www.dynamicpapers.com

**Cambridge International Examinations**
Cambridge International General Certificate of Secondary Education

**COMBINED SCIENCE** **0653/51**

Paper 5 Practical Test **May/June 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 Centre number, the nature of the query and the syllabus number quoted above.

email info@cie.org.uk
phone +44 1223 553554
fax +44 1223 553558



DC (ST/SW) 139087/2
© UCLES 2017

www.dynamicpapers.com



**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

**HH** health hazard

**F** flammable

**N** hazardous to the aquatic environment

**MH** moderate hazard

**T** acutely toxic

**O** oxidising

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.

© UCLES 2017

www.dynamicpapers.com



**Question 1**

Each candidate will require

**(i)** approximately 3 cm long piece of ripe peeled fresh banana

**(ii)** chickpea puree labelled **chickpea** (see note 1)

**(iii)** 10 $cm^3$ 1% albumen solution labelled **egg white**

**(iv)** 9 test-tubes (125 mm × 15 mm) and method of supporting them (see note 2)

**(v)** stirring rod

**(vi)** table knife

**(vii)** white tile

**(viii)** small beaker approximately 100 $cm^3$

**[N]** **(ix)** iodine solution and dropper, labelled **iodine solution**

**(x)** Benedict's solution and dropper, labelled **Benedict's solution**

**[C]** **(xi)** biuret solution and dropper, labelled **biuret solution**

**(xii)** access to a water bath at approximately 80 °C

**(xiii)** paper towels

**(xiv)** distilled water

**(xv)** means of labelling glassware.

**Notes**

1. Chickpea puree can be made from tinned chickpeas with no added sugar. They should be liquidised in a blender with a little distilled water to form a paste that can be poured. It may be made fresh or the day prior to the exam and refrigerated. It can be provided in a large beaker between several students, each student will require approximately a tablespoon of the puree.

2. Centres may provide fewer test-tubes, the minimum being 3 test-tubes (125 × 15 mm). If this is the case, candidates will have to rinse test-tubes with distilled water so extra must be provided.

© UCLES 2017



**[Turn over**

www.dynamicpapers.com



**Question 2**

Each candidate will require

**(i)** approximately 15 $cm^3$ 0.1 mol $dm^{-3}$ barium nitrate solution labelled **H**

**(ii)** approximately 15 $cm^3$ 0.40 mol $dm^{-3}$ ammonia solution labelled **J**

**(iii)** approximately 30 $cm^3$ 0.2 mol $dm^{-3}$ copper sulfate labelled **copper sulfate**

**(iv)** red litmus paper

**(v)** blue litmus paper

**(vi)** small beaker approximately 100 $cm^3$

**(vii)** 4 test-tubes (125 mm × 15 mm) (see note)

**(viii)** 2 filter funnels

**(ix)** filter papers.

**Notes**

Centres may provide fewer test-tubes, the minimum being 2 test-tubes (125 mm × 15 mm). If this is the case, candidates will have to rinse test-tubes with distilled water which must be provided.

© UCLES 2017

www.dynamicpapers.com



**Question 3**

Each candidate will require

**(i)** a d.c. power supply of approximately 1.5 V to 2 V. If candidates are supplied with a power source of variable voltage output, the voltage should be set by the supervisor and fixed e.g. taped

**(ii)** a voltmeter capable of measuring up to 2.5 V with minimum resolution of 0.1 V

**(iii)** an ammeter capable of measuring up to 1.00 A with a minimum resolution of 0.05 A

**(iv)** a switch. The switch may be an integral part of the power supply

**(v)** a wooden or plastic metre rule

**(vi)** approximately 100 cm of straight, bare constantan wire of diameter 0.27 mm (32 swg), taped to a metre rule at two places (between the zero and 5.0 cm mark and between the 95.0 cm and 100.0 cm mark). The zero end of the wire is to be labelled **P** and the other end **Q**. The left hand end of the wire must be taped over up to the 10.0 cm mark to prevent candidates attaching the crocodile clip in this area

**(vii)** a sliding contact, labelled **C**. This should be a crocodile clip attached to a lead.

**Notes**

1. The circuit shown in Fig. 3.1 below must be set up for the candidates. The crocodile clip must **not be** connected to the resistance wire.

   At changeover, check that the circuit is still connected correctly and working.

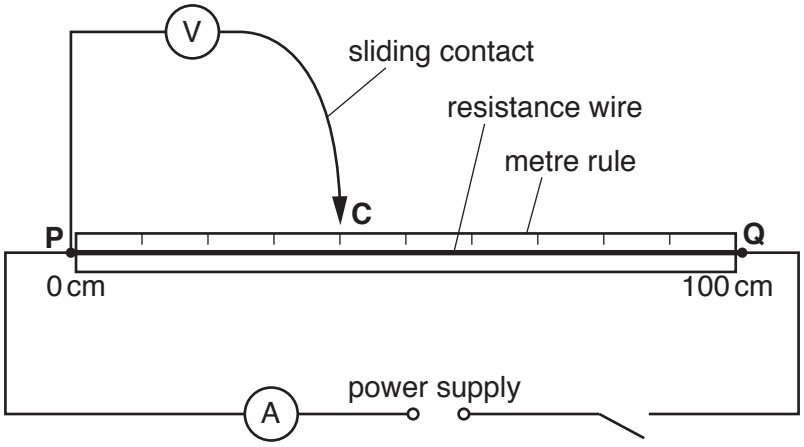


**Fig. 3.1**

2. If dry cells are used as the power source, check that they remain adequately charged during the examination. Spare cells should be available.

© UCLES 2017

**[Turn over**

www.dynamicpapers.com



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.**

© UCLES 2017

www.dynamicpapers.com



**BLANK PAGE**

www.dynamicpapers.com



**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 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 .....

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)

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cie.org.uk after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.

© UCLES 2017