

CAMBRIDGE INTERNATIONAL EXAMINATIONS
Joint Examination for the School Certificate
and General Certificate of Education Ordinary Level

AGRICULTURE

5038/3

PAPER 3 Practical Test

CONFIDENTIAL INSTRUCTIONS

OCTOBER/NOVEMBER SESSION 2002

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 or altered 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,

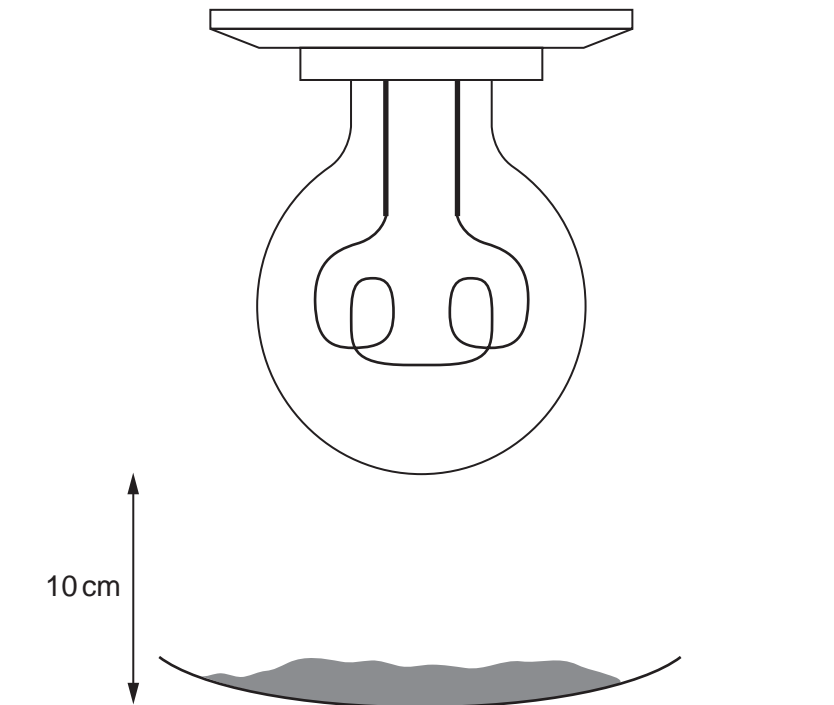
by fax: +44 1223 553558,

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

For Question 1

Each candidate will require:

- (i) a sample of sandy soil, labelled **AS1** – the soil should be much lighter in colour than **AS2**;
- (ii) a sample of much darker soil, labelled **AS2**;
(NB The soil colour may be adjusted by adding compost, charcoal or woodash.)
- (iii) a stopclock or stopwatch capable of timing 5 minutes;
- (iv) a watch glass or similar;
- (v) a $-10\text{ }^{\circ}\text{C}$ to $110\text{ }^{\circ}\text{C}$ thermometer graduated in $1\text{ }^{\circ}\text{C}$ intervals;
- (vi) a low voltage lamp, 20 W – 35 W or higher power connected to a power supply, with switch, to light lamp; the lamp should be suspended 10 cm above the bench surface by boss and clamp; **(The candidate should not construct this apparatus.)**
- (vii) another boss and clamp should be available to the candidate.

**For Question 2**

Each candidate will require:

- (i) **AS3** – an almost ripe pod of any leguminous plant, ideally about 6-10 cm long;
- (ii) **AS4** – a small berry with several seeds, e.g. a small tomato;
(NB Specimens **AS3** and **AS4** should be labelled by these codes only.)
- (iii) a scalpel, or similar;
- (iv) a hand lens;
- (v) a tile or similar surface for cutting.

For Question 3

Each candidate will require:

- (i) a mixture of glucose and starch, labelled **AS5**, sufficient for 3 food tests;
- (ii) a mixture of glucose and albumen, labelled **AS6**, sufficient for 3 food tests;
(NB Another soluble protein may be substituted for albumen; another reducing sugar may be substituted for glucose.)
- (iii) Benedict's solution, labelled **Benedict's solution**;
- (iv) iodine dissolved in potassium iodide solution, labelled **iodine solution**;
- (v) sodium hydroxide solution, labelled **sodium hydroxide solution**;
- (vi) copper sulphate solution, labelled **copper sulphate solution**;
- (vii) a spatula;
- (viii) four clean, dry test-tubes or two clean, dry test-tubes and access to a water supply to wash the tubes during the experiment;
- (ix) a test-tube holder;
- (x) a test-tube rack;
- (xi) a white spotting tile or similar;
- (xii) a dropping pipette;
- (xiii) a water-bath at 90 °C or a means of gently warming test-tubes.

