

**PHYSICAL SCIENCE**

**0652/51**

Paper 5 Practical Test

**October/November 2017**

**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 nature of the query and the syllabus number quoted above.

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This document consists of **6** printed pages and **2** blank 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.**

**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. Only those tests described in the Question Paper should be attempted. Pipette fillers and suitable eye protection should be used where necessary.

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.

The following codes are used where relevant.

<b>C</b> corrosive	<b>MH</b> moderate hazard
<b>HH</b> health hazard	<b>T</b> acutely toxic
<b>F</b> flammable	<b>O</b> oxidising
<b>N</b> hazardous to the aquatic environment	

The attention of Centres is drawn to any local regulations relating to safety, first aid and disposal of chemicals.

'Hazard Data Sheets', relating to materials used in this examination, should be available from your chemical supplier.

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

Centres are reminded that they are **not** permitted to open the question paper envelopes before the examination. Centres are also referred to the Handbook for Centres, the Security of Question Papers and Examination Materials section and the Practical Examinations in Science Subjects section.

If there are difficulties with any aspect of setting up this practical examination that the Centre is not able to resolve, it is essential for Centres to contact the Product Manager as soon as possible by email to [info@cie.org.uk](mailto:info@cie.org.uk), by phone to +44 1223 553554 or by fax to +44 1223 553558.

**For Question 1**

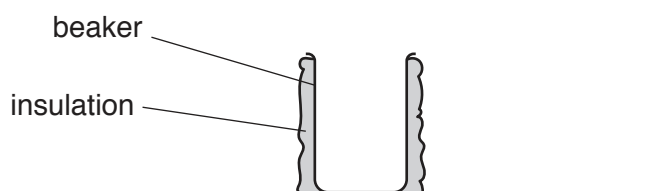
Each candidate will require:

- (i) 1 g zinc powder labelled **L**
- (ii) 1 g of iron filings labelled **M**
- (iii) two 2 cm pieces of magnesium ribbon labelled **N**
- (iv) approximately 30 cm<sup>3</sup> 2.0 mol dm<sup>-3</sup> hydrochloric acid labelled **hydrochloric acid**
- [MH] (v) approximately 15 cm<sup>3</sup> 0.4 mol dm<sup>-3</sup> sodium hydroxide labelled **sodium hydroxide**
- [MH][N] (vi) approximately 15 cm<sup>3</sup> 1.0 mol dm<sup>-3</sup> ammonia solution labelled **ammonia solution**
- (vii) 10 cm<sup>3</sup> measuring cylinder or test-tube with a mark for 5 cm<sup>3</sup>
- (viii) 0 °C to 100 °C thermometer with 1 °C divisions (preferably a thermometer suitable for stirring)
- (ix) stopclock or sight of a clock with second-hand
- (x) three test-tubes (approx. 125 mm × 15 mm)
- (xi) splint
- (xii) Bunsen burner and means to light it
- (xiii) large beaker labelled **used metal**
- (xiv) supply of distilled water for rinsing equipment.

**For Question 2**

Each candidate will require:

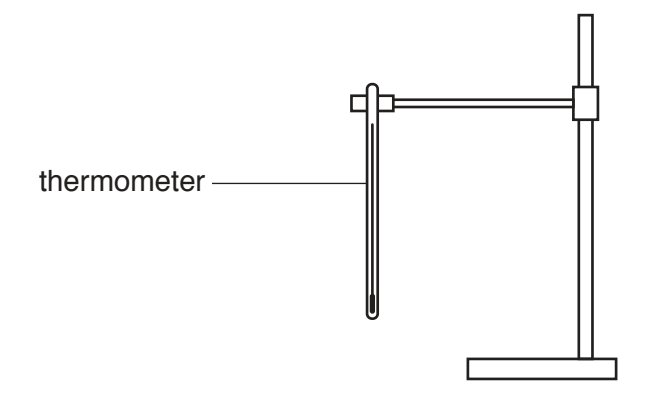
- (i) 250 cm<sup>3</sup> beaker, labelled **P**
- (ii) 250 cm<sup>3</sup> beaker insulated on its outside with corrugated cardboard, cotton wool or other readily available insulator, labelled **Q** (the beaker should not have a lid)



- (iii) -10 °C to 110 °C thermometer, with 1 °C divisions
- (iv) stand and clamp to hold the thermometer
- (v) 100 cm<sup>3</sup> or 250 cm<sup>3</sup> measuring cylinder
- (vi) supply of hot water – see **note 1**
- (vii) stopclock/watch – candidates will be required to take readings at 30 s intervals.

**Notes**

1. There should be access to spare beakers, thermometers and hot water in case of breakages or spillage.
2. Candidates should be warned of the dangers of burns or scalds when using very hot water.
3. The clamp, stand and thermometer are to be set up for the candidates as shown in the diagram.



4. Each candidate will require 400 cm<sup>3</sup> of hot water and a means of transferring it safely to the measuring cylinder. The hot water must be available throughout the experiment and should be maintained at an approximately constant temperature of between 80 °C and 100 °C.

**Action at Changeover**

Empty the water from the beakers.

Check that the insulation is intact.



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 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 as mentioned on page 6.**

**October/November 2017**

*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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