



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

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**PHYSICAL SCIENCE**

**0652/05**

Paper 5 Practical Test

**For Examination from 2019**

SPECIMEN CONFIDENTIAL INSTRUCTIONS

**1 hour 15 minutes**

**This document gives details of how to prepare for and administer the practical exam.**

**The information in this document and the identity of any materials supplied by CIE are confidential and must NOT reach candidates either directly or indirectly.**

**The supervisor must complete the report at the end of this document and return it with the scripts.**

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If you have any queries regarding these Confidential Instructions, contact CIE stating the centre number, the syllabus and component number and the nature of the query.

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

## General information about practical exams

Centres must follow the guidance on science practical exams given in the *Cambridge Handbook*.

### Safety

Supervisors must follow national and local regulations relating to safety and first aid.

Only those procedures described in the question paper should be attempted.

Supervisors must inform candidates that materials and apparatus used in the exam should be treated with caution. Suitable eye protection should be used where necessary.

The following hazard codes are used in these confidential instructions, 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		

Hazard data sheets relating to substances used in this exam should be available from your chemical supplier.

### Before the exam

- The packets containing the question papers must **not** be opened before the exam.
- It is assumed that standard school laboratory facilities, as indicated in the *Guide to Planning Practical Science*, will be available.
- Spare materials and apparatus for the tasks set must be available for candidates, if required.

### During the exam

- It must be made clear to candidates at the start of the exam that they may request spare materials and apparatus for the tasks set.
- Where specified, the supervisor **must** perform the experiments and record the results as instructed. This must be done **out of sight** of the candidates, using the same materials and apparatus as the candidates.
- Any assistance provided to candidates must be recorded in the supervisor's report.
- If any materials or apparatus need to be replaced, for example, in the event of breakage or loss, this must be recorded in the supervisor's report.

### After the exam

- The supervisor must complete a report for each practical session held and each laboratory used.
- Each packet of scripts returned to Cambridge International must contain the following items:
  - the scripts of the candidates specified on the bar code label provided
  - the supervisor's results relevant to these candidates
  - the supervisor's reports relevant to these candidates
  - seating plans for each practical session, referring to each candidate by candidate number
  - the attendance register.

### Specific information for this practical exam

During the exam, the supervisor (NOT the invigilator) must do the experiments in Questions 1, 2 and 3 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

#### For Question 1

Each candidate will require

- [HH] (i) homogeneous mixture of the solids copper carbonate,  $\text{CuCO}_3$ , zinc sulfate,  $\text{ZnSO}_4$ ,  
 [C MH N] and manganese(IV) oxide,  $\text{MnO}_2$  in the approximate weight ratio 2 : 2 : 1 labelled **A**  
 [MH] (allow each candidate 2.5g)
- [C MH N] (ii) approximately  $20\text{ cm}^3$   $2.0\text{ mol dm}^{-3}$  aqueous ammonia,  $\text{NH}_3$  labelled **aqueous ammonia**
- (iii) approximately  $30\text{ cm}^3$   $2.0\text{ mol dm}^{-3}$  hydrochloric acid,  $\text{HCl}$  labelled **dilute hydrochloric acid**
- (iv) supply of distilled water
- (v)  $25\text{ cm}^3$  measuring cylinder
- (vi) two small beakers (e.g.  $100\text{ cm}^3$ )
- (vii) filter funnel and at least two filter papers
- (viii) two test-tubes ( $125\text{ mm} \times 15\text{ mm}$ )
- (ix) two large test-tubes ( $150\text{ mm} \times 25\text{ mm}$ )
- (x) means of holding a test-tube
- (xi) stirring rod
- (xii) tripod and gauze
- (xiii) Bunsen burner

#### Notes

- 1 Centres may provide fewer test-tubes, the minimum being one test-tube ( $125\text{ mm} \times 15\text{ mm}$ ) and one large test-tube ( $150\text{ mm} \times 25\text{ mm}$ ). If this is the case, candidates will have to rinse test-tubes with distilled water, which must be provided.

During the exam, the supervisor (NOT the invigilator) must do the experiments in Questions 1, 2 and 3 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

### For Question 2

Each candidate will require

- [MH N] (i) 1 g solid anhydrous copper(II) sulfate,  $\text{CuSO}_4$ , labelled **B**. This can be made by **carefully** heating hydrated copper(II) sulfate,  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ , until it is white/grey but **not** brown or blue
- [MH] (ii) 1 g solid ammonium chloride,  $\text{NH}_4\text{Cl}$ , labelled **C**
- (iii) 1 g solid sodium chloride,  $\text{NaCl}$ , labelled **D**. This must be in the form of fine crystals
- (iv) approximately  $20\text{ cm}^3$   $0.1\text{ mol dm}^{-3}$  barium nitrate,  $\text{Ba}(\text{NO}_3)_2$ , labelled **aqueous barium nitrate** with a dropper
- [N] (v) approximately  $20\text{ cm}^3$   $0.05\text{ mol dm}^{-3}$  silver nitrate,  $\text{AgNO}_3$ , labelled **aqueous silver nitrate** with dropper
- [MH] (vi) approximately  $10\text{ cm}^3$   $0.1\text{ mol dm}^{-3}$  nitric acid,  $\text{HNO}_3$ , labelled **dilute nitric acid** with a dropper
- (vii) supply of distilled water
- (viii)  $25\text{ cm}^3$  measuring cylinder
- (ix) one small beaker (e.g.  $100\text{ cm}^3$ )
- (x)  $-10$  to  $+110\text{ }^\circ\text{C}$  thermometer, capable of measuring to  $1\text{ }^\circ\text{C}$
- (xi) two test-tubes ( $125\text{ mm} \times 15\text{ mm}$ )
- (xii) means of holding a test-tube
- (xiii) stirring rod

During the exam, the supervisor (NOT the invigilator) must do the experiments in Questions 1, 2 and 3 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

### For Question 3

Each candidate will require

- (i) power supply of approximately 1.5 to 2.0V. Where candidates are supplied with a power supply of variable voltage output, the voltage should be set by the supervisor and taped. Where batteries are used, a supply of fully-charged batteries should be available in addition to the batteries for each candidate
- (ii) a voltmeter capable of measuring to 0.1 V, up to 2.0V
- (iii) an ammeter capable of measuring to 0.05A, up to 1.0A
- (iv) switch. This may be an integral part of the power supply
- (v) approximately 105 cm of straight, bare constantan wire of diameter 0.31 mm (30 swg) or 0.27 mm (32 swg), taped to a metre rule at two places (between the 0 and 5 cm mark and between the 95 cm and 100 cm mark). The zero end of the wire must be labelled **X**, the other end, **Y**
- (vi) two suitable terminals (e.g. crocodile clips) attached to the constantan wire at ends **X** and **Y** of the metre rule, so that the power supply, switch and ammeter can be connected to the resistance wire
- (vii) sliding contact labelled **C**. This may be a crocodile clip connected to a lead and clipped to a small screwdriver (see Fig. 3.1)

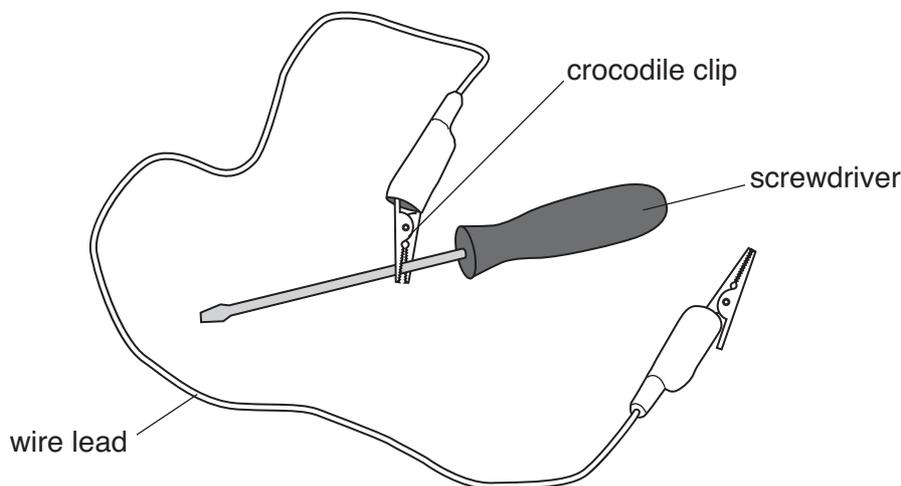


Fig. 3.1

During the exam, the supervisor (NOT the invigilator) must do the experiments in Questions 1, 2 and 3 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

### Notes

1 The circuit shown in Fig. 3.2 must be set up for candidates.

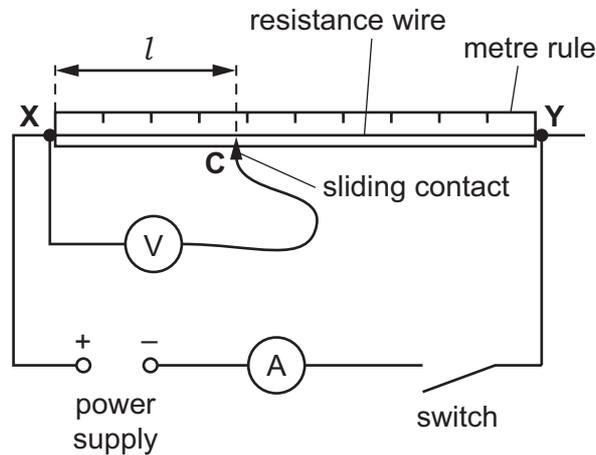


Fig. 3.2

### Action at changeover

Check that the circuit is still connected correctly. If batteries are used, check that they are adequately charged and replace if necessary.

### For Question 4

No apparatus is required for this question.

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**Supervisor's report**

Syllabus and component number

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Centre number

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Centre name .....

Time of the practical session .....

Laboratory name/number .....

**Give details of any difficulties experienced by the centre or by candidates (include the relevant candidate names and candidate numbers).**

You must include:

- any difficulties experienced by the centre in the preparation of materials
- any difficulties experienced by candidates, e.g. due to faulty materials or apparatus
- any specific assistance given to candidates.

Space for supervisor to record results, if relevant, e.g. temperature of the laboratory; results for Question 1.

### Declaration

- 1 Each packet that I am returning to CIE contains the following items:
  - the scripts of the candidates specified on the bar code label provided
  - the supervisor's results relevant to these candidates
  - the supervisor's reports relevant to these candidates
  - seating plans for each practical session, referring to each candidate by candidate number
  - the attendance register
- 2 Where the practical exam has taken place in more than one practical session, I have clearly labelled the supervisor's results, supervisor's reports and seating plans with the time and laboratory name/number for that practical session.
- 3 I have included details of difficulties relating to this practical session experienced by the centre or by candidates.
- 4 I have reported any other adverse circumstances affecting candidates, e.g. illness, bereavement or temporary injury, directly to CIE on a *special consideration form*.

Signed ..... (supervisor)

Name (in block capitals) .....