

#### **JUNE 2002**

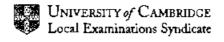
### INTERNATIONAL GCSE

# **MARK SCHEME**

MAXIMUM MARK: 70

**SYLLABUS/COMPONENT: 0610/2** 

BIOLOGY (CORE)



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## General notes

separates alternatives for a marking
separates points for the award of a mark
ORA or reverse argument / reasoning
OWTTE or words to that effect
A/W alternative wording
R reject
I ignore / irrelevant,
this word or phrase and no other

1

type of organism	identifying feature
arachnid	body of 2 regions / sections / parts / 4 pairs of legs / 8 legs;
bird	feathers / beak / hard / calcareous shelled eggs;
insect	body of 3 regions / head, thorax, abdomen / 3 pairs of legs / 6 legs / spiracles / 2 pairs of wings;
dicotyledonous plant	network of leaf veins / not parallel veins / leaf with midrib / flower parts / petals / sepals in 4, 5 or 6's / broad leaves / 2 cotyledons;

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solar energy; 2 (a) evaporation of water (from sea etc); (evapo)transpiration / OWTTE; cooling of vapour; condensation / cloud formation; precipitation / rainfall; return to source / via rivers / groundwater; [4] Any four - T mark each (b) deforestation decreased transpiration / water vapour formation / less humidity / OWTTE; (i) [2] decreased cloud formation / precipitation / rainfall; increased run off; (ii) (risk of) flooding; increased leaching / OWTTE; erosion; loss of habitats / reduced biodiversity; breakdown of food chains: less humus formation; increased carbon dioxide / reduced oxygen in atmosphere;

Any two - 1 mark each

Total [8]

[2]

		, a R <del>-</del>	
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3 (a) (i) sigmoid / S (curve);

[1]

(ii)

name of phase	phase on graph	
log	В;	
lag	A;	
stationary	C;	

[3]

[2]

(b) phase C / stationary phase / plateau / flat portion occurs earlier;

phase C at lower level / population size / phase B / population size

does not go as high;

Reject - population decreases / declines

Total [6]

4 (a) (i) umbilical (cord);

[1]

- (ii) it is deoxygenated / has more carbon dioxide / at a much lower pressure; [1]
- (iii) have a thin membrane / one cell thick; have a large surface area;

rich blood supply / many capillaries;

[1]

(b) differences in blood group / blood groups may be incompatible; maternal blood pressure too great for fetal vessels / OWTTE; reduces risk of transfer of pathogens / bacteria etc; Reject – germs decreased risk of transfer of toxins / drugs / named drug;

Any two - 1 mark each

[2]

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(c) modifies contents of blood similar to lungs and kidneys;

oxygen added to fetal blood / fetus;

carbon dioxide removed from fetal blood / fetus;

urea / ammonia removed from fetal blood / fetus;

Any three - 1 mark each

[3]

Total [8]

- 5 (a)(i) acts as food / named food / nutrients store for seed;
  - (ii) B becomes the shoot / stem and leaves;

C - becomes the root;

[2]

- (b)(i) water content very variable / not all water is part of living material; [1]
  - (ii) respiration occurs;

carbohydrates / starch / glucose / fats broken down / used up;

turned into carbon dioxide;

lost from seed / to air / environment;

drop in mass;

Any four - 1 mark

[4]

(iii) set P - (still only) respiration occurring;

set Q - in the light;

seedlings now photosynthesise;

forms starch / proteins / sugars / glucose / cellulose / cytoplasm;

allows growth / more cells / increase in dry mass;

Any four - 1 mark

[4]

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#### 6 Cross 1

correct genotypes for parents + BB and bb;

correct genotypes for gametes - B and b;

correct genotype for offspring - Bb;

[3]

## Cross 2

no mark for genotype of parents – allow continuous error from offspring of (a)

correct genotypes of gametes - B and b + B and b;

correct genotypes of offspring - BB, Bb and bb;

correct phenotypes of offspring and positioned below relevant genotype;

[3]

Total [6]

7 (a) (i) pancreas;

[1]

(ii) bile emulsifies fats / description;

increases surface area (for enzyme / lipase action);

neutralises (stomach) acid / hydrochloric acid / raises pH / optimum pH;

lipase digests / breaks down / coverts fats;

into fatty acids and glycerol;

Any four - 1 mark each

[4]

(b)(i)	glucose / simple / reducing sugars;	
	amino acids;	[2]
(ii)	changes / converts glucose into glycogen;	
	for storage;	[2]
	breaks down excess amino acids;	
	forms urea;	[2]
		Total [11]
8 (a) (i)	A – vena cava;	
	B – pulmonary artery;	[2]
(ii)	vessels C <u>and</u> D;	[1]
(iii)	E – semilunar / watch pocket / aortic (valve);	
	to prevent the back flow of blood / allow one way flow;	[2]
(b)(i)	reduce salt (intake);	
	reduce fat / cholesterol (intake);	
	increase fibre (intake);	
	limit total intake to avoid obesity / overweight;	
	Any two 1 mark each	[2]
(ii)	smoking;	
	stress;	
	lack of exercise;	
	genetic predisposition / OWTTE;	
	Any two - 1 mark each	[2]

Mark Scheme

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Syllabus 0610

Paper

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## 9 (a) (i) depressant

slows down responses / brain activity / speed of nerve impulses / increases reaction times;

#### addictive

causes craving / body to demand more of it / cause withdrawal symptoms if no longer available; [2]

(ii) damage to liver / liver cells / cirrhosis;

stomach ulcers;

increase in blood pressure;

hardening of arteries;

brain damage / destroy / kill brain cells;

Any two - 1 mark each

[2]

(b) slows reactions / increase reaction / thinking times;

reduces powers of judgement / sleepiness;

visual disturbance / likely to upset vision interpretation / dizziness;

lack of inhibitions / become (more) reckless;

nausea:

Any two - 1 mark each

[2]

Total [6]