

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level

**BIOLOGY**

**5090/03**

Paper 3 Practical Test

May/June 2004

**1 hour 15 minutes**

**CONFIDENTIAL INSTRUCTIONS**

**Great care should be taken that any confidential information given does not reach the candidates either directly or indirectly.**

**Instructions for preparing apparatus**

These instructions give details of the apparatus required by each candidate for each experiment in this paper. A summary of the questions that will be presented to the candidates is included, where appropriate, to allow the Biology teacher to test the apparatus appropriately. **No access to the question paper is permitted in advance of the examination session.**

If a candidate breaks any of the apparatus, or loses any of the material supplied, the matter should be rectified and a note made in the Supervisor's Report.

If arrangements are made for different sessions for different groups of candidates, care must be taken to ensure that the different groups of candidates are effectively isolated so that **no information passes between them.**

Supervisors are advised to remind candidates that **all** substances in the examination should be treated with caution. Pipette fillers and safety goggles should be used where necessary.

In accordance with the COSHH (Control of Substances Hazardous to Health) Regulations, operative in the UK, a hazard appraisal of the examination has been carried out.

The following codes are used where relevant.

**C** = corrosive substance

**F** = highly flammable substance

**H** = harmful or irritating substance

**O** = oxidising substance

**T** = toxic substance

If you have any problems or queries regarding these Instructions, please contact CIE

by e-mail: [International@ucles.org.uk](mailto:International@ucles.org.uk),

by phone: +44 1223 553554,

by fax: +44 1223 553558,

stating the Centre number, the nature of the query and the syllabus number quoted above.

This document consists of 2 printed pages.



**Instructions to Supervisors:****Question 1**

Each candidate will require:

- (i) A wide test-tube, approximately 22 mm diameter and a suitable rack or support.
- (ii) The usual means of heating a water bath.
- (iii) Tripod and gauze
- (iv) Thermometer 0 °C – 110 °C
- (v) Two beakers or cans in which water may be heated. They must be at least 9 cm in depth and wide enough to accommodate two fingers placed side by side (400 cm<sup>3</sup> beakers are ideal). One of the containers should be empty; the other should contain hot tap water to a depth of approximately 8 cm. There should be no sharp edges.
- (vi) A third container, similar to the other two, but containing approximately 8 cm depth of **ice cold water**. This should be given to the candidates on request.
- (vii) Access to a supply of tap water.
- (viii) Stopwatch, stopclock or sight of a clock with a second hand.

Candidates will be asked to hold a test-tube of warm water against their bare skin, just below the elbow. In exceptional circumstances, when this is not possible, candidates may place the test-tube against the bare skin on their wrists. Please indicate this in the Supervisor's Report on the back of the candidate's script.

**Question 2**

Each candidate will require:

- (i) Fresh bean pod or pea pod labelled **S1**, or another suitable fresh local alternative legume. The pod needs to be green, moist and fleshy, so that it can be cut easily with a sharp knife. Each seed must be capable of easily being peeled to remove the testa.
- (ii) Fresh, ripe, red or yellow tomato labelled **S2**.
- (iii) Ruler that measures in millimetres.
- (iv) Iodine solution with dropper.  
Before the examination, test a sample of pericarp (fruit wall) of **S1** and **S2** with iodine solution and report the result on the Supervisor's Report on the back of the first candidate's script. Please also put the identity of **S1** on the Supervisor's Report on the back of the first candidate's script.
- (v) White tile or similar
- (vi) Scalpel or sharp knife
- (vii) Hand lens