

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

General Certificate of Education O Level

MARK SCHEME for the June 2005 question paper

5090 BIOLOGY

5090/06

Paper 6 (Alternative to Practical), maximum mark 40

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JUNE 2005

GCE O Level

MARK SCHEME

MAXIMUM MARK: 40

SYLLABUS/COMPONENT: 5090/06

BIOLOGY

Paper 6 (Alternative to Practical)

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- 1 (a) (i) 150 - 280; mm; (or equivalent cm.)
- (ii) image of that part of field of view for one blind spot;
falls on receptors of other eye;
blind spots do not coincide;
brain 'fills' the blank; A.W. [up to 2]
ignore ref. stereoscopic
- (b) (i) iris correct;
pupil correct; (allow 1 if both correct on adjacent drawing) [2]
- (ii) outer iris diameter same in both drawings;
pupil smaller in second drawing; [2]
R: sections
- (iii) retina detects more light entering eye;
causing dazzle ref. somewhere;
ref. iris involvement
circular muscles (of iris) contract;
radial muscles relax; (allow 1 if both mentioned but confused)
smaller pupil;
ref. reflex/role of brain;
controls entry of light; [up to 6]
A: correct muscle function enlarging or constricting pupil

[Total: 14]

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- 2 (a) (i) blood; [1]
- (ii)&(iii) together. Drawing marks: [D.4]
- 1 Cells at least 2 cm clear, clean, realistic
 - 2 Two cells drawn in each correct space, round and oval
 - 3 Central area shown pale (ii)
 - 4 Nuclei realistic (iii)
- Labels: In 2.1 - two from: [1]
 cytoplasm; depression/pale area; plasma/cell/outer membrane; (blood)
 plasma;
- In 2.2 - nucleus and
 one of cytoplasm/cell/outer membrane; [1]
- R: one of label marks if cell wall mentioned
 [Up to 3 max of above marks if drawings transposed]
- (b) For each of 2 contrasting pairs:
 small(er) - large(er);
 no nucleus - nucleus present;
 pale stain/cytoplasm - darker;
 human – non-human
 10/more cells – 3/fewer cells;
 round - oval; [2]
 Two from: cytoplasm; cell membrane; rounded/regular;
 both are animal cells; [2]
- [Total: 11]

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- 3 (a) (i) lengths: 50.5; 47.5;
changes: +0.5; -2.5; [4]
- (ii) Table 3.2.
1.0 S3
0.8 S2
0.6 S5
0.4 S1
0.2 S4 [All correct = 4]
[S2 below S3; S5 below S2; S1 below S5; S4 below S1]
- (b) Two from: keep s/a of chips the same;
use more chips; use longer chips;
all from same potato/to eliminate variation;
equal/constant temperature;
repeat/replicate; use other soln. concs;
measure mass/weight;
repeat measures to constant values
cover to reduce evaporation (of solvent);
o.v.p. [2]
- (c) (i) *1 x axis labelled 'conc/mol dm³'
*2 y axis labelled 'change in length/mm'
3 all plots clear and correct
4 curve well drawn and smooth [4]
* allow on bar graph
- (ii) 0.35 (0.325 - 0.375) mol/dm³; (max 3 decimal pts) [1]

[Total: 15]