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| Centre Number | Candidate Number | Name |
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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level

**AGRICULTURE**

**5038/03**

Paper 3 Practical Test

CONFIDENTIAL INSTRUCTIONS

May/June 2004

**1 hour 15 minutes**

**Great care should be taken to ensure 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 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.

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.

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

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

Specimens and apparatus should be provided as follows.

- Question 1 Each candidate should have:
- a groundnut (peanut) mounted on a large needle or pin labelled **AS1**;
  - a boiling tube;
  - a thermometer;
  - a clamp stand;
  - two bosses and two clamps;
  - a Bunsen burner;
  - access to a supply of cold water;
  - ruler.

If a candidate is known to have a severe nut allergy, another suitable food material may be substituted. This should be stated in the supervisor's report.

- Question 2 Each candidate should have:
- a dicotyledonous leaf from a plant (eg. geranium) which has been kept in the light for at least 24 hours and labelled **AS2**. The species of leaf should be stated in the supervisor's report.
  - leaves from a plant of the same species that has been kept in the dark for 48 hours and labelled **AS3**;  
It may be necessary to keep them in a polythene bag and refrigerated if they have been removed from the plant for some time prior to the examination.
  - water bath at 90°C labelled **water bath at 90 °C**;
  - two clean test tubes or the facility to clean them;
  - forceps;
  - access to a supply of cold water;
  - ethanol labelled **ethanol**;
  - iodine solution labelled **iodine solution**;
  - white tile;
  - access to a clock.

- Question 3 Each candidate should have:
- approximately 10g of a sandy soil labelled **AS5**;
  - approximately 10g of a soil with a higher pH than **AS5**. It may be necessary to add a small amount of lime if such soils are not available locally. The sample should be labelled **AS4**; The pH of **AS4** and **AS5** should be stated on the supervisor's report.
  - two clean test tubes or the facility to clean them;
  - access to a supply of cold water;
  - barium sulphate powder labelled **barium sulphate**;
  - distilled water labelled **distilled water**;
  - soil pH indicator solution, ie. universal indicator solution or BDH solution labelled **soil pH indicator**. Indicator papers cannot be used. Litmus indicator cannot be used.
  - pH chart

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.

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