

**International General Certificate of Secondary Education  
CAMBRIDGE INTERNATIONAL EXAMINATIONS**

**CO-ORDINATED SCIENCES**

**0654/5**

PAPER 5 Practical Test

CONFIDENTIAL INSTRUCTIONS

**OCTOBER/NOVEMBER SESSION 2002**

2 hours

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

**The Supervisor's attention is drawn to the form on page 4 which must be completed and returned with the scripts.**

---

**These instructions consist of 4 printed pages.**

### Instructions for preparing apparatus

These instructions detail 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 is permitted to the question paper 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.**

Please note the important information about setting up **questions**. Make sure candidates are aware of this on the day of the practical test.

### For Question 1

*Each candidate will require:*

**Please make sure that similar potatoes are used to prepare the cut samples.**

- (i) a large potato, at least 10 cm long;
- (ii) a sharp knife to cut the potato into 8 cm strips;
- (iii) a white tile, or other suitable cutting surface;
- (iv) four test-tubes of approximate size 125 x 15 mm;
- (v) a test-tube rack;
- (vi) 4 labels to label the test-tubes;
- (vii) 50 cm<sup>3</sup> of 1.0 mol dm<sup>-3</sup> sodium chloride solution, supplied in a beaker labelled **A**;
- (viii) 50 cm<sup>3</sup> of distilled water, supplied in a beaker labelled **B**;
- (ix) 1 pair of forceps/tweezers;
- (x) 2 paper towels;
- (xi) a clearly visible clock;
- (xii) a ruler, graduated in mm.

### Procedure to be followed by candidates

Candidates will be required to set up the experiment for Question 1 at the start of the examination and leave it for at least 30 minutes whilst proceeding with the other questions.

**For Question 2**

*Each candidate will require:*

- (i) a glass 100 cm<sup>3</sup> beaker;
- (ii) a 250 cm<sup>3</sup> beaker;
- (iii) access to a balance capable of reading to an accuracy of 0.1 g;
- (iv) a 0–110 °C thermometer in 1 °C steps;
- (v) ammonium chloride labelled 'solid Z'; approximate mass between 3.5 g and 4.0 g;
- (vi) a 50 cm<sup>3</sup> measuring cylinder;
- (vii) about 30 cm<sup>3</sup> water, coloured with addition of a simple dye, e.g. food colouring, labelled 'liquid L';
- (viii) a Bunsen burner.

**For Question 3**

*Each candidate will require:*

- (i) a 200 cm<sup>3</sup> or 250 cm<sup>3</sup> conical flask;
- (ii) a 50 cm<sup>3</sup> or 100 cm<sup>3</sup> measuring cylinder;
- (iii) a 10 cm<sup>3</sup> measuring cylinder;
- (iv) a 0–110 °C thermometer;
- (v) a Bunsen burner;
- (vi) a stop clock;
- (vii) a sheet of clean paper A5 size;
- (viii) 300 cm<sup>3</sup> of solution H which is a solution of sodium thiosulphate of concentration 0.05 mol dm<sup>-3</sup>.  
If using Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>·5H<sub>2</sub>O, this would be 12.4 g dm<sup>-3</sup> of Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>·5H<sub>2</sub>O in each dm<sup>3</sup>;
- (ix) 30 cm<sup>3</sup> of solution J which is hydrochloric acid of concentration 2.0 mol dm<sup>-3</sup>.

All solutions should be freshly prepared in bulk and distributed just prior to the examination.

*Information required from the Supervisor:*

**The Supervisor is asked to carry out the experiments and to enter the results on a spare copy of the examination paper, clearly marked 'Supervisor's Results' and showing the Centre number. This should be returned with the scripts. Failure to do so may cause the candidates to be penalised.**

**This form must be completed and returned in the envelope with the scripts together with the seating plan and the Supervisor's Results mentioned below.**

**October/November 2002**

*General*

The Supervisor is invited to give details of any difficulties experienced by particular candidates giving their names and candidate numbers. These should include reference to:

- (a) difficulties due to faulty apparatus;
- (b) accidents to apparatus or materials;
- (c) physical handicaps, e.g. short sight, colour blindness;
- (d) any other information that is likely to assist the Examiner, especially if this cannot be discovered in the scripts;
- (e) any help given to a candidate.

*The Supervisor is asked to supply the following information:*

Plan of work benches, giving details by candidate numbers of the places occupied by the candidates for each session and a copy of the 'Supervisor's Results'.

NAME OF CENTRE .....

SIGNED .....

*Supervisor*

CENTRE NUMBER .....

DECLARATION (to be signed by the Principal)

The preparation of the practical examination has been carried out so as to maintain fully the security of the examination.

NAME .....

(in block capitals)

SIGNED .....(Principal)