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### UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

**International General Certificate of Secondary Education** 

# MARK SCHEME for the May/June 2009 question paper for the guidance of teachers

# 0610 BIOLOGY

0610/06

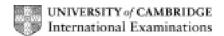
Paper 6 (Alternative to Practical), maximum raw mark 40

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| Page 2 | Mark Scheme: Teachers' version | Syllabus | Paper |
|--------|--------------------------------|----------|-------|
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## 1 (a) Drawing:

O outline; (all drawing lines unbroken and no shading)

**N** correct number of cloves; (9/10 + 4)

A detail of central area shown in cloves of correct proportion;

#### If 1.1a drawn - max 1 for O outline

Label:

outer layer / epidermis / epicarp / skin / scale;

cloves / (central) stem;

[5]

(b) (i) (thin protective) covering / skin; AW

[1]

(ii) two from:

one part / many;

central stem / none;

skin AW: loose / attached /speckled / plain;

correct comment on shape;

AVP; [MAX 2]

- (c) 1 two equal samples (by mass or size) / equal reagents (by volume or concentration),
  - **2** comparative point e.g. intensity of colour / positive and negative; (ignore time factor)

#### Starch

- 3 iodine solution / iodine in KI;
- 4 black if positive / remains colour of iodine solution if negative;

#### Sugars

- 5 crush / grind / extract with water;
- 6 add Benedict's solutions or named chemicals;
- 7 heat (not warm);
- 8 colour change given green / yellow / orange / red / remains blue if negative;

#### Safety

**S9** use of water bath – safety;

S10 test tube holders;

**S11** safety / laboratory spectacles;

S12 use of lab coat;

\$13 tie / hair tied back:

[Max 2 for safety and Max 5 for method]

[MAX 6]

[Total: 14]

|         | 1000=   |  |  |  |  |
|---------|---|--|--|--|--|
| (a) (i) | Any site where pressing against bone / cartilage a pulse can be measured; [MAX 1]   |  |  |  |  |
| (ii)    | <ul> <li>1 artery; (R vein and capillary)</li> <li>2 surge / wave / AW of blood;</li> <li>3 near the surface;</li> <li>4 pressure against bone or cartilage; [MAX 2]</li> </ul>   |  |  |  |  |
| (b) (i) | calculation x 4 for rate per minute; [72, 76, 68] mean calculated; [72] (allow ecf for correct mean from incorrect figures) [2]   |  |  |  |  |
| (ii)    | reliability / reduce error / show anomalies AW; (ignore accuracy and fair test)  [1]  |  |  |  |  |
| (iii)   | Two from:  Exercise / physical work / activity; increase heart beat rate / demand for extra supply of blood / oxygen/ glucose / energy (for muscles);  Relaxation / sleeping / inactivity; decreases heart beat rate/ lowers demand for blood supply AW;  Adrenaline / stress / anxiety/ fear / fright; increases hbr; AW alcohol; slows hbr;  coffee / caffeine; increases hbr;  smoking / nicotine; increases hbr;  illness / raised body temperature; increases hbr being fit; lowers hbr;  I references to: diet / body mass / age / external temperature mark across the rows  [MAX 4] |  |  |  |  |
| (c) (i) | graph S – suitable scale to fill over half of printed grid; P – plotted correctly;; allow +/- 0.25 cm / 1/4 square (one error – 1 plot mark, if two errors – neither plot mark. Allow ecf from (b)(i).) B – bars separate, not touching; C – columns of equal width;  [5]   |  |  |  |  |
| (ii)    | higher body mass / heavier – slower heart beat rate or converse;  A negative correlation [1]  |  |  |  |  |
| hea     | d) lower body mass + higher heart rate + link to shorter life span / higher body mass + lower heart rate + link to longer life span;  |  |  |  |  |

Mark Scheme: Teachers' version

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Syllabus

0610

Paper

06

[1]

[Total: 17]

Page 3

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all three factors are required

| 3 | (a) | (i)  | red blood cell / erythrocyte;<br>white blood cell / leucocyte / lymphocyte / phagocyte;;<br>platelet / thrombocyte; | [MAX 3] |
|---|-----|------|---|---------|
|   | (   | (ii) | white blood cells / AW;<br>plasma / tissue fluid;   | [2]     |
|   | (b) | (i)  | 5 +/- 0.5mm;  | [1]     |
|   | (   | (ii) | working measurement from (i); ecf   |         |

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800

correct answer with units; (accept units wherever mentioned)

Page 4

4.5/800 = 0.005625 or 5.625 x  $10^{-3}$  or round to 0.0056 or 5.6 x  $10^{-3}$ 5/800 = 0.00625 or 6.25 x  $10^{-3}$  or round to 0.006 or 6 x  $10^{-3}$ 5.5/800 = 0.006875 or 6.875 x  $10^{-3}$  or round to 0.007 or 7 x  $10^{-3}$ 

(iii) to carry oxygen / oxyhaemoglobin; [1]

[Total: 9]

[2]

**Paper** 

06

**Syllabus** 

0610