
COMBINED SCIENCE

0653/51

Paper 5 Practical Test

October/November 2018

CONFIDENTIAL INSTRUCTIONS

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

The Supervisor's attention is drawn to the form on page 8 which must be completed and returned with the scripts.

If you have any queries regarding these Confidential Instructions, please contact Cambridge stating the Centre number, the nature of the query and the syllabus number quoted above.

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This document consists of 7 printed pages and 1 blank page.

READ THESE INSTRUCTIONS FIRST

These Confidential Instructions detail the apparatus, reagents and specimens required by each candidate for each experiment in this paper.

The Supervisor is **not** allowed to consult the Question Paper before the examination. This teacher should, as part of the preparation of the examination requirements, test the apparatus in order to ensure that it is satisfactory.

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

More material may be issued if required, without penalty, but this should not be necessary. If a candidate breaks any of the apparatus the matter should be rectified and a note made in the Supervisor's Report.

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

Supervisors are advised to remind candidates that **all** substances in the examination should be treated with caution. Only those tests described in the Question Paper should be attempted. Suitable eye protection should be provided.

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

Attention is drawn, in particular, to certain materials used in the examination. The following codes are used where relevant.

C corrosive

MH moderate hazard

HH health hazard

T acutely toxic

F flammable

O oxidising

N hazardous to the aquatic environment

Hazard data sheets should be available from your suppliers.

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**.

The Supervisor should make sure the Supervisor's Report is fully completed and a copy is enclosed with **each** packet of scripts.

Question 1

Each candidate will require:

- (i) a leaf of 4–7 cm in length with visible veins and a thick cuticle e.g. holly or laurel
- (ii) 30 cm ruler graduated in mm.

Question 2

Each candidate will require:

- (i) stopclock
- (ii) thermometer -10°C to 110°C graduated in 1°C intervals
- (iii) plastic cup supported in a beaker of suitable size
- [F] (iv) 1.5 g of fresh magnesium powder labelled **H**
- (v) 25 cm^3 measuring cylinder
- [C] [N] (vi) 30 cm^3 0.5 mol dm^{-3} copper sulfate $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ labelled **J**
- (vii) stirring rod.

Question 3

Each candidate will require:

- (i) steel spring with a spring constant of approximately 25 N/m (see note 1)
- (ii) stand, boss and clamp (see note 2)
- (iii) 30 cm or a 50 cm ruler, graduated in millimetres
- (iv) masses of 200 g, 300 g, 400 g and 500 g. A 100 g mass hanger with four 100 g slotted masses is ideal (see note 3)
- (v) stopclock to measure to 0.01 s.

Notes

1. An expendable steel spring is suitable, for example a 55 mm long spring of diameter 15 mm (see www.philipharris.co.uk, catalogue number B8G87194). The spring must be capable of supporting at least 500 g without overstretching.
2. The clamp must be sufficiently high above the bench so that when the spring and the 500 g mass is attached to the clamp, the bottom of the mass is about 10 cm above the bench.
3. If a mass hanger is not available, a suitable light hook must be provided so that the masses can be hung from the spring.

Action at changeover

Remove the masses from the spring and place the spring on the bench.

Check that the spring is not overstretched.

Spare materials and equipment should be available and can be provided without penalty. **Candidates should be made aware of this.**

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 done, out of sight of the candidates, using the same solutions, reagents, specimens and apparatus as the candidates.

A copy of the Supervisor's Results should be returned with each packet of 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 as mentioned on page 6.

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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

CENTRE NUMBER

DECLARATION (to be signed by the Supervisor)

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

NAME
(in block capitals)

SIGNED (Supervisor)

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