## UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS GCE Ordinary Level

## MARK SCHEME for the October/November 2010 question paper for the guidance of teachers

## **5090 BIOLOGY**

5090/61

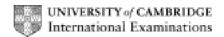
Paper 6 (Alternative to Practical), maximum raw mark 40

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	GCE O LEVEL – October/November 2010	5090	61
li x ii 9	Graph marks: ght intensity on x-axis, carbon dioxide intake on y-axis; -axis labelled light intensity / arbitrary units and y-axis labelet light intensity / arbitrary units and y-axis labelet lake / arbitrary units; lood linear scales including positive and negative values; lear and accurate plotting; onnections ruled / smooth line of best fit;	elled carbor	dioxide
ii L li a	arbon dioxide intake or photosynthesis (rate); ncreases with increased light intensity; p to 6–11 arbitrary units; ght limiting photosynthesis; t higher light intensities carbon dioxide intake / photosyntonstant; R. stops	thesis rate	
C	arbon dioxide or another factor limiting (photosynthesis);		[max 4]
(iii) C	.5–0.9 arbitrary units ;		[1]
(iv) p	hotosynthesis absorbing CO <sub>2</sub> + respiration producing CO <sub>2</sub> ; at	: same rate ;	[2]
			[Total: 12]
head anter	:		[max 4]
4 win thick short hairy 4 forv large short rear 6	arable but contrasted pairs: gs: 2 wings; or hairy legs: thin or smooth legs; / thick legs: long / thin legs; legs: smooth legs; vard / 2 backwards facing legs: 2 forward / 4 backwards facing eyes: small eyes; or simple antenna: long or 'furry' antenna; end forked: rear end not forked or pointed or simple AW; nparts absent: mouthparts present AW;	g legs;	[max 4]
	9 mm ; ct expression – measurement over 40 ; ification well expressed × or times up to 2 dp no units		[3]

Mark Scheme: Teachers' version

Syllabus

Paper

[Total: 11]

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Page 3	Mark Scheme: Teachers' version	Syllabus	Paper
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3 (a) (i) and (ii)

add iodine solution; turns (blue) <u>black</u>; add biuret reagent;

(from blue to) mauve / violet / lilac / purple;

[4]

(b) (i) protease / enzyme (digests protein); amino acids formed; R. nitrates movement through phloem / translocation;

[3]

(ii) (on Fig. 3.1) arrow(s) drawn in cotyledon towards embryo;

[1]

(c) secretion contains protease/enzyme;

insect's body (content) digested; into amino acids;

used by plant;

[max 3]

(d) (i) for amino acid / protein formation;

for growth / repair;

for chlorophyll / green leaves / prevent yellow leaves;

[2]

(ii) (culture) solution with no nitrogen / nitrate;

(control) solution with nitrates / nitrogen;

ref. aeration / topping up;

suitable use of lid;

same size / species of plant used;

with same light / temperature / grown for same time period;

pale or yellow leaves / poor root system / stunted stature of plant lacking nitrates or converse; [max 4]

[Total: 17]