

Mark Scheme (Results) January 2010

GCE O

GCE O Human Biology (7042) Paper 01

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Question Number	Answer	Reject	Mark
1	(a) (i) causes a decrease;		1
	(ii) heat breaks it down; cell membrane destroyed/broken down; water soluble; diffuses/ leached into water;	denatures falls boils away	2 max
	(b) iodine solution/KI in iodine; blue-black colouration;		2 max
	(c) (i) more energy in chips; ORA approx 3 X/989 vs 331kJ; more fat / more carbohydrate; 9g vs 0g / 37.3 vs 17.7; add to obesity/less chance of losing weight;		max 3
	(ii) thin chips have a larger surface area; more fat coated on the surface /absorbed by chips; more energy fat taken into body; add to fat store in body/reduces use of body fat; accept reverse		max 3
(d) salivary amylase; converts starch to maltose;		2	

(Total 13 marks)

Question Number 2	Answer					Mark 1 mark per row
Feature	Red blood cell	Phagocyte	Lymphocyte	Platelet	Plasma	
Contains haemoglobin	✓;					
Has a nucleus		✓	✓;			
Fluid consisting mostly of water					✓;	
Engulfs pathogens		✓;				
Produces antibodies			✓;			
Involved in blood clotting	✓			✓	✓;	

(Total 6 marks)

Question	Number	Answer	Reject	Mark
3	(a)	high (increases) blood pressure; in glomerulus; forces out substances/ultra filtration; ref small molecules filtered; large molecules/named molecules retained;		2 max
	(b)	(i)	reabsorbed; 100%/ all; by proximal / convoluted tubule;	2 max
		(ii)	molecules (too) large; cannot / to pass through capillary walls / not passed out of blood / not filtered; no protein in filtrate / none passed into urine;	3
	(c)	(i)	liver;	1
(ii)		water reabsorbed; urea not reabsorbed; increases percentage in urine;	2 max	

(Total 10 marks)

Question Number	Answer	Reject	Mark
4	(a) (i)		1
	(ii)		1
	(b)		2
	(c)		3 max
	(d)		3 max

(Total 10 marks)

Question Number	Answer	Reject	Mark
5 (a)	A = testis; B = sperm duct / vas deferens; C = prostate;		3
(b) (i)	bladder;		1
(b) (ii)	store urine; releases / expels urine from body / sphincter relaxes; by contraction;		2 max
(c)	male carries both urine and sperm/ semen/ female only urine/ eq male longer;	smaller / bigger	2
(d) (i)	line marked T to testis;		1
(d) (ii)	promotes sperm production; any secondary sexual characteristic		2
(e)	adds fluid; for sperms to swim; adds nutrients to sperm; alkaline/neutralises acidity of vaginal fluid/acid;		2

(Total 13 marks)

Question Number	Answer	Reject	Mark
6 (a)	taste <u>and</u> smell; taste;		2
(b) (i)	individuals vary; improves reliability; REJECT improves accuracy rogue result may be obtained with just one; as with student D; allows calculation of mean /average;		3 max
(ii)	more accurate with taste and smell; sight not very important/not necessary to identify food; students differ in ability to identify;		3 max
(c)	touch;		1

(Total 9 marks)

Question Number	Answer	Reject	Mark
7 (a)	rapid; Involuntary/ automatic; no conscious brain involvement; protective;		3 max
(b) (i)	label line to white matter; label line to grey matter;		2
(ii)	sensory neurone with cell body; relay neurone; motor neurone; synapses in grey matter;		4
(c)	nerve impulse is active process; requires energy / ATP; supplied by mitochondria;		2 max
(d)	iris reflex; closes pupil; reduces light entering the eye / prevents damage to retina; OR blink reflex; eyelid closes; preventing physical damage / reduces light ;		2 max

(Total 13 marks)

Question Number	Answer	Reject	Mark
8	(a) (i)		2 max
	(ii)		2 max
	(b)		5
	(c)		4 max

(Total 13 marks)

Question Number	Answer	Reject	Mark
9 (a)	virus;		1
(b) (i)	one and a half years;		1
(b) (ii)	antibody level falls; below safe level; can catch disease; booster increases antibody level remains above unsafe level; person is resistant/immune/ won't get disease;		3 max
(c) (i)	get booster dose/ vaccination; antibody levels fallen to unsafe / would make more antibodies;		2
(c) (ii)	droplets; water; faeces; flies;		2 max
(d) (i)	weakened / dead / attenuated organisms; toxins;		2
(d) (ii)	active; artificial;		2

(Total 13 marks)
(Total for Paper: 100 marks)

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