

NOVEMBER 2003

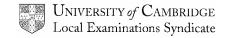
INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 70

SYLLABUS/COMPONENT: 0610/02

BIOLOGY Paper 2 (Core)



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1			A – Anax;	
			B – Aranea;	
			C – Pandalina;	
			D – Cancer,	
			E – Buthus	
			F – Musca;	
			Ignore use of common names – e.g. crab, spider, fly etc Any four correct – 1 mark each	[4]
			Tota	l [4]
2	(a)	(i)	Y – exponential (phase) / log (phase);	[1]
		(ii)	animals take time to adjust / get used to the new habitat / A/W;	
			few (reproducing) individuals present;	
			individuals may be widely dispersed / A/W;	
			Any two – 1 mark each	[2]
	(b)		food / water supply;	
			disease;	
			predators / parasites;	
			availability of space / named example;	
			climate qualified / habitat qualified; Ignore ref. to pollution	
			Any three – 1 mark each	[3]
			Tota	l [6]
3	(a)	(i)	label to upper region of vagina / near to cervix;	[1]
		(ii)	label to upper third of oviduct;	[1]
		(iii)	label to uterine lining;	[1]
		(iv)	label to ovary;	[1]
	(b)		development of breasts / mammary glands;	
			widening of hips;	
			thicker layer of fat (under skin);	
			growth of axillary / pubic hair;	
			inhibition of FSH production;	
			Any three – 1 mark each	[3]

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	(c)		✓ / yes	00.0			
	(0)		★ / or left blank / no		F43		
			✓ / yes;(Note – only 1 red tick to show correct response)		[1]		
				Т	otal [8]		
4	(a)	(i)	formation of amino acids / proteins / polypeptides;		[1]		
		(ii)	nitrates lost with crop plants / by leaching;				
			must be replaced / to increase yield / increase grow	vth;	[2]		
	(b)		plants / algae grow rapidly / algal bloom;				
			cover surface;				
			cut out light so submerge plants die; Ignore ref.	to water tu	ırbidity.		
			dead plants decomposed;				
			bacteria multiply;				
			(bacteria) use up oxygen;				
			pond / water becomes anaerobic;				
			animals die; Ignore re	Ignore ref. to suffocation			
			eutrophication;				
			Any five – 1 mark each		[5]		
				Т	otal [8]		
6	(a)	(i)	lipase;		[1]		
		(ii)	fatty acids and glycerol;		[1]		
		(iii)	(fatty acids) increase acidity of mixture / make it aci	dic;			
			to below pH5 / lowers pH;		[2]		
	(b)		enzyme activity faster at 35 °C / collisions occur mo	re frequen	tly / A/W / C		
			(fatty) acids released more rapidly / sooner / ORA;		[2]		
	(c)	(i)	5 °C – yellow;				
			55 °C – blue;		[2]		
		(ii)	5 °C – enzyme inactive / working very slowly in cold	d;			
			works faster / digests / breaks down (oil when warm	ned);			
			55 °C – enzyme destroyed / denatured / damaged / ref. to active site changes; R - killed	1			
			permanent change / not reversed when cooled (and	d no digest	ion of oil); [4]		
				To	tal [12]		

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5 (a)	(i)	(parent genotypes -)	Gg,		Gg;			
		(gamete genotypes -)	G,	g,	G,	g;		
		(offspring genotypes -)	GG,	Gg,	Gg,	gg;		
		(offspring phenotypes -) Accept - normal chlorophyll / no	greer ormal for o			green, lorophy	white; yll for white	[
	(ii)	green – 375 white – 125; (Note – only 1 red tick to show	correct re	sponse)			[
(b)		20 seeds not viable etc./ do not	germinat	e;				
		75% / 360 of seedlings to be gr	een;					
		25% / 120 white seedlings die;						
		because they lack chlorophyll;						
		*thus no photosynthesis;						
		*seedlings use up reserves / run	out of foo	od / can	not ma	ke owr	n food;	
		the two points with * can be relation to green seedlings				statem	ents in	
		Any five – 1 mark each						[
								Total [10
7 (a)	(i)	X – aorta;						
		Y – pulmonary vein;						[
	(ii)	prevent backflow / give one-wa	y flow / co	ontrol di	rection	of flow	of blood;	[
	(iii)	has to generate greater pressu	re;					
		to push / pump blood all round	body / fur	ther;				[
(b)	(i)	open closed;						
		closed open; Note – mark across each row)						[
	(ii)	(tricuspid valve -) pressure in (right) atrium / 2 uni	ts, greate	er than i	n (right)) ventri	cle / 0 unit	5;
		(semilunar valve -) pressure in pulmonary artery / 3	3 units, gr	eater th	an in (r	ight) ve	entricle / 0	units; [

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8 (a) (i) **X** – sensory neurone; **Y** – relay / intermediate / connector / internuncial / multipolar neurone; **Z** – motor neurone; [3] muscle / named muscle / gland / named gland; [1] (ii) (b) slower; blood; electrical; sense organ/ receptor; [4] Total [8] 9 user becomes dependent upon drug / description of dependency; (a) (this can be physiological, physical or psychological dependency) user suffers withdrawal symptoms if denied drug / craving for drug; Note - Ignore vague statements [1] Any one – 1 mark periods of drowsiness / stupor / " not with it" / slow responses to surroundings; (b) damage to blood vessels in nose / blue veining; damage to blood vessels in limbs / bruising / injection marks; abscesses on limbs where injecting; constricted pupils / black "panda" eyes; very happy / relaxed but with mood swings; no desire for food / drink / lack of sexual appetite; constipation; Any two - 1 mark each [2] (c) inhaling - damage to membranes / cilia of nose / throat; injecting -risk of infection by hepatitis / HIV / septicemia; [2]

Total [5]