UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

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

5090 BIOLOGY

5090/31 Paper 3 (Practical Test), maximum raw mark 40

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1 (a) (ii) fault or variation may give odd result / confirms first reading / avoiding any errors;
R: ref to accuracy / fair testing [1]

(iii) yes – because of differences (or converse);
ref. to average / mean length;
(this can also be accepted in **(ii)** if not referred to here). [2]

(iv) marks for Table 1.1: (tick close to point)
negative change in **A**;
positive change in **C**;
means correctly calculated and stated;
(+) and – indicated in last column; [4]

(b) (i) graph marks:

1. labelled (+) above, – below axis.
2. *x*-axis labelled 'concentration / mol per dm^3.
3. *y*-axis labelled 'change in length / mm' .
4. clear and accurate plotting of own data.
5. connections ruled / line of best fit. [5]

(ii) accurately read from graph (±1 mm on *x*-axis); [2]
units (mol per dm^3);

(iii) water potential the same (equal) / solution in cell(sap) same concentration as external (ambient) solution ; <u>isotonic</u>;
no <u>net</u> exchange of <u>water</u>;
no change in length / size / dimensions; [3 max]

(c) investigate adjacent (more / different) values of concentration / using concentration in **(b) (ii)**;
more accurate measurement of strips; replication / more strips;
measure mass; longer time; [3 max]

[Total: 20]

2 (a) (i) drawing marks:

1. at least 6 cm, clear and realistic.
2. legs (jointed / sections), wings (2), with one veined.
3. segments (clear / complete) / head / eye / proboscis shown. [3]

labels: leg and wing;
head / thorax / abdomen;
segment;
proboscis / antenna;
eye; [3 max]

(ii) better outline / clear(er) / shows more detail;
holds in place / keeps flatter / spread out; [2]

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(iii) shown where measured;
measurements with units once at least;
correct calculation – drawing over specimen size;
magnification well expressed;
R: 3 decimal places. [4]

(b) (i) wings; veined; eyes;
jointed / segmented; antennae;
legs; head / thorax / abdomen; [4 max]

(ii) comparable but contrasted pairs:

small size / 1 cm	:	large(r) / 10 cm;
wings 2 (1 pair)	:	wings 4 (2 pairs);
delicate / thin /shorter	:	stronger / longer wings;
small(er) head / eyes	:	larg(er) head / eyes;
small / thin / long legs	:	stout / stronger / short legs;
proboscis	;	no proboscis
abdomen (tail) rounded	;	abdomen (tail) pointed
long antenna	;	short antenna

[4 max]

[Total: 20]

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