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**CO-ORDINATED SCIENCES**

**0654/52**

Paper 5 Practical Test

**May/June 2018**

**CONFIDENTIAL INSTRUCTIONS**

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

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**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 substance

**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 piece of ripe, peeled banana approximately 3 cm in length and diameter not less than 2 cm
- (ii) a white tile
- (iii) a knife
- (iv) a 30 cm ruler, graduated in mm
- (v) iodine solution with dropping pipette, labelled **iodine solution**
- [MH][N] (vi) Benedict's solution with dropping pipette, labelled **Benedict's solution**
- [C] (vii) biuret solution with dropping pipette, labelled **biuret solution**
- (viii) 2 large test-tubes (150 mm × 25 mm) and means of supporting them
- (ix) 250 cm<sup>3</sup> beaker to act as a water-bath
- (x) access to hot and cold water
- (xi) sight of a clock.

**Question 2**

Each candidate will require:

- [MH][C][N] (i) 1 hard glass test-tube (125 mm × 15 mm) containing 1 cm depth of copper(I) oxide, Cu<sub>2</sub>O (**NOT** copper(II) oxide), labelled (not on test-tube) **H for (a)**
- [MH][C][N] (ii) 1 large test-tube (150 mm × 25 mm) containing 1 cm depth of copper(I) oxide, Cu<sub>2</sub>O (**NOT** copper(II) oxide), labelled (not on test-tube) **H for (b)**
- [MH] (iii) approximately 20 cm<sup>3</sup> 1.0 mol dm<sup>-3</sup> sulfuric acid, labelled **acid**
- [MH] (iv) approximately 10 cm<sup>3</sup> 0.4 mol dm<sup>-3</sup> sodium hydroxide solution, labelled **sodium hydroxide**
- (v) approximately 10 cm<sup>3</sup> 0.1 mol dm<sup>-3</sup> potassium iodide solution, labelled **potassium iodide**
- [F] (vi) 0.5 g magnesium powder, labelled **magnesium**
- (vii) 3 test-tubes (125 mm × 15 mm) and means to support them
- (viii) 10 cm<sup>3</sup> or 25 cm<sup>3</sup> measuring cylinder
- (ix) 1 small beaker
- (x) 1 large test-tube (150 mm × 25 mm) and means to support it or a second small beaker
- (xi) a filter funnel
- (xii) filter papers
- (xiii) a spatula
- (xiv) sight of a clock
- (xv) test-tube holders
- (xvi) Bunsen burner and means to light it
- (xvii) a stirring rod.

**Question 3**

Each candidate will require:

- (i) a metre rule with a millimetre scale (see note 1)
- (ii) a triangular block to act as a pivot for the metre rule. The block is to stand on the bench.
- (iii) a 200g load labelled **P** and a 100g load labelled **Q**.

**Notes**

1. Check that the metre rule balances on the pivot when the 50.0 cm mark is approximately over the pivot.

**Action at Changeover**

Place the pivot, rule and loads separately on the bench.

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.**

**May/June 2018**

*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 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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