



# Cambridge IGCSE<sup>®</sup> (9–1)

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**PHYSICS**

**0972/05**

Paper 5 Practical Test

**For examination from 2019**

SPECIMEN CONFIDENTIAL INSTRUCTIONS



**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 Cambridge International 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 Cambridge International stating the centre number, the syllabus and component number and the nature of the query.

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This document consists of **8** printed pages.

## 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'.**

**Question 1****Items to be supplied by the centre (per set of apparatus unless otherwise specified)**

- (i) Metre rule with a mm scale (see note 1 below).
- (ii) Triangular block to act as a pivot for the metre rule. This block is to stand on the bench.
- (iii) 30 g mass (see note 2 below).
- (iv) A selection of masses so that candidates can use masses of 40 g, 50 g, 60 g, 70 g and 80 g (eight 10 g slotted masses would be suitable).

**Notes**

- 1 The metre rule should balance on the pivot when the 50 cm mark is approximately over the pivot.
- 2 The 30 g mass is to be taped to the metre rule so that its centre is at the 90.0 cm mark. The value of the mass is not to be given or to be visible to the candidates. Label this mass **X**.

**Action at changeover**

Check that the 30 g mass remains correctly taped to the metre rule.

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'.

## Question 2

### Items to be supplied by the centre (per set of apparatus, unless otherwise specified)

- (i) Thermometer:  $-10^{\circ}\text{C}$  to  $110^{\circ}\text{C}$ , graduated in  $1^{\circ}\text{C}$  intervals.
- (ii) Test-tube (approximate size between  $25$  and  $50\text{cm}^3$ ).
- (iii) Cotton wool (sufficient to wrap completely around the test-tube as shown in Fig. 2.1). Fresh cotton wool is required for each candidate. Spare cotton wool should be available.
- (iv) Two elastic bands (these will be used by the candidate to secure the cotton wool around the test-tube). Spares should be available.
- (v) Clamp, boss and stand.
- (vi) Stopclock, stopwatch or wall-mounted clock showing seconds. Candidates will be required to take readings at 30s intervals. They may use their own wrist watch facility if they wish. The question will refer to a stopclock.
- (vii) Supply of hot water.
- (viii) Supply of paper towels to mop up any spillages of water.

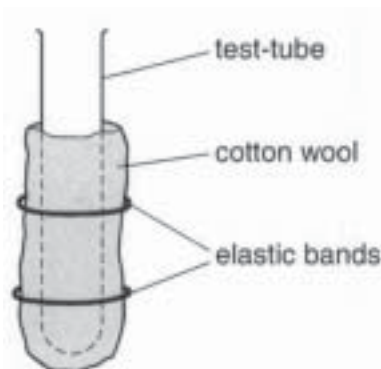


Fig. 2.1

### Notes

- 1 The hot water is to be supplied for each candidate by the Supervisor. The water temperature should be maintained at a temperature as hot as is reasonably possible.
- 2 Candidates should be warned of the dangers of burns or scalds when using very hot water.
- 3 The clamp, boss and stand should be set up with the test-tube held in the clamp.
- 4 The candidates must be provided with the means easily and safely to pour hot water into the test-tube.
- 5 Candidates will be required to refill their test-tube during the experiment.

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'.

### Action at changeover

Empty the test-tube. Remove the cotton wool from the tube. Supply fresh cotton wool. Check the supply of hot water.

### Question 3

#### Items to be supplied by the centre (per set of apparatus unless otherwise specified)

- (i) Power source of approximately 1.5–2.0V. Where candidates are supplied with a power source with a variable output voltage, the voltage setting should be set by the Supervisor and fixed (e.g. taped).
- (ii) Voltmeter capable of measuring the supply p.d. with a minimum precision of 0.1 V.
- (iii) Switch. The switch may be an integral part of the power supply.
- (iv) Approximately 105 cm of straight, bare constantan wire, diameter 0.45 mm (26 swg) or 0.38 mm (28 swg) or 0.32 mm (30 swg), taped to a metre rule at three places (between the 5 cm and 10 cm marks, the 45 cm and 50 cm marks and the 85 cm and 90 cm marks). The zero end of the rule is to be labelled **A**, the other end is to be labelled **B**.
- (v) Two suitable terminals (e.g. crocodile clips) attached to the constantan wire at end **A** of the metre rule so that connections can be made to the circuit shown in Fig. 3.1.
- (vi) Sliding contact, labelled **C**. This may be a jockey or a small screwdriver connected to a lead by means of a crocodile clip.
- (vii) 2.5V, 0.2A lamp in a suitable holder.
- (viii) Sufficient connecting leads to set up the circuit shown in Fig. 3.1.

### Notes

- 1 The circuit shown in Fig. 3.1 must be set up for the candidates.

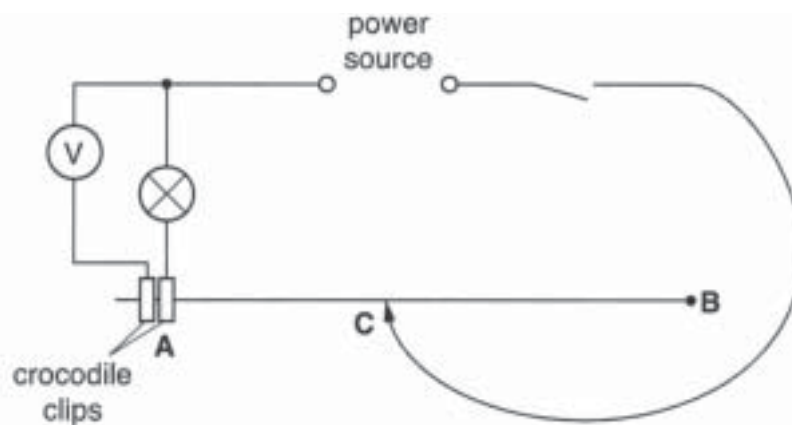


Fig. 3.1

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'.

2 As an alternative to (iv) and (v) a standard 100 cm potentiometer is acceptable.

#### **Action at changeover**

Check that the circuit is connected correctly. If cells are used, check that they are adequately charged.

#### **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 Cambridge International 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 Cambridge International on a *special consideration form*.

Signed ..... (supervisor)

Name (in block capitals) .....