

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
**General Certificate of Education Ordinary Level**

**AGRICULTURE**

**5038/3**

PAPER 3 Practical Test

CONFIDENTIAL INSTRUCTIONS

**MAY/JUNE SESSION 2002**

1 hour 15 minutes

**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, reagents and specimens 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 teacher to test the apparatus appropriately. **No access to the question paper is permitted in advance of the examination session.**

It is assumed that the ordinary apparatus of a science laboratory will be available, including a supply of purified water (distilled or deionised).

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.**

**All specimens should carry only the code letters and numbers as indicated and their identity should not be revealed to the candidates.**

Supervisors should ensure that all specimens have the correct identity attached to the specimen and that these are **not** removed during the examination.

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

by e-mail: 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.

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**These instructions consist of 3 printed pages and 1 blank page.**

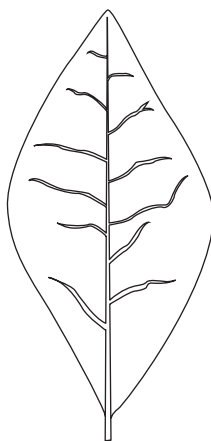


**Specimens should be labelled by code letters and numbers only.**

**For Question 1**

*Each candidate will require:*

- (i) a ruler (mm);
- (ii) 25 fresh leaves of the same dicotyledenous species, each with a petiole and similar to the shape below. The majority of the leaves should be between 10 and 65 mm wide. Leaves narrower than 10 mm are not appropriate. Leaves may be collected up to 2 days in advance and kept in plastic bags. It is essential that the leaf margin is smooth and is not toothed or lobed.



Examples from the following genera may be found appropriate. *Bougainvillea*; *Citrus*; *Impatiens*; *Coffea*; *Vinca*. It is **not** essential that the same species be supplied to every candidate within a Centre.

**For Question 2**

*Each candidate will require:*

- (i) 5 g ammonium sulphate, labelled **AS1**;
- (ii) 5 g calcium carbonate, labelled **AS2**;
- (iii) 4 clean, dry test-tubes and a means of labelling them;
- (iv) a test-tube rack;
- (v) a source of water;
- (vi) sodium hydroxide solution, labelled **sodium hydroxide solution**;
- (vii) dilute hydrochloric acid, labelled **hydrochloric acid**;
- (viii) barium nitrate solution, labelled **barium nitrate solution**;
- (ix) limewater, labelled **limewater**;
- (x) red litmus paper.

**For Question 3**

*Each candidate will require:*

- (i) a sandy soil (or sand), labelled **AS3**, which has been air-dried for 24 hours;
- (ii) a soil with more clay and/or organic material than **AS3**, labelled **AS4**, which has been air-dried for 24 hours;  
(NB for both soil samples **AS3** and **AS4**, there should be enough soil to half fill the filter funnel.)
- (iii) a 100 cm<sup>3</sup> measure cylinder;
- (iv) a clamp stand, a boss and a clamp;
- (v) a 250 cm<sup>3</sup> beaker;
- (vi) a filter funnel with top of stem **loosely** plugged with glass wool;
- (vii) a source of water;
- (viii) a stopwatch or stopclock;
- (ix) a spatula;
- (x) a marker or chinagraph pencil capable of marking filter funnel.

**The Supervisor's Report is to be filled in on the back page of the first candidate's script. Please ensure that this is done.**

